List of ICT- enabled tools including e-resources,Pedagogical Initiatives, and Teaching-aids used for effective teaching-learning process

The institute is permanently affiliated to the Visvesvaraya Technological University (VTU), Belgaum. The VTU'sBoard of Studies (BoS) has published the curriculum (2021 and 2022 Scheme of Studies), which is revised in line with the NEP-2020 of all courses in its website link:https://vtu.ac.in/en/b-e-scheme-syllabus/. Each syllabus of courses contains, 5 modules, text books, reference books, evaluation guidelines, pedagogies such as e-resources, video lectures, supporting experiments, field visits etc., along with these, the 4-5 course outcomes (COs) are also suggested. The awareness to access the VTU curriculum published and its implementation guidelines have been educated to the students during their "Induction Program" and also in the starting introductory classes. The faculty members are also referring these contents to plan teaching-learning lessons/activities/pedagogies and to define the 5 course outcomes (COs) for each module for mapping with POs and assessment of attainment purpose. The following are the VTU weblinks of syllabus, where e-resources are mentioned, Pedagogies and other ICT tools including online resources for effective teaching and learning process.All the class rooms are well connected with 104 Mbps internet and LCD projector to disseminate e-resources in the regular classes. All teachers are utilizing these facilities based on their syllabus content regularly.

S.N.	Online resources	Web links
1	NPTEL Courses on VTU Website	https://vtu.ac.in/en/online-course-jan-june-2023/
2	VTU Model Question papers	https://vtu.ac.in/en/model-question-paper-b-e-b-tech-b-arch/
3	VTU Study materials	https://vtu.ac.in/en/study-material/
4	VTU Board of Studies Proceedings	https://vtu.ac.in/en/board-of-studies-proceedings/
5	VTU Academic Calendar	https://vtu.ac.in/academic-calendar/
6	VTU NISP	https://vtu.ac.in/en/nisp-2/
7	NPTEL Courses on VTU Website	https://vtu.ac.in/en/nptel-online-courses/
8	VTU OPAC Library	http://library.vtu.ac.in/

VTU Board of Studies (BoS) recommended e-Resources which are mentioned in the Syllabus (2021 and 2022 Scheme of Study)
(Web links, Video Lectures, MOOCs, e-Shikhsana Program, NPTEL, EDUSAT, YouTube, Vlab etc.)

S. N.	Course	VTU Syllabus link where e-resources are mentioned	Topic with e-Resource
1	Mathematics-I for CSE I Year	https://vtu.ac.in/pdf/2022syll/BMATS101.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTUe-Shikshana Programand VTU EDUSAT Program
2	Physics for CSE I Year	https://vtu.ac.in/pdf/2022syll/BPHYS102.pdf	Laser: https://www.youtube.com/watch?v=WgzynezPiyc Superconductivity https://www.youtube.com/watch?v=MT5Xl5ppn48 Optical Fiber : https://www.youtube.com/watch?v=N_kA8EpCUQo Quantum Mechanics https://www.youtube.com/watch?v=p7bzE1E5PMY&t=136s Quantum Computing :https://www.youtube.com/watch?v=jHoEjvuPoB8 Quantum Computing: https://www.youtube.com/watch?v=ZuvCUU2jD30 Physics of Animation:https://www.youtube.com/watch?v=kj1kaA_8Fu4 Statistical Physics Simulation:https://phet.colorado.edu/sims/html/plinko-probability/latest/plinkoprobability_en. html NPTEL Superconductivity: https://archive.nptel.ac.in/courses/115/103/115103108/ NPTEL Quantum Computing:https://archive.nptel.ac.in/courses/115/101/115101092 Virtual LAB: https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham Virtual LAB:https://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1
3	Chemistry for CSE I Year	https://vtu.ac.in/pdf/2022syll/BCHES102.pdf	http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDMjHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM **ActivityBasedLearning (SuggestedActivitiesinClass)/PracticalBasedlearning** https://www.vlab.co.in/broad-area-chemical-sciences

			https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science
4	C-Programming for CSE I Year	https://vtu.ac.in/pdf/2022syll/BPOPS103.pdf	1.https://elearning.vtu.ac.in/econtent/courses/video/BS/15PCD23html 2. https://nptel.ac.in/courses/106/105/106105171/ MOOC courses can be adopted for more clarity in understanding the topics and verities of problem solving methods. https://tinyurl.com/4xmrexre Activity Based Learning (Suggested Activities in Class)/ Practical Based learning • Quizzes • Assignments • Seminars
	Mathematics-I for EEE I Year	https://vtu.ac.in/pdf/2022syll/BMATE101.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Program VTU EDUSAT Program Activity Based Learning (Suggested Activities in Class)/ Practical Based learning • Quizzes • Assignments • Seminar
	Physics for EEE I Year	https://vtu.ac.in/pdf/2022syll/BPHYE102.pdf	Web links and Video Lectures (e-Resources): Laser: https://www.britannica.com/technology/laser,k Laser: https://nptel.ac.in/courses/115/102/115102124/ Quantummechanics: https://nptel.ac.in/courses/115/104/115104096/ Physics: http://hyperphysics.phy-astr.gsu.edu/hbase/hframe. html Numerical Aperture of fiber: https://bop-iitk.vlabs.ac.in/exp/numerical-aperture-measurement 16-2-2023 Activity Based Learning (Suggested Activities in Class)/ Practical Based learning: http://nptel.ac.in https://swayam.gov.in https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeethamhttps://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1 https://virtuallabs.merlot.org/vl_physics.html https://phet.colorado.edu https://www.myphysicslab.com
	Chemistry for EEE I Year	https://vtu.ac.in/pdf/2022syll/BCHEE102.pdf	WeblinksandVideoLectures(e-Resources): http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDM

			jHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBased Learning: https://www.vlab.co.in/broad-area-chemical-sciences https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science
	Elements of Electrical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BEEE103.pdf	Web links and Video Lectures (e-Resources): www.nptel.ac.in Activity Based Learning (Suggested Activities in Class)/ Practical Based learning Wherever required, faculty shall demonstrate the concepts through laboratory experiments.
	Basics of Electronics for I year	https://vtu.ac.in/pdf/2022syll/BBEE103.pdf	Web links and Video Lectures (e-Resources): https://nptel.ac.in/courses/122106025 https://nptel.ac.in/courses/108105132 https://nptel.ac.in/courses/117104072
	Mathematics for Mechanical Engineering I year	https://vtu.ac.in/pdf/2022syll/BMATM101.pdf	Web links and Video Lectures (e-Resources): http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Program VTU EDUSAT Program Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning: • Quizzes • Assignments • Seminar
	Mathematics-I for Mechanical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BMAT201.pdf	Web links and Video Lectures (e-Resources): http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Programand VTU EDUSAT Program Activity-Based Learning (Suggested Activities in Class)/ • Practical-Based Learning • Quizzes • Assignments • Seminar
	Physics for Mech	https://vtu.ac.in/pdf/2022syll/BPHYM102.pdf	Simple Harmonic motion: https://www.youtube.com/watch?v=k2FvSzWeVxQ Shock waves:

	anical Engineering I Year		https://physics.info/shock/ Shock waves and its applications: https://www.youtube.com/watch?v=tz_3M3v3kxk Stress- strain curves: https://web.mit.edu/course/3/3.11/www/modules/ss.pdf Stress curves: https://www.youtube.com/watch?v=f08Y39UiC-o Fracture in materials: https://www.youtube.com/watch?v=x47nky4MbK8 Thermo-electricity: https://www.youtube.com/watch?v=2w7NBuu5w9c&list=PLtkeUZItwHK5y6qy1GFxa4Z4Rc mzUaaz6 Thermoelectric generator and coolers: https://www.youtube.com/watch?v=NruYdb31xk8 Cryogenics: https://cevgroup.org/cryogenics-basics-applications/ Liquefaction of gases: https://www.youtube.com/watch?v=aMelwOsGpIs Virtual lab: https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham Material characterization : https://onlinecourses.nptel.ac.in/noc20_mm14/preview https://www.encyclopedia.com/science-and-technology/physics/physics/cryogenicshttps://www.usna.edu/NAOE/_files/documents/Courses/EN380/Course_Notes/Ch10_Deformation.pdf 16-2-2023 4 Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: http://nptel.ac.in https://swayam.gov.in https://virtuallabs.merlot.org/vl_physics.html https://phet.colorado.edu https://www.myphysicslab.com
	Chemistry for Mechanical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BCHEM102.pdf	http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDMjHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM ActivityBasedLearning(SuggestedActivitiesinClass)/ PracticalBasedlearning: https://www.vlab.co.in/broad-area-chemical-sciences https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science

	Elements of Mechanical Engineering for I year	https://vtu.ac.in/pdf/2022syll/BEMEM103.pdf	https://www.tlv.com/global/TI/steam-theory/principal-applications-for-steam.html https://www.forbesmarshall.com/Knowledge/SteamPedia/About-Steam/Fundamental-Applications-of-Steam https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- andprocess-industry/) Videos | Makino (For Machine Tool Operation) Activity Based Learning (Suggested Activities in Class)/ Practical Based learning 1. Visit to any manufacturing/aero/auto industry or any power plant 2. Demonstration of lathe/milling/drilling/CNC operations 3. Demonstration of working of IC engine/refrigerator 4. Demonstration of metal joining process 5. Video demonstration of latest trends in mobility/robotics
	Innovation And Design Thinking	https://vtu.ac.in/pdf/2022syll/BIDTK108.pdf	1. www.tutor2u.net/business/presentations/. /productlifecycle/default.html 2. https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf 3. www.bizfilings.com 4. https://www.mindtools.com/brainstm.html 5. https://www.quicksprout.com/. /how-to-reverse-engineer-your-competit 6. www.vertabelo.com/blog/documentation/reverse-engineering https://support.microsoft.com/en-us/kb/273814 7. https://support.google.com/docs/answer/179740?hl=en 8. https://www.youtube.com/watch?v=2mjSDIBaUlM thevirtualinstructor.com/foreshortening.html https://dschool.stanford.edu/.../designresources/.../ModeGuideBOOTCAMP2010L.pdf https://dschool.stanford.edu/use-our-methods/ https://www.interactiondesign.org/literature/article/5-stages-in-the-design-thinking-process http://www.creativityatwork.com/design-thinking-strategy-for-innovation/498 https://www.nngroup.com/articles/design-thinking/ https://designthinkingforeducators.com/design-thinking/ www.designthinkingformobility.org/wp-content/.../10/NapkinPitch_Worksheet.pdf Activity Based Learning (Suggested Activities in Class)/ Practical Based learning http://dschool.stanford.edu/dgift/ https://onlinecourses.nptel.ac.in/noc19_mg60/preview
	Introduction to Civil Engineering	https://vtu.ac.in/pdf/2022syll/BESCK104A.pdf	Web links and Video Lectures (e-Resources): https://www.youtube.com/watch?v=nGfVTNfNwnk&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwThttps://www.youtube.com/watch?v=nkg7VNW9UCc&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwT&i ndex=2 https://www.youtube.com/watch?v=ljDIIMvxeg&list=PLOSWwFV98rfKXq2KBphJz95rao7q 8PpwT&index=5 https://www.youtube.com/watch?v=VQRcChR9IkU&list=PLOSWwFV98rfKXq2KBphJz95r ao7q8PpwT&index=18

			https://www.youtube.com/watch?v=3YBXteL-qY4https://www.youtube.com/watch?v=z95UW4wwzSc&list=PLOSWwFV98rfKXq2KBphJz95r ao7q8PpwT&index=10 https://www.youtube.com/watch?v=lheoBL2QaqU&list=PLOSWwFV98rfKXq2KBphJz95rao 7q8PpwT&index=7 https://www.youtube.com/watch?v=atoP5_DeTPE https://www.youtube.com/watch?v=ksmsp9OzAsI https://www.youtube.com/watch?v=x1ef048b3CE https://www.youtube.com/watch?v=l_Nck-X49qc https://play.google.com/store/apps/details?id=appinventor.ai_jgarc322.Resultant_Force https://www.youtube.com/watch?v=RIBeeW1DSZg https://www.youtube.com/watch?v=R8wKV0UQtlo https://www.youtube.com/watch?v=0RZHHgL8m_A https://www.youtube.com/watch?v=Bls5KnQOWkY Activity-Based Learning (Suggested Activities in Class)/ Practical Based Learning: https://www.youtube.com/watch?v=Zrc_gB1YYS0 https://play.google.com/store/apps/details?id=vn.edu.best4u.com.bieudonoiluc https://www.youtube.com/watch?v=Hn_iozUo9m4 https://play.google.com/store/apps/details?id=com.teobou https://www.youtube.com/watch?v=WOHRp3V-QA0
	Introduction To Mechanical Engineering	https://vtu.ac.in/pdf/2022syll/BESCK104D.pdf	https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- andprocess-industry/ Videos | Makino (For Machine Tool Operation) Activity Based Learning (Suggested Activities in Class)/ Practical Based learning: • Demonstration of lathe/milling/drilling operations • Demonstration of working of IC Engine. Study arc welding, oxy-acetylene gas flame structure. • Video demonstration of latest trends in mobility robotics and Automation • Demonstration of developing models on machine tools
	Smart Materials and systems	https://vtu.ac.in/pdf/2022syll/BETCK105A.pdf	YouTube Videos. Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Site visits to understand the prefabricated building components. • Visit to Smart material manufacturing facilities • Visit to 3-D printing facility
	Green Buildings	https://vtu.ac.in/pdf/2022syll/BETCK105B.pdf	Web links and Video Lectures (e-Resources): https://www.youtube.com/watch?v=THgQF8zHBW8 https://www.youtube.com/watch?v=DRO_rIkywxQ Activity Based Learning (Suggested Activities in Class)/ Practical Based learning Students have to visit a building which is green rated and prepare a report

	Introduction to Nano Technology	https://vtu.ac.in/pdf/2022syll/BETCK105C.pdf	https://nptel.ac.in/courses/118104008https://www.digimat.in/nptel/courses/video/118104008/L16.html https://archive.nptel.ac.in/courses/113/106/113106099/ https://nptel.ac.in/courses/112107283 https://onlinecourses.nptel.ac.in/noc22_me131/preview Practical Based Learning (Any 5 experiments x 2 hours = 10 practical hours): • Preparation of silver nanoparticles and characterization of particle size by optical spectroscopy • Preparation of ZnO nanoparticles by combustion technique Preparation of Al2O3 nanoparticles by precipitation method Preparation of Silica nanoparticles by sol-gel method Preparation of metal oxide nanoparticles by hydrothermal method • Determination of thermal conductivity of nanofluids using a thermal analyser • Preparation of thin films by SILAR method Determination of Band gap of given material using Tauc plot
	Introduction to Sustainable Engineering	https://vtu.ac.in/pdf/2022syll/BETCK105D.pdf	VTU/EDUSAT/SWAYAM/NPTEL/MOOC. https://nptel.ac.in/courses/127105018 https:/https://nptel.ac.in/courses/107103081/www.macfound.org https://unesdoc.unesco.org/ https://unesdoc.unesco.org/ark:/48223/pf0000375644.locale=en https://engineeringforoneplanet.org/ Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Group Discussion of case studies. Solutions to real time case studies • Seminar/Poster Presentation
	Renewable Energy Sources	https://vtu.ac.in/pdf/2022syll/BETCK105E.pdf	E-book:URL:https://www.pdfdrive.com/non-conventional-energy-sources-e10086374.html E-book:URL:https://www.pdfdrive.com/non-conventional-energy-systems-nptel-d17376903.html E-book :https://www.pdfdrive.com/renewable-energy-sources-and-their-applications- e33423592.html E-book: https://www.pdfdrive.com/lecture-notes-on-renewable-energy-sources-e34339149.html https://onlinecourses.nptel.ac.in/noc18_ge09/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Poster presentation on the theme of renewable energy sources • Industry Visit
	Emerging Appli	https://vtu.ac.in/pdf/2022syll/BETCK105G.pdf	https://www.youtube.com/watch?v=kQ6CY1qpGjY https://nptel.ac.in/courses/102101054 https://onlinecourses.nptel.ac.in/noc20_ph13/preview

	cations Of Biosensors		https://onlinecourses.nptel.ac.in/noc22_ph01/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • AV presentation by students (on specific topics). • Discussion of case studies based on research findings. • Model making and Poster presentations
	Introduction to Internet of Things (IOT)	https://vtu.ac.in/pdf/2022syll/BETCK105H.pdf	https://nptel.ac.in/noc/courses/noc19/SEM1/noc19-cs31/ Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Demonstrate a sensor based application
	Introduction to Cyber Security	https://vtu.ac.in/pdf/2022syll/BETCK105I.pdf	https://www.youtube.com/watch?v=yC_hFm0BX28&list=PLxApjaSnQGi6Jm7LLSxvmNQjS_rt9swsu https://www.youtube.com/watch?v=nzZkKoREEGo&list=PL9ooVrP1hQOGPQVeapGsJCktzIO4DtI4_ https://www.youtube.com/watch?v=6wi5DI6du-4&list=PL_uaeekrhGzJlB8XQBxU3z__hDwT95xlk https://www.youtube.com/watch?v=KqSqyKwVuA8 16-2-2023 Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Illustration of standard case study of cyber crime • Setup a cyber court at Institute level
	Introduction To Embedded Systems	https://vtu.ac.in/pdf/2022syll/22ETC15J.pdf	NPTL Lectures: https://nptel.ac.in/courses/108102045 Embedded Systems, IIT Delhi, Prof. Santanu Chaudhary Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • To design a simple Embedded System like simple remote • To demonstrate simple microcontroller-based experiments like LED interfacing, LCD interfacing, DAC etc
	Introduction to Web Programming	https://vtu.ac.in/pdf/2022syll/BPLCK105A.pdf	https://onlinecourses.swayam2.ac.in/aic20_sp11/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: ● Develop simple GUI interfaces for a computer program to interact with users
	Introduction to Python	https://vtu.ac.in/pdf/2022syll/BPLCK105B.pdf	https://www.learnbyexample.org/python/ https://www.learnpython.org/ https://pythontutor.com/visualize.html#mode=edit Activity Based Learning (Suggested Activities in Class)/ Practical Based

	Programming		Learning: ● Quizzes for list, tuple, string dictionary slicing operations using below link https://github.com/sushantkhara/Data-Structures-And-AlgorithmswithPython/raw/main/Python%203%20_%20400%20exercises%20and%20solutions%20for%20beginn ers.pdf
	Basics of Java Programming	https://vtu.ac.in/pdf/2022syll/BPLCK105C.pdf	https://onlinecourses.nptel.ac.in/noc22_cs47/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: ● Conduct on spot problem solving based on JAVA ● Develop simple GUI interfaces for a computer program to interact with users
	III and IV Semesters Computer Science and Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2cssessyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ http://www.bookstreet.in. VTU EDUSAT PROGRAMME–20 and VTU e-Shikshana Program Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning: ● Programming Assignment ● Seminars **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Civil Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2civsyll.pdf	1.Strength of Materials web course by IIT Roorkee https://nptel.ac.in/courses/112107146/ 2.Strength of Materials video course by IIT Kharagpur https://nptel.ac.in/courses/105105108/ 3.Strength of Materials video course by IIT Roorkee https://nptel.ac.in/courses/112107147/18 4.All contents organized http://www.nptelvideos.in/2012/11/strengthof-materials-prof.html Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Quiz (To assist in GATE Preparations) • Demonstrations in Lab Virtual Lab Experiments **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV	https://vtu.ac.in/pdf/2022_3to8/2ecesyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/

	Semesters Electronics and Communication Engineering Courses		• VTU e-Shikshana Program • VTU EDUSAT Program. Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning • Quizzes • Assignments • Seminar **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Electrical and Electronics Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2eesyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ • VTU e-Shikshana Program • VTU EDUSAT Program. Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning • Quizzes • Assignments • Seminar **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Mechanical Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2mecsyll.pdf	Statics and Strength of Materials, Shehata, 2nd edition, 1994. http://www.astm.org/DIGITAL_LIBRARY/JOURNALS/TESTEVAL/PAGES/JTE12637J.htm http://www.astm.org/DIGITAL_LIBRARY/JOURNALS/TESTEVAL/PAGE S/JTE12637J.htm http://www.freeengineeringbooks.com/Civil/Strength-of-MaterialBooks.php Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning • Use Mdsolids (https://web.mst.edu/mdsolids/) or any open source software for active teaching and learning. **Note:**Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	Shape Memory Alloys [07/01, 12:10 pm] Dr.S.N.Topannavar:		https://www.slideshare.net/sureshdaravath/shape-memory-alloys-71483726

	[07/01, 12:29 pm] Dr.S.N.Topannavar: Martensite transformation animation	https://padeepz.net/shape-memory-alloys/ https://www.youtube.com/watch?v=r-o-neQiT24
	Properties of NiTi Alloys [14/01, 12:41 pm] Dr.S.N.Topannavar: [14/01, 1:12 pm] Dr.S.N.Topannavar:	https://youtu.be/EKimWj8c-MQ?si=xt2IV2XroB-TGDCU https://youtu.be/60G1KCe31DA?si=-fH9w8qqdcF6tA4i
	Shape Memory Alloys [14/01, 12:58 pm] Dr.S.N.Topannavar: [14/01, 1:05 pm] Dr.S.N.Topannavar: [14/01, 1:10 pm] Dr.S.N.Topannavar: 14/01, 2:52 pm] Dr.S.N.Topannavar:	https://youtu.be/7PKJ1TSCQWk?si=94xqFo17R6Gd6dpk https://youtu.be/M4lDuktUaeI?si=31_nLc_qIrO4Brwt https://youtu.be/yR-6_lS9vts?si=NytO45sqMLpHUPGh https://youtu.be/I7doX1zWGdw?si=Cc3GafcswLn-HvxE
	Applications of Shape Memory Alloys [14/01, 2:37 pm] Dr.S.N.Topannavar: [14/01, 2:40 pm] Dr.S.N.Topannavar:	https://youtu.be/5hYOxFFjZ-8?si=Vw4bGVDbBb6HKR46 https://youtu.be/I7doX1zWGdw?si=eese-szhufVq6pU6
	Piezoelectric Materials and Applications [14/01, 3:14 pm] Dr.S.N.Topannavar [14/01, 3:21 pm] Dr.S.N.Topannavar [14/01, 3:25 pm] Dr.S.N.Topannavar: [14/01, 3:31 pm] Dr.S.N.Topannavar: [14/01, 3:33 pm] Dr.S.N.Topannavar: [14/01, 3:34 pm] Dr.S.N.Topannavar:	https://youtu.be/_XABS0dR15o?si=w_lp1UghKxbuqPF5 https://youtu.be/4nbBAG-848c?si=GPQBzxnSeCjOYNhl https://youtu.be/pnvpsl3bzwQ?si=7LT4KBfRU_1Y04ll https://youtu.be/INaPVsVZkR8?si=5L7Axd4M7UMZSlDW https://youtu.be/ULbNZuZulPg?si=BKmQ69mMmVV_J2fi https://youtu.be/p-rPep0-3cE?si=yC-m6ocf7OkFMl3p
	Self Healing Materials [30/01, 7:22 am] Dr.S.N.Topannavar:	https://youtu.be/xDp3PU8azmY?si=HDAEMX9awZIzcpMr
	Electrical Self Healing Materials [30/01, 7:21 am] Dr.S.N.Topannavar	https://youtu.be/N_ijvkl51LM?si=4M0VGpAwO1X6_aMb
	Self Healing Polymers [30/01, 7:21 am] Dr.S.N.Topannavar	https://youtu.be/XnJbH9re2rI?si=fMa7FPwTGcmjecxx
	Targeted Drug Delivery System (TDDS)	https://youtu.be/2k2BLFFQssg?si=ydD6e0s6PkXiWBl9

	[30/01, 7:16 am] Dr.S.N.Topannavar:	
	Smart Drug Delivery System [30/01, 7:14 am] Dr.S.N.Topannavar:	https://youtu.be/AqWzqhDaoz0?si=ws0q9YWplRmF4Txg
	Bimorph MFC Actuator	https://www.youtube.com/watch?v=w79wTb2zOQQ
	Bimorph Piezoelectric Cantilever Mode Shapes	https://www.youtube.com/watch?v=-XAIQQUcQk0
	Synthesis of Carbon Nanotubes (CNTs) by CVD Method	https://www.youtube.com/watch?v=FQ5Fe5I8vYU
	Azobenzene : Organic Synthesis	https://www.youtube.com/watch?v=novE6nQrBmU
	Azobenzene and Polyimide Film Shape Changing Polymer	https://www.youtube.com/watch?v=HiI22ttaBf0
	A crystal of azobenzene showing different patterns of flipping motion	https://www.youtube.com/watch?v=YGqEgrcnfXc
	Smart coatings for corrosion protection	https://www.youtube.com/watch?v=6PJuJ1-fp7c
	Scratching the Surface: Self Healing and Smart Coatings [30/01, 7:20 am] Dr.S.N.Topannavar	https://youtu.be/T0w_r8hrt5Q?si=CA-kfloLc4CyKiSz
	New asphalt repairs its own cracks [30/01, 7:19 am] Dr.S.N.Topannavar:	https://youtu.be/C2CYClNVkCs?si=43Puhf-ifBMLKY7G
	Self Healing Polymers by CIDETEC [30/01, 7:18 am] Dr.S.N.Topannavar:	https://youtu.be/fVTfSHEPnr8?si=uH6hdCcQRxt2cR2T
	Nano particles for Targeted Drug Delivery System [30/01, 7:17 am] Dr.S.N.Topannavar:	https://youtu.be/xElVrV9zxRY?si=OczXLNpdu-Rof3bZ
	Biomaterials in Drug Delivery System [30/01, 7:15 am] Dr.S.N.Topannavar:	https://youtu.be/tx6IVsErnj8?si=ITeg26itxUnTBnx_
	Piezo Disk Actuator, Bimorph Disk Actuator Long Travel, Molecualr Valve by www.pi.ws	https://www.youtube.com/watch?v=mAAT5fvbl4Y
	Thermal Bimorph	https://www.youtube.com/watch?v=NpxoUU1rLTs

	How Carbon Nanotubes Will Change the World	https://www.youtube.com/watch?v=SIif11QOsRI
	pH Responsive Lipids-Use in Smart Drug Delivery Systems	https://www.youtube.com/watch?v=UpjLULz9Aq8
	Smart Polymers: The Game-Changing, Responsive, Resilient, and Revolutionary Polymer Developments	https://www.youtube.com/watch?v=6hVJvXL3tMs
	Smart Materials of the Future - with Anna Ploszajski	https://www.youtube.com/watch?v=4-_rwDgLMpk
	Research Spotlight: Julianna Abel - developing 'smart' fabrics for medical and space applications	https://www.youtube.com/watch?v=NTZDy8jkw68
	Electronics in Space Applications	https://www.youtube.com/watch?v=c4UtMI_xEQY
	Self-Healing Coatings to Prevent Corrosion Damage	https://www.youtube.com/watch?v=66mpHrlk_Fk
	SMART COATINGS FOR CORROSION PROTECTION DR S K DHAWAN	https://www.youtube.com/watch?v=yD1Bt-jIwHw
	How to Make PowerPoint PPT in Mobile | ppt in mobile phone | Power-point in mobile :	https://youtu.be/pdjiue2YbgY?si=YeBEV1pKstV-4pQL
	How to speak on Stage	https://youtube.com/shorts/V0tPkayEkKs?si=HYEf0zC-JM10mK9t
	How to start presentations?| Presentation Skills| Five Tips For Presentation by Jaswant Sir	https://youtu.be/QPt_CHcjDMU?si=zuvR5WnzKCTxQvG5
	How to make great presentations | 10 powerful presentation tips	https://youtu.be/yPhUz6xjhGY?si=_hme-IRdI3L03XL-
	A Recipe For Self-healing Concrete! - Science Snapshot	https://youtu.be/JZbQURpXdaA?si=r4r4qZlM9YbPbmjF

	SMART COATINGS FOR CORROSION PROTECTION DR S K DHAWAN	https://youtu.be/yD1Bt-jIwHw?si=L5WLFGyKixCtezcw
	A Recipe For Self-healing Concrete! - Science Snapshot	https://youtu.be/JZbQURpXdaA?si=r4r4qZlM9YbPbmjF
	Scratching the Surface: Self-Healing and Smart Coatings Research at BP-ICAM	https://youtu.be/T0w_r8hrt5Q?si=Ev4abZFvuDbVwLBX
	Corrosion in Reinforced Concrete	https://youtu.be/cX2FdjV4eOY?feature=shared
	Graphene anti-corrosion coating - Enerage Inc.	https://youtu.be/h6VFemlHXTU?si=7gzR6MHrsJ4ZBXMb
	Liquid Crystals | NSF Chalk Talk	https://youtu.be/nAJgchCI3kg?si=-ev34gRf1LFe4_Bi
	This new material heals—not cracks—under pressure	https://youtu.be/VJCX0xgQFBE?si=N7a1spYPUiqg1Ci9
	Self-Healing Coatings to Prevent Corrosion Damage	https://youtu.be/66mpHrlk_Fk?si=cgPOyRbZRRbSixR0
	Shape Memory Alloy Heat Engine	https://youtu.be/I78ZTkdZ0b0?feature=shared
	Photoresponsive Liquid Crystalline Epoxy Networks with Shape Memory Behavior and Dynamic Ester	https://youtu.be/dldwbymd7eA?si=CFtTWbYPGvU9XmD4
	Azobenzene and Polyimide Film Shape Changing Polymer	https://youtu.be/HiI22ttaBf0?si=Bl-TElmdm81LeuFI
	Hair Gel	https://youtube.com/shorts/0eirRrU312Y?si=bry6aPBVY5iyOxar
		https://youtu.be/Y6K7h9tbD_s?si=GTjcsrEwblb35E-S

	Liquid Crystals Painted on Heat Pipes	
	What are Liquid Crystals?	https://youtu.be/MuWDwVHVLio?si=xrSjouoB7Zu4m95V
	New Gel Protects Eggs and May Lead to Better Sports Helmets | Headline Science	https://youtu.be/yBMWBhpeiy8?si=57TdmzORewh7pwha
	Self-Healing Material	https://youtu.be/DAUl6upA3q4?si=mQHDknLx3AIIiZcL
	Smart Gel	https://youtu.be/W-YYtQkldgU?si=i1fhaN8H8Pa67SYO
	What are Liquid Crystals : Definition ,Formation, Types , Uses & Properties of Liquid Crystals	https://youtu.be/JlZhHhpVRrI?si=HU-UCu71guAiA4ay
	Colour changing Liquid Crystals	https://youtube.com/shorts/lFY-HufqZPU?si=Kxj1NyqMEBvixmzy
	Liquid Crystals	https://youtube.com/shorts/R7kbdWBVQF0?si=aoINogRmKKtkjGgc
	Learn to deliver PRESENTATIONS confidently in ENGLISH!	https://youtu.be/Q074YSGwRTM?si=6YnCRvt6xOGWK-2O
	India on path to triple renewable energy capacity by 2030 but faces financing hurdle: Report 29/11, 2:57 pm] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/economy/india-on-path-to-triple-renewable-energy-capacity-by-2030-but-faces-financing-hurdle-report-11826361.html
	India on path to triple renewable energy capacity by 2030 but faces financing hurdle: Report - [30/11, 4:32 pm] Dr.S.N.Topannavar	https://www.notebookcheck.net/Energy-start-up-designs-offshore-wind-turbine-to-double-power-generation.771828.0.html
	30/11, 4:39 pm] Dr.S.N.Topannavar:	[https://solarquarter.com/2023/11/28/solar-and-wind-power-constitute-over-88-of-total-renewable-installed-capacity-by-october-2023/
	[04/12, 6:10 am] Dr.S.N.Topannavar:	https://www.business-standard.com/economy/news/proposed-5-biogas-blending-with-lng-can-cut-imports-worth-1-17-bn-iba-123120300252_1.html
	[10/12, 1:22 am]	https://solarquarter.com/2023/12/05/quarterly-analysis-of-solar-pv-installed-

	Dr.S.N.Topannavar:	capacity-in-india-q1-2021-to-q3-2023/
	[10/12, 9:14 am] Dr.S.N.Topannavar:	https://www.financialexpress.com/business/sustainability-indias-potential-as-a-global-hydrogen-electrolyzer-manufacturing-hub-3334155/
	[10/12, 9:26 am] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/kundan-energy-to-develop-80-mw-hydropower-at-rs-1000-crore-investment-in-uttarakhand-11878161.html
	[10/12, 9:27 am] Dr.S.N.Topannavar:	https://www.iamrenew.com/green-energy/revolutionizing-biogas-production-lehmann-umts-bioextrusion-process/
	[10/12, 9:29 am] Dr.S.N.Topannavar:	https://electrek.co/2023/12/08/us-first-large-scale-offshore-wind-farm-vineyard-wind-1/
	[10/12, 9:30 am] Dr.S.N.Topannavar:	https://www.businesstoday.in/impact-feature/story/forging-the-path-to-net-zero-how-to-drive-a-world-class-net-zero-transformation-408570-2023-12-07
	[10/12, 9:31 am] Dr.S.N.Topannavar:	https://solarquarter.com/2023/12/06/masdar-edf-renewables-and-nesma-renewable-energy-wins-a-contract-for-a-1-1-gw-solar-project-in-saudi-arabia/
	15/12, 7:14 am] Dr.S.N.Topannavar	: https://www.businesstoday.in/visualstories/news/india-to-build-worlds-largest-solar-farm-equivalent-to-the-size-of-singapore-80799-08-12-2023
	[16/12, 7:53 am] Dr.S.N.Topannavar	: https://www.saurenergy.com/solar-energy-news/zetwerk-secures-375-mw-solar-module-deal-with-ntpc
	[16/12, 7:54 am] Dr.S.N.Topannavar:	https://solarquarter.com/2023/12/13/sembcorp-secures-singapores-largest-solar-power-project/
	[16/12, 7:56 am] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/companies/india-gets-bids-for-green-hydrogen-electrolyser-incentives-11911761.html
	[16/12, 7:57 am] Dr.S.N.Topannavar:	https://www.pv-magazine.com/2023/12/12/french-startup-offers-ai-algorythm-package-for-rooftop-pv-monitoring/
	[16/12, 7:58 am] Dr.S.N.Topannavar:	https://tradebrains.in/features/renewable-energy-stock-jumps-after-it-bags-100-8-mw-wind-power-project-in-gujarat/
	[16/12, 7:59 am] Dr.S.N.Topannavar:	https://www.financialexpress.com/web-stories/sme/10-solar-business-ideas-to-start-in-2024/
	[10/12, 9:36 am] Dr.S.N.Topannavar:	https://youtu.be/pdjiue2YbgY?si=YeBEV1pKstV-4pQL
	[10/12, 9:45 am] Dr.S.N.Topannavar:	https://youtu.be/Q074YSGwRTM?si=6YnCRvt6xOGWK-2O
	[10/12, 9:50 am] Dr.S.N.Topannavar:	https://youtube.com/shorts/V0tPkayEkKs?si=HYEf0zC-JM10mK9t
	[10/12, 9:51 am] Dr.S.N.Topannavar:	https://youtu.be/QPt_CHcjDMU?si=zuvR5WnzKCTxQvG5

	[10/12, 9:53 am] Dr.S.N.Topannavar:	https://youtu.be/yPhUz6xjhGY?si=_hme-IRdI3L03XL-
	VTU Curriculum-book URL:	https://www.pdfdrive.com/non-conventional-energy-sources-e10086374.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/non-conventional-energy-systems-nptel-d17376903.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/renewable-energy-sources-and-their-applications- e33423592.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/lecture-notes-on-renewable-energy-sources-e34339149.html
	VTU Curriculum-book URL:	https://onlinecourses.nptel.ac.in/noc18_ge09/preview
	Models and charts to realise atomic structures of different materials and phase transformations	
	Material Testing lab visit to realise the strengths and properties of different materials	
	Models show the stimuli and responses of smart materials	
	Application oriented pedagogical teaching in the class	

VTU Board of Studies (BoS) recommended e-Resources
(Web links, Video Lectures, MOOCs, e-Shikhsana Program, NPTEL, EDUSAT, YouTube, Vlab etc.), (2018-19 to 2023-24)

S.N.	Faculty Name	Course	VTU Syllabus link where e-resources are mentioned	e-Resource	Branch
1	Prof.S.S. Malaj	Basic Electronics	https://vtu.ac.in/pdf/2022syll/BBEE203.pdf	https://nptel.ac.in/courses/122106025	ECE
2	Prof.S.S. Malaj	Basic Electronics	https://vtu.ac.in/pdf/2022syll/BBEE203.pdf	https://nptel.ac.in/courses/108105132 https://nptel.ac.in/courses/117104072	ECE
3	Prof.S.S. Malaj	Introduction to Internet of Things	https://vtu.ac.in/pdf/2022syll/BETCK105H.pdf	https://nptel.ac.in/noc/courses/noc19/sem1/noc19-cs31	ECE
4	Prof. D. B. Madihalli	Introduction to Python Programming	BPLCK105B.pdf (vtu.ac.in)	Learn Python by Examples: https://www.learnbyexample.org/python/ https://www.learnpython.org https://pythontutor.com/visualize.html#mode=edit	ECE

5	Prof.S.S. Malaj	Basic Electronics and communication Engineering	https://vtu.ac.in/pdf/2021syll/21eln24.pdf	https://doi.org/10.4324/9781315737980.BookISBN9781315737980	ECE
6	Dr.S.S. Ittannavar	Basic Signal Processing	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://www.youtube.com/watch?v=KJnAy6hzetw&list=PL41692B571DD0AF9B https://www.youtube.com/watch?v=ZK3O402wf1c&list=PL49CF3715CB9EF31D&index=1	ECE
7	Dr.S.S. Ittannavar	Digital Signal Processing	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/117102060	ECE
8	Dr.S.S.I ttannavar	Digital Communication	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/108102096	ECE
9	Dr.S.S. Ittannavar	Multimedia Communication	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://www.youtube.com/watch?v=rC16fhvXZOo	ECE
10	Dr.S.S. Ittannavar	MATLAB Programming	https://vtu.ac.in/pdf/2022_3to8/2ecesyll.pdf	https://www.youtube.com/watch?v=IuEOMyGuuIg	ECE
11	Dr.S.S. Ittannavar	Digital Signal Processing	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://nptel.ac.in/courses/117102060	ECE
12	Dr.S.S. Ittannavar	Digital Communication	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://nptel.ac.in/courses/108102096	ECE
13	Prof. B. P Khot	Digital Image Processing	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/ArKe6zMkXnk https://youtu.be/nlwH07G9Efg https://youtu.be/MrNafUqh860	ECE
14	Prof. B. P Khot	Network Security	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/2YGUvopGkQc	ECE
15	Prof. B. P Khot	Computer Organization and Architecture	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/Wfau1WC5m4c https://youtu.be/Q7YdIhbRea0 https://youtu.be/s4cVdsK3XiQ	ECE
16	Prof.S.S. Malaj	Circuits and controls	https://vtu.ac.in//pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/108106098 https://nptel.ac.in/courses/108102042	ECE

17	Prof. S. S. Kamate	S&S	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=0nZYen9w_eo&list=PLyqSpQzTE6M8KJ-XQ1m2vl3nd2ZUqKEN8 https://www.youtube.com/watch?v=_vyke3vF4Nk https://www.youtube.com/watch?v=lkAvgVUvYvY	ECE
18	Prof. S. S. Kamate	M&A	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=wx_tIvaajAI&list=PLzJaFd3A7DZsL9dZDCeA3ijHZwwBb6R8yhttps://www.youtube.com/watch?v=wKL6WsEOl00&list=PLGnJGN4tr1dY3UivHBTJBQAcvlQ1FYEbG	ECE
19	Prof. S. S. Kamate	Engg. Electromagnetics	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=G5P6dInMTFg&list=PLuv3GM6-gsE3-hVNaw-YEb7EeY5XVPZdz https://www.youtube.com/watch?v=pGdr9WLto4A&list=PL1CE5B4FFFA997E5D	ECE
20	Prof. S. S. Kamate	VLSI Design	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=lRpt1fCHd8Y&list=PLU8VFS-HdvKtKswbcvvA8yVhzleTV7OE8 https://www.youtube.com/watch?v=M2x_lSYxvXk https://www.youtube.com/watch?v=faiEVOOCe-s	ECE

List of Self-prepared Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promoteexperiential learning among the students

S.N.	Self-prepared Pedagogical initiatives and Innovative teaching aids	Course/Topic	Dept
1.	Concept realization through learning models/charts in the class room.	EME: IC engine models, Gears, Milling	Mech. Engg.
2.	Concept realization through	EME: Turbines & Pumps in the Fluid	Mech.

	equipment demonstration in the respective laboratories.	Machinery Lab, Lathe, Drilling, Milling Machines in the Machine Shop and Welding in the Workshop	Engg.
3.	Inspiring students to arrive basic definitions/laws by giving examples/case studies/current affairs/routine activities/events etc. indirectly	Thermodynamics Laws and Properties, Refrigerating Effect, Ton of Refrigeration, IC engine efficiencies and powers, Definitions/functions of Turbines and Pumps, Speed Ratios of Gear Trains/Belt Drives	Mech. Engg.
4.	Motivating students to comprehensive understanding of the numerical problem statements (basic & Logic) before solving.	Numerical solving on Thermodynamic Concepts, Steam Formation, Gear Trains, Belt Drives, IC engines	Mech. Engg.
5.	Teaching students how to read and understand formulae, graphs and tables? , and predicting, analyzing and reasoning on technical parameters.	T-h diagram of steam formation, PV diagram of Thermodynamics/IC engines, Steam Tables, energy conversion equations	Mech. Engg.
6.	Teaching derivations and their derivatives (final & intermediate) through units and their different forms.	Equations of I and II law of thermodynamics, entropy, IC engine efficiencies/powers, enthalpy of steam, Specific heats, latent heats	Mech. Engg.
7.	Realizing and feeling the scale of the equipment, quantity, process etc. through sketches, actions, demos etc.	Showing the height of the boiler w.r.t man avg. height, Feeling of 1 bar pressure/1 N force/Temperature, 1 Joule energy	Mech. Engg.
8.	After teaching, ensuring the students' learning by motivating students to list the comparisons, differentiations, classification, similarities with reasons in the class rooms.	Classifications of Steams/turbines/pumps/engines/boilers, Comparisons between Energy sources, similarity between heat and work.	Mech. Engg.
9.	Promoting Cooperative/Informal learning through interactions outside the class room between slow learners and bright student/s.	Elements of Mechanical Engineering	Mech. Engg.
10.	Discussion on the end results/solutions of the complex problems	Elements of Mechanical Engineering	Mech. Engg.
11.	Videos and Poster presentations in the class rooms	Functions renewable energy conversion systems/boilers/turbines/pumps/gears/welding/lathes	Mech. Engg.
12.	Industry Visits	Elements of Mechanical Engineering	Mech. Engg.
13.	Application oriented teaching and creating curiosity to learn and understand the concepts.	Fans and their blade design for energy conversion/thermodynamics concepts, Density/specific volume, heat transfer	Mech. Engg.
14.	Enhancing students' participation by asking questions, creating curiosity, connecting routine applications/practices etc.	Elements of Mechanical Engineering	Mech. Engg.
15.	Flapped Teaching and Learning	Elements of Mechanical Engineering	Mech.

	process		Engg.
16.	Spot quantifying of learning and motivating students to express the feedback about teaching and learning process	Elements of Mechanical Engineering	Mech. Engg.
17.	Teaching by the students on his/her chosen topic	Elements of Mechanical Engineering	Mech. Engg.
18.	Motivational teaching to draw meaningful and logical based sketches including graphics.	Strokes in IC engines, Refrigeration cycles, Turbines, Pumps, Lathe and its machining operations	Mech. Engg.
19.	Inspiring students to read reputed reference books and to make their own notes.	Elements of Mechanical Engineering	Mech. Engg.
20.	Motivational teaching to create own sketches to understand the critical concepts and express them in the exams to strengthen the answers	Elements of Mechanical Engineering	Mech. Engg.
21.	Facilitating self-Video Lectures for Slow learners and absentees	Elements of Mechanical Engineering	Mech. Engg.
22.	https://www.youtube.com/watch?v=qSWm_nprfqE https://www.youtube.com/watch?v=xy9nj94xvKA	Wind Energy	Mech. Engg.
23.	https://www.youtube.com/watch?v=xKxrkht7CpY https://www.youtube.com/watch?v=8nJXN6kwyqA https://www.youtube.com/watch?v=xKxrkht7CpY https://www.youtube.com/watch?v=ZAJeDVLO1_w https://www.youtube.com/watch?v=lrRTCbXE0Jc	Solar Energy Conversion	Mech. Engg.
24.	https://www.youtube.com/watch?v=IdPTuwKEfmA	Thermal Power Plant	Mech. Engg.
25.	https://www.youtube.com/watch?v=tPHyYM7UqSo https://www.youtube.com/watch?v=c1adiK8nLbA https://www.youtube.com/watch?v=OJw6WFkTPZo	Bio fuel/gas production	Mech. Engg.
26.	https://www.youtube.com/watch?v=2W-GEE6YU4M https://www.youtube.com/watch?v=mBdVK4cqiFs https://www.youtube.com/watch?v=xrk7Mt2fx6Y https://www.youtube.com/watch?v=_	Nuclear Energy Production	Mech. Engg.

	UwexvaCMWA https://www.youtube.com/watch?v=AMXxXoHtM-o		
27.	https://www.youtube.com/watch?v=q8HmRLCgDAI https://www.youtube.com/watch?v=Uhjhufhg3Xk https://www.youtube.com/watch?v=hC8NEiwrLTg	Hydroelectric power plant	Mech. Engg.
28.	Basics of Thermodynamics: 1) https://youtu.be/QgcX8svUm4c 2) https://youtu.be/ouEjwbRraNo 3) https://youtu.be/z1nE-23ZglQ 4) https://youtu.be/_krp-ATP30s 5) https://youtu.be/3Sxj9OG3lPU Steam Formation-Properties: 1) https://youtu.be/uFlocTrVEOg 2) https://youtu.be/jmjOITS4a94 3) https://youtu.be/ahuXCZ91ats	• Basics of Thermodynamics • Steam Formation-Properties	Mech. Engg.
29.	Boilers: 1) https://youtu.be/PRtvB00d5V0 2) https://youtu.be/AWSJVmg1w58 3) https://youtu.be/28S0rS5ScgI 4) https://youtu.be/XuV5MusoAqc Turbines: 1) https://youtu.be/cESnwE2hgxA 2) https://youtu.be/3_5VEuA_ctw 3) https://youtu.be/d3-BqXwbQcY 4) https://youtu.be/UB0DyOaDwxU 5) https://youtu.be/H8x1rIdiHWc Hydraulic Pumps: 1) https://youtu.be/LFv4NGA2qtw 2) https://youtu.be/SX9rkMO2iKo 3) https://youtu.be/6VRYJcZXotI	• Boilers • Turbines Hydraulic Pumps	Mech. Engg.
30.	IC Engines: 1) https://youtu.be/ltp_gx4oc0U 2) https://youtu.be/BrQJVA-Ne2E 3) https://youtu.be/xyB8DnIw3Co 4) https://youtu.be/TStNvU5KORg 5) https://youtu.be/1sKl7POCJ08 6) https://youtu.be/3DLJoMc708I 7) https://youtu.be/ahqHOdLmtCc 8) https://youtu.be/wtHiUvTEoD8 9) https://youtu.be/3Fw5_aEfrbU Refrigeration: 1) https://youtu.be/y9gCc4jYkPY 2) https://youtu.be/zwNaU_6dMgY 3) https://youtu.be/JEgjgSkhEIo 4) https://youtu.be/KQRb_25gR7M	• Internal Combustion (IC) Engines • Refrigeration and Air Conditioning (AC)	Mech. Engg.

	5) https://youtu.be/kurwDfOSlBk Air-Conditioning (AC): 1) https://youtu.be/1BEKiLNNjRQ 2) https://youtu.be/AJ508pSoci0 3) https://youtu.be/lIoouWdNU7k		
31.	Engineering Materials: 1) https://youtu.be/3cZmDZepNAE 2) https://youtu.be/FproDJHrxeA Joining Processes: 1) https://youtu.be/Jpev1oGMEhg 2) https://youtu.be/9NXTKdX_qu4 3) https://youtu.be/Z0WOeVYg81c 4) https://youtu.be/iXraH72qwcY 5) https://youtu.be/5srRIznYEdY 6) https://youtu.be/qAIqOSpBf_Q 7) https://youtu.be/GNLsxnjsIzs 8) https://youtu.be/uRmgDTcNEQU Belt Drives: 1) https://youtu.be/L9iuKli2WZY 2) https://youtu.be/SGOBo7tp8gY 3) https://youtu.be/o_ZTtr2vlho 4) https://youtu.be/13zz8qey_K0 5) https://youtu.be/9u_Fgi2G_uw 6) https://youtu.be/l_KxQzi3SCY 7) https://youtu.be/KrfsP5VdGp8 8) https://youtu.be/Ba_0FDzFYH0 Gear Drives: 1) https://youtu.be/x0pA5boJh1M 2) https://youtu.be/6ZIHS4_j6yQ 3) https://youtu.be/jBacF4mkVAA	• Properties, Compositions and Industrial Applications of Engineering Materials • Joining Processes • Belt Drives • Gear Drives	Mech. Engg.
32.	Lathe Machine: 1) https://youtu.be/j8eKqrjaoFU 2) https://youtu.be/4FoTMmlO60s 3) https://youtu.be/pngcpwmQABw 4) https://youtu.be/zcFtZVywZ-s 5) https://youtu.be/RY7zAyPF1Lo Milling Machine: 1) https://youtu.be/RcfqhRRsJhI 2) https://youtu.be/K1el91hK36k 3) https://youtu.be/bgq1xRb-kdM 4) https://youtu.be/-I8gjY0GDYA 5) https://youtu.be/5Ygf-u5P3oU 6) https://youtu.be/sZ1AJ7nDbFo Advanced Manufacturing Systems: 1) https://youtu.be/5sseHUWBuHs 2) https://youtu.be/yXvm84m-5t0 3) https://youtu.be/Vy3-VmJvV9E Robots:	• Lathe Machine • Milling Machine • Introduction to Advanced Manufacturing Systems • Robots	Mech. Engg.

	1) https://youtu.be/VONRliCuT_w 2) https://youtu.be/lrlt1aKr2ck		
33.	https://www.youtube.com/watch?v=e6a2q9k2JCA https://www.youtube.com/watch?v=sA99mw3D2Ds https://www.youtube.com/watch?v=A0BuHEqDm88 https://www.youtube.com/watch?v=dyYkUUtOYpQ https://www.youtube.com/watch?v=EpbuI6CbMRU https://www.youtube.com/watch?v=G_8G2ObAbZ8 https://www.youtube.com/watch?v=HtgFMXZw2Fw&list=PLWPirh4EWFpEduIfhK_VnKCK7VqHDoZKV https://www.youtube.com/watch?v=5NCOnr3VSAY https://www.youtube.com/watch?v=vy2LW9tUFHA	Fluid Properties	Mech. Engg.
34.	https://www.youtube.com/watch?v=qGQ4fojjwvQ https://www.youtube.com/watch?v=wHMHxO9Ys_0 https://www.youtube.com/watch?v=oUF3hWw4tY4 https://www.youtube.com/watch?v=YuSKghET21A	Pascal Law	Mech. Engg.
35.	https://www.youtube.com/watch?v=g0kpcCBuXe0 https://www.youtube.com/watch?v=WmWw_IB6nv4 https://www.youtube.com/watch?v=-P1EvVuuPoI https://www.youtube.com/watch?v=JTM-NvuCW9w https://www.youtube.com/watch?v=1_ey4oBuNSw https://www.youtube.com/watch?v=zPdB4MdRErc	Manometers	Mech. Engg.
36.	https://www.youtube.com/watch?v=yYYzEdJHkak https://www.youtube.com/watch?v=nMlXU97E-uQ https://www.youtube.com/watch?v=2RefIvqaYg8 https://www.youtube.com/watch?v=khc2wUBsFU4	Buoyancy & Floating	Mech. Engg.

	https://www.youtube.com/watch?v=W5vv6hTMrFo https://www.youtube.com/watch?v=_p-hwElkrlk https://www.youtube.com/watch?v=QUgXf2Rj2YQ https://www.youtube.com/watch?v=aEw5NdZb2is https://www.youtube.com/watch?v=BoTk646edcQ https://www.youtube.com/watch?v=jXEE1PboXKg https://www.youtube.com/watch?v=Z3vgsp4vKQs https://www.youtube.com/watch?v=cSjNd2kZW-k https://www.youtube.com/watch?v=u8Kikx14LWU https://www.youtube.com/watch?v=CvWrkxzCiaY https://www.youtube.com/watch?v=16HDJNoXQII https://www.youtube.com/watch?v=bOKa3rDnTeM		
37.	https://www.youtube.com/watch?v=grMmkSP637w https://www.youtube.com/watch?v=nhd8fCCAlIo https://www.youtube.com/watch?v=6kTvQEMwOfM https://www.youtube.com/watch?v=FgY38h2LDeo https://www.youtube.com/watch?v=XZ7CqISBIfE https://www.youtube.com/watch?v=56AyTIhNQBo https://www.youtube.com/watch?v=FZYnewBWUoc	Types of Fluid Flow	Mech. Engg.
38.	https://www.youtube.com/watch?v=E8yPWd-DwcQ https://www.youtube.com/watch?v=96fYQFPGwzU https://www.youtube.com/watch?v=c6ndD5kTkP4 https://www.youtube.com/watch?v=H9u8O4osE0g https://www.youtube.com/watch?v=vC569UD49yA	Fluid Deformations	Mech. Engg.
39.	https://www.youtube.com/channel/U	Continuity Equation	Mech.

	CkDw-LPU1Nnd2WRsfnDbUcA?v=lN20VrPmxdk https://www.youtube.com/watch?v=jn_g6cW9r0w https://www.youtube.com/watch?v=WGuzqF2GCBg https://www.youtube.com/watch?v=ycgJvnm24ks https://www.youtube.com/watch?v=8wM7_vgBSQA		Engg.
40.	https://www.youtube.com/watch?v=UJ3-Zm1wbIQ https://www.youtube.com/watch?v=bC8v6hlXnSk https://www.youtube.com/watch?v=mgeIWXld9FU https://www.youtube.com/watch?v=8vqMotb6m3c https://www.youtube.com/watch?v=YyeX6ArxCYI https://www.youtube.com/watch?v=brN9citH0RA https://www.youtube.com/watch?v=O8qCA2mZvVI https://www.youtube.com/watch?v=UxYH41vV-DI	Bernoulli's Equation	Mech. Engg.
41.	https://www.youtube.com/watch?v=JH3l-NliCkM https://www.youtube.com/watch?v=vxJrb7JKigQ https://www.youtube.com/watch?v=5w4cJBdFHFw https://www.youtube.com/watch?v=b5CwH5AlCkw https://www.youtube.com/watch?v=qCosEM9h0AU https://www.youtube.com/watch?v=k7ZZtxdtmeQ https://www.youtube.com/watch?v=zMfssrddyRU https://www.youtube.com/watch?v=G3bO8RcRgxQ https://www.youtube.com/watch?v=xwyssfQ6oVc https://www.youtube.com/watch?v=_hvgvZuIZOc https://www.youtube.com/watch?v=6zoOBwI5BEY	N-S equations & Applications like CoutteandHagen- Poiseuille Flows	Mech. Engg.

42.	https://www.youtube.com/watch?v=6DFe8eUrbcI https://www.youtube.com/watch?v=G4rbUtAxgHM https://www.youtube.com/watch?v=UflurPbj-UA https://www.youtube.com/watch?v=kJlJoAKveJA https://www.youtube.com/watch?v=D8I9JvlvZuQ https://www.youtube.com/watch?v=jbRkpXEJO64 https://www.youtube.com/watch?v=TKMPpcxSER4	Losses in Pipe-flow	Mech. Engg.
43.	https://www.youtube.com/watch?v=5ltjFEei3AI https://www.youtube.com/watch?v=9_xhJ0-OROg https://www.youtube.com/watch?v=w78JT6azrZU https://www.youtube.com/watch?v=Fev8FWVcC-A https://www.youtube.com/watch?v=gsUlaQ6IxSU https://www.youtube.com/watch?v=O0TBcasl8u0 https://www.youtube.com/watch?v=AXjiThF1LXU https://www.youtube.com/watch?v=S1kU6sSefr0 https://www.youtube.com/watch?v=ZbD0Ebc8RGg https://www.youtube.com/watch?v=8pp47Y8dLJk https://www.youtube.com/watch?v=Ftj6A2P7lmw https://www.youtube.com/watch?v=djCCno4Cbcw	Lift and Drag Forces	Mech. Engg.
44.	https://www.youtube.com/watch?v=FHXkouhw758 https://www.youtube.com/watch?v=BJ96HCVTTew https://www.youtube.com/watch?v=AkBn-lpWgVs	Streamline and Bluff Body	Mech. Engg.
45.	https://www.youtube.com/watch?v=LBJ3tXCjzN0 https://www.youtube.com/watch?v=X871jMv0aKk https://www.youtube.com/watch?v=B	Mach No. and Supersonic, Subsonic Flows	Mech. Engg.

	hqo6ne6Y_A https://www.youtube.com/watch?v=xsp0kGrwXW4 https://www.youtube.com/watch?v=PTc0yftUA2c https://www.youtube.com/watch?v=fxeQOQSmqRs https://www.youtube.com/watch?v=W9dhUPkFBR8 https://www.youtube.com/watch?v=VlaGxYjnoPY https://www.youtube.com/watch?v=1m3_dx2E4Z8 https://www.youtube.com/watch?v=ugPJYJ-BKkU https://www.youtube.com/watch?v=IiV3cPADCgg https://www.youtube.com/watch?v=XsntPXYOgpQ https://www.youtube.com/watch?v=rrCs-KYZ57Y		
46.	https://www.youtube.com/watch?v=tUSG6SMsn10 https://www.youtube.com/watch?v=ltpSEn-vQS8 https://www.youtube.com/watch?v=B-z54jx8u5k https://www.youtube.com/watch?v=hzTCCcsOTg8	CFD Applications	Mech. Engg.
47.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur.htm	Fluid Statics	Mech. Engg.
48.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur1.htm	Kinematics of Fluids	Mech. Engg.
49.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur3.htm	Equations of Motion	Mech. Engg.

50.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20KAnpur4.htm	Dimensional Analysis	Mech. Engg.
51.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur5.htm	Ideal Flow	Mech. Engg.
52.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur6.htm	Viscous Incompressible flow	Mech. Engg.
53.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur7.htm	Flow over flat plate and Boundary Layer Equations	Mech. Engg.
54.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur9.htm	Flow through pipes	Mech. Engg.
55.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur10.htm	Compressible flow	Mech. Engg.
56.	**1)** Compiled Question bank has been supplied and solved in the class. **2)** Notes has been supplied to the students. **3)** The soft and hard copies of VTU question papers provided to the students.	Fluid Mechanics	Mech. Engg.

List of Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promote experiential learning among the students (2018-19 to 2023-24)

S.N.	Faculty Name	Pedagogical initiatives and Innovative teaching aids	Course/Topic	Branch
1	Prof. S. S. Kamate	Models are prepared to teach the basics of coordinate systems.	Concept of Spherical Coordinate System, Cylindrical Coordinate Sytem& Cartesian Coordinate Sstem https://youtu.be/CW3WaE798dU	ECE
2	Prof. P. V. Patil	Concept of Superposition Theorem	Network Theory https://youtu.be/bLqBJCdZgjY	ECE

List of online resources & Web links(2018-19 to 2023-24)

S.N.	Faculty Name	Online resources	Web links	Branch
1	Prof. S. S. Patil	Introduction to Embedded Systems	https://www.youtube.com/watch?v=OG91AlP_2XA	ECE
		The Typical Embedded Systems	https://www.youtube.com/watch?v=glEPCAZmcvA	ECE
			https://www.youtube.com/watch?v=0vO14GLGRUs	ECE
			https://www.youtube.com/watch?v=bKPCxj0hiiw	ECE
			https://www.youtube.com/watch?v=aPgZpxQijJ0	ECE
			https://www.youtube.com/watch?v=XZ8hClk0uSQ	ECE
		Characteristics and Quality Attributes of Embedded Systems	https://www.youtube.com/watch?v=jbdtPYtGeY0	ECE
		Embedded Systems-Application and domain specific	https://www.youtube.com/watch?v=hiljMGpCAno	ECE
		Hardware Software Co-design and Program modeling	https://www.youtube.com/watch?v=J-beEbEPNSY	ECE
		Embedded Firmware Design and Development	https://www.youtube.com/watch?v=huBPGmYj138	ECE
		Real-Time Operating System(RTOS) based ES	https://www.youtube.com/watch?v=qLxEeRpFtUo	ECE

		design	https://www.youtube.com/watch?v=4RHxzX49vRU	ECE
			https://www.youtube.com/watch?v=9WhPUnwALdc	ECE
			https://www.youtube.com/watch?v=MgfvdUNTo6o	ECE
			https://www.youtube.com/watch?v=FsJh0b_KWGM	ECE
2	Dr.S.S. Ittannavar	Gram Schmidt Orthogonalization Procedure	Digital Communication https://www.youtube.com/watch?v=HX4EMJqdeZI	ECE
3	Prof.S.S. Malaj	Introduction to Control Problem concepts of Stability	Control Systems https://youtube.com/watch?v=vVFDm_CdQw	ECE
4	Prof.P.V. Patil	Microcontroller	https://onlinecourses.nptel.ac.in/noc24_ee46/preview	ECE
5	Prof.P.V. Patil	Microcontroller	https://youtube.com/playlist?list=PLcwp2fRcIXJUFthj5CKNNamSBDtf3We7A&si=4Xyi62FhRWjvuMz_	ECE

E-resource

S.N.	ICT enabled tools, Video lectures, e-resource etc	Course/ Topic	Dept.
1.	https://nptel.ac.in/courses/108102095/	Analog Electronic Circuits	EEE
2.	https://youtu.be/l6M6FvjUdTI		
3.	https://youtu.be/c3oKdjDImXo		
4.	https://youtu.be/jaOxeB-BQ8E		
5.	https://youtu.be/6Zm9Kt5-cxQ		
6.	https://youtu.be/iLCQUHJkFM8		
7.	https://youtu.be/SpvmeG1hs7k		
8.	https://youtu.be/0K6vyowDAKM		
9.	https://youtu.be/Sr-Sm_d3oVE		
10.	https://youtu.be/Pe6BmuAc2OY		
11.	https://youtu.be/btphIK1d4Ro		
12.	http://nptel.vtu.ac.in/econtent/courses/EEE/15EE32/index.php	Network Analysis	
13.	http://nptel.vtu.ac.in/econtent/courses/ECE/15EC34/index.php		
14.	https://www.youtube.com/watch?v=3rOvQ3qFZpI	Measurements and Instrumentation	
15.	https://www.youtube.com/watch?v=EWTPvrJQG_4		
16.	https://www.youtube.com/watch?v=jyRT2dJAuAg		

17.	https://www.youtube.com/watch?v=u5lh_nyCXEs		
18.	https://www.youtube.com/watch?v=xX2YjPwZY-g		
19.	https://www.youtube.com/watch?v=jlPzA95zXKs		
20.	https://www.youtube.com/watch?v=KsykW43-g24		
21.	https://www.youtube.com/watch?v=wO6Eh_r8IEs		
22.	https://www.youtube.com/watch?v=-orsmxHOLOM		
23.	https://www.youtube.com/watch?v=Bf3547WB5qs		
24.	https://www.youtube.com/watch?v=SNMI2skCOpQ		
25.	https://www.youtube.com/watch?v=uy9lZCdkQIM&list=P	Electrical Power Generation	
26.	https://www.youtube.com/watch?v=Yg6XsepGCKY&list=PLD4ED2FAF3C155625&index=2		
27.	https://www.youtube.com/watch?v=45_nQN-9XSs&list=PLD4ED2FAF3C155625&index=3		
28.	https://www.youtube.com/watch?v=MqWeH3zp5GY&list=PLXgxwcpUnIG-EvGsehcV8Rj7VZcsd1JYB	Micro controller	
29.	https://www.youtube.com/watch?v=liRPtvj7bFU&list=PL692A7B9169289C4F		
30.	https://www.youtube.com/watch?v=zXMklO-jxIo		
31.	https://www.youtube.com/watch?v=EEaOR2p9G2k		
32.	https://www.youtube.com/watch?v=pA6K5NgWTow		
33.	https://www.youtube.com/watch?v=1Auay7ja2oY&list=PL6D4C867487881352	Power Electronics	
34.	https://www.youtube.com/watch?v=PEg0zb3cg2A&list=PL6D4C869487881352&index=2		
35.	https://www.youtube.com/watch?v=p_4j_x4ZyzM&list=PL6D4C869487881352&index=3		
36.	https://www.youtube.com/watch?v=QqFlHhSkayw&list=PL6D4C869487881352&index=4		
37.	https://www.youtube.com/watch?v=R-ZGu5KAF90&list=PL6D4C869487881352&index=5		
38.	https://www.youtube.com/watch?v=ZYzuUWypgVw&list=PL6D4C869487881352&index=9		
39.	https://youtu.be/qmcriUdYBW0?list=PL59861DBF8EC85491	Transformer & Induction Machines	EEE
40.	https://youtu.be/KOE_ec-MkAA?list=PL59861DBF8EC85491		
41.	https://youtu.be/cneuckplrtI?list=PL59861DBF8EC85491		
42.	https://youtu.be/pNTsowZYUSs?list=PL59861DBF8EC85		
43.	https://youtu.be/dZyO5gcWP-o?list=PLLQiBbMXygz7zALKpbP87g4QaS9YGesZ5		
44.	http://www.nptelvideos.in/2012/12/signals-and-system.html	Signals and Systems	
45.	https://www.youtube.com/watch?v=xrVWB9VYZ64&list=PLq-Gm0yRYwTjwxaqapPsSAHzs4_nkQLVr		
46.	https://www.youtube.com/watch?v=879pXoml0XI		
47.	https://youtu.be/NiHPu5PltCY?list=PL59861DBF8EC85491	D.C. Machines and Synch. Machines	
48.	https://youtu.be/E15Xs-5rFS0?list=PL59861DBF8EC85491		
49.	https://youtu.be/b24jORRoxEc		
50.	https://youtu.be/o9-xSeWuhng?list=PL59861DBF8EC85491		
51.	https://www.youtube.com/watch?v=ZjcLlHcsDZs	Linear IC's and	

52.	https://www.youtube.com/watch?v=egCiRSasxpw	Applications	
53.	https://www.youtube.com/watch?v=TQlyLhOFyKI		
54.	https://www.youtube.com/watch?v=gbUXbaxvX94		
55.	https://pt.coursera.org/lecture/electronics/3-2-first-order-highpass-filters-OhCWF		
56.	https://www.youtube.com/watch?v=gEeF8sEQTEc		
57.	https://www.youtube.com/watch?v=vVfLRM2DgLY	High Voltage Engg.	
58.	https://www.youtube.com/watch?v=yP7OACmLP48		
59.	https://www.youtube.com/watch?v=1bkiWJKxkfo		
60.	https://www.youtube.com/watch?v=aMux1jYFFY8&list=PLc259DvjuXMDo8n_BFwoNwAagCxPL0dDk&index=5&t=0s		
61.	https://www.youtube.com/watch?v=3aQsJYZaw_U		
62.	https://www.youtube.com/watch?v=PKXPeTvmVQg		
63.	https://www.youtube.com/watch?v=CODhHSpWp3k		
64.	https://nptel.ac.in/courses/108104052/	Power System Operation and Control	
65.	https://www.youtube.com/watch?%2049EM82UO99c		
66.	https://nptel.ac.in/courses/11210422/22	Renewable Energy sources	
67.	https://nptel.ac.in/courses/18105058/37		
68.	https://www.youtube.com/wtch?v=GRwJqD4StEU		
69.	https://nptel.ac.in/courses/10805060/	Electrical Power Utilization	
70.	https://nptel.ac.in/courses/11314008/38		

List of Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promote experiential learning among the students

AY: 2018-19

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	ICT Enabled Tools: PPT	Management & Entrepreneurship for IT Industry	CSE
02	ICT Enabled Tools: PPT, Notes	Automata Theory & Computability	CSE
03	ICT Enabled Tools: Notes	Data Structures & Application	CSE
04	ICT Enabled Tools: PPT, Notes	Cloud Computing & Its Application	CSE
05	ICT Enabled Tools: PPT, Notes	Advanced Java and J2EE	CSE
06	ICT Enabled Tools: PPT	Computer Organization	CSE

07	ICT Enabled Tools: PPT, Notes	Computer Programming & Solving	CSE
08	ICT Enabled Tools: PPT, Notes	.Net Framework For Application Development	CSE
09	ICT Enabled Tools: Notes	Discrete Mathematical Structure	CSE
10	ICT Enabled Tools: PPT, Notes	Web Technology & Its Applications	CSE
11	ICT Enabled Tools: Notes	Introduction to Software Testing	CSE
12	ICT Enabled Tools: PPT, Notes	Machine Learning	CSE
13	ICT Enabled Tools: PPT, Notes	Unix Shell Programming	CSE
14	ICT Enabled Tools: PPT, Notes	Database Management Systems	CSE
15	ICT Enabled Tools: PPT, Notes	Storage Area Networks	CSE
16	ICT Enabled Tools: PPT, Notes	Computer Networks	CSE
17	ICT Enabled Tools: PPT, Notes	C Programming for Problem Solving	CSE

AY: 2019-20

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	ICT Enabled Tools: PPT	Management & Entrepreneurship for IT Industry	CSE
02	ICT Enabled Tools: PPT, Notes	Automata Theory & Computability	CSE
03	ICT Enabled Tools: Notes	Data Structures & Application	CSE
04	ICT Enabled Tools: PPT, Notes	Cloud Computing & Its Application	CSE
05	ICT Enabled Tools: PPT, Notes	Advanced Java and J2EE	CSE
06	ICT Enabled Tools: PPT	Computer Organization	CSE
07	ICT Enabled Tools: PPT, Notes	Computer Programming & Solving	CSE
08	ICT Enabled Tools: PPT, Notes	.Net Framework For Application Development	CSE
09	ICT Enabled Tools: Notes	Discrete Mathematical Structure	CSE
10	ICT Enabled Tools: PPT, Notes	Web Technology & Its Applications	CSE
11	ICT Enabled Tools: Notes	Introduction to Software Testing	CSE
12	ICT Enabled Tools: PPT, Notes	Machine Learning	CSE
13	ICT Enabled Tools: PPT, Notes	Unix Shell Programming	CSE
14	ICT Enabled Tools: PPT, Notes	Database Management Systems	CSE
15	ICT Enabled Tools: PPT, Notes	Storage Area Networks	CSE
16	ICT Enabled Tools: PPT, Notes	Computer Networks	CSE
17	ICT Enabled Tools: PPT, Notes	C Programming for Problem Solving	CSE

AY: 2020-21

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Models / Charts	Computer Graphics Lab with Mini Projects(Recursive subdivision of tetrahendra to form 3D sierpinski gasket)	CSE
02	ICT Enabled Tools: Simulation	Application Development using Python Programming (Function Definition & Function Call)	CSE

AY: 2021-22

S.N.	**Pedagogical Initiatives and Innovative Teaching Aids** (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Video Lectures	Big Data Analytics (Decision Trees)	CSE
02	ICT Enabled Tools: PPT	Data Mining & Ware Housing (Apache Pig)	CSE
03	ICT Enabled Tools: PPT	Big Data Analytics(Decision Trees)	CSE
04	ICT Enabled Tools: PPT	System Software and Compilers (Introduction to Compilers andLexical Analysis)	CSE
05	ICT Enabled Tools: PPT	Object Oriented Concepts (Objects and Arrays C++ Part)	CSE
06	NPTEL Video Lectures	System Software and Compilers (Parsing)	CSE
07	Models / Charts	Data Mining and Data Warehousing (OLAP Operations)	CSE
08	NPTEL Video Lectures	Web Technology and it's Applications (HTML Forms)	CSE
09	NPTEL Video Lectures	Application Development Using Python (Exception Handling and Strings)	CSE
10	Models / Charts	Artificial Intelligence and Machine Learning (Machine Learning Process and Types)	CSE
11	NPTEL Video Lectures	Computer Networks and Security (Universal Hashing)	CSE
12	NPTEL Video Lectures	Big Data Analytics (Mongo DB)	CSE
13	Models / Charts	Big Data Analytics (Apache Hadoop Ecosystem)	CSE
14	NPTEL Video Lectures	Management & Entrepreneurship for IT Industry (Entrepreneurship and Employment)	CSE
15	Models / Charts	Management & Entrepreneurship for IT Industry (Corporate/Social Entrepreneur)	CSE
16	Models / Charts	Computer Networks & Security (Network Security Mechanisms)	CSE

AY: 2022-23

S.N.	**Pedagogical Initiatives and Innovative Teaching Aids** (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Models/ Charts	Database Management Systems (Three Schema Architecture)	CSE
02	Models/ Charts	Cryptography (Data Encryption Standard)	CSE
03	ICT Enabled Tools : Technical Session	Python Application Programming (Setting up Python Environment to create, run and bug)	CSE
04	Models/ Charts	Python Application Programming (Cheat Sheets of Python)	CSE
05	NPTEL Video Lectures	Web Technology & Its Applications (HTML Forms)	CSE
06	NPTEL Video Lectures	Design & Analysis of Algorithms (Greedy Method)	CSE
07	NPTEL Video Lectures	Web Technology & Its Applications (Sate in Web Applications)	CSE
08	Models/ Charts	Design & Analysis of Algorithms (Backtracking)	CSE

09	Models/ Charts	Storage Area Networks	CSE
10	Models/ Charts	Computer Graphics & Visualization (OpenGL Primitives, CG Components, 2D Transformations)	CSE
11	Models/ Charts	Operating System (Types, Components, Scheduling and Deadlock)	CSE
12	Models/ Charts	Programming in Java (Cheat Sheets of Java)	CSE
13	ICT Enabled Tools : Technical Session	Programming in Java (Setting up Java JDK Environment to create, run and debug)	CSE
14	Models/ Charts	Introduction to Python Programming (Visual execution of python programs)	CSE
15	Models/ Charts	Principles of programming using C (Visual execution of C programs)	CSE
16	Tool Demonstration	Data Mining & Data Warehousing (Data Visualization Tool Tableau Desktop)	CSE
17	Tool Demonstration	Big Data Analytics (Apache Hive)	CSE
18	NPTEL Video Lectures	Principles of C Programming (Structures & Pointers)	CSE
19	Models/ Charts	Principles of C Programming (Simulation of Searching & Sorting Techniques)	CSE
20	Models / Charts	Principles of C Programming (Visualize the execution of C Programs)	CSE
21	Models / Charts	Unix Programming (UNIX System Architecture)	CSE
22	NPTEL Video Lectures	Unix Programming (File System in UNIX)	CSE
23	Models / Charts	System Software & Compilers (Phases of Compiler)	CSE
24	NPTEL Video Lectures	Compiler Design (Syntax Directed Translation)	CSE
25	Models / Charts	Introduction to Python Programming (Demonstrate & visualize basic data types (list, tuple, directory) and code execution.	CSE
26	NPTEL Video Lectures	Data Structures & Applications (Arrays)	CSE
27	Models / Charts	Data Structures & Applications (Tower of Hanoi Problem)	CSE
28	NPTEL Video Lectures	Automata Theory & Computability (Turing Machines)	CSE

Dr.S.N.Topannavar
IQAC Coordinator

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Principal

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Hirasugar Institute of Technology
Nidasoshi-591 236

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG.

ICT Facilities

Department: **Electronics & Communication Engineering**

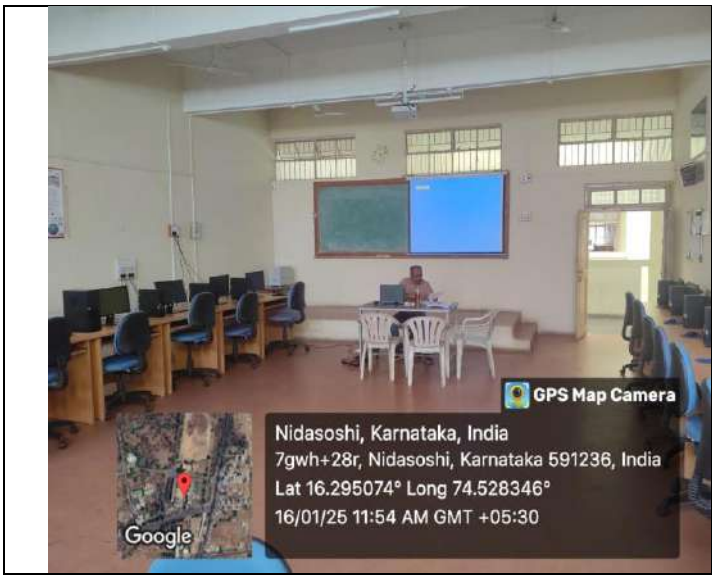
Sl. No	Location	ICT Facilities and tools available
1.	Class rooms	1.D210: Projector, Screen.
2.	Seminar Hall	1.C304: Projector, Screen, Computer
3.	Research Center	1.D 309: Projector, Screen, Computer

Photos:

Room No: D 210

Seminar Hall
Room No: C 304

Research Center
Room No: D 309



A.TEACHING METHODS:

HSIT faculty effectively uses ICT enabled teaching learning tools for content delivery and learning. This helps to explore, analyze, exchange and present information responsibly and without discrimination from a wide range of people, communities, and cultures. The institute has adequate facilities and resources forproviding interactive, engaging, flexible and user-friendly ICT enabled learning environments for the learners. Classrooms and Seminar halls are equipped with LCD projectors, internet/Wi-Fi connectivity and Smart classrooms are also available for the delivery of digital/multimedia contents. Academic processes are carried through ERP. ERP and Google Classroom are used by faculty to provide assignments and for sharing the learning resources. Google Meet/Zoom is used by faculty members for content delivery especially during pandemic. Various e-learning resources such as subject specific web resources, Swayam/NPTEL platform, MOOC platforms are employed for self-directed learning. The ICT enabled learning environment with innovative pedagogy techniques has facilitated collaborative learning, open and flexible delivery of the contents and has enhanced the students' ability to learn, think, create, and communicate.

B. LEARNING METHODS:

Institute has adopted several practices which are exclusively student centric and also helps them in advanced learning like experimental learning, Participating learning and enhancement of problem-solving skills**.**

Experimental Learning:

Students are encouraged to conduct experiment individually in the laboratories to realize the theoretical concepts. Students undergoes industrial internships during vacation through institution, Industrial visits are organized regularly for better understanding of full scale working of Engineering processes and machineries, Students are supported to select projects to address community, industrial and environmental Issues during final year for better understanding of real time problems and applying Engineering knowledge for resolving**.**

Participate Learning:

Every department encourages students to participate in co-curricular activities like Mini/Hobby project competition and Seminar on Innovation in Engineering and Technology. Also department organizes such events frequently through staff and student association (ECSA) in addition to this the Institute organizes HSIT Quest every year which is a National Level technical event. In addition to outstation students, our students of all department and all semesters take part in this Mega event. The event of HSIT Quest include Paper Presentation, Technical Quiz, Program coding, Trouble- Shooting, Robe-Race competition etc. The institute providing financial support to the students for attending state level project competition, conferences, workshops etc.The department also conduct hands on workshop for students to enhance their learning skills. The learning method is made student centric through cooperative learning through interdisciplinary projects.

Problem solving:

The students are supported to take part in competition like Smart India Hackathon organized by All India Council for Technical Education, New Delhi, and 'Anveshana' a project competition organized by Agastya International Foundation every year which enhances the problem-solving ability, The Institution provides platform for students to make use of modelling and simulation tools in the laboratories for solving complex Engineering problems.

C.USE OF VARIOUS INSTRUCTIONAL METHODS AND PEDAGOGICAL INITIATIVES

Institute practices blended teaching learning processes from chalk-to talk to smart board. Students are also encouraged to interact during the lecture hour and beyond class room hours to get their doubts cleared. The Institute is equipped with state-of-art teaching learning processes a few of them are;

- Use of ICT in teaching and learning
- Teaching with working demo/ models
- Teaching with charts
- Demonstration of Engineering Concepts through live projects
- Organizing Expert talks from academicians/Industry experts
- Use of International Journal available online in VTU consortium as & when required to expose in recent innovation & development for higher semester students.
- Revision for all theory and practical courses after completion of each modules
- Faculty members are making use of sources like National Programme on Technology Enhanced Learning(NPTEL)
- Internet sources
- Important Websites to understand basics working methodology of Process and system, mechanisms and flow diagrams
- Interactive Learning
- Interdisciplinary Learning
-

Instruction method and Interactive learning:

The faculty use chalk and board, audio visual aids, real world examples, charts & models in teaching as teaching aids to bring the quality in institutional methods such that the students can easily understand the typical and complex concepts. Students are also encouraged to actually interact during the lecture hours and beyond class room hours by getting the doubts clarified.

Computer- assisted learning:

The department has required number of computer, printer, LCD projectors, application software's and system software's with Wi-Fi connections. These resources are effectively used for(i) Final year projects/ mini projects(ii) Guiding the interested and slow learners in critical subjects in extra hours,(iii) Guiding the students to search the relevant technical article/study materials through the various links in websites.(iv) Searching e- journal in particular field/area of interest on regular time basis(v) Conducting departmental smart learning activities under department association

List of ICT- enabled tools including online resources, Pedagogical Initiatives, and Teaching-aids used for effective teaching and learning process

VTU Board of Studies (BoS) recommended e-Resources (Web links, Video Lectures, MOOCs, e-Shikhsana Program, NPTEL, EDUSAT, YouTube, Vlab etc.), (2023-24)

S.N.	Faculty Name	Course	VTU Syllabus link where e-resources are mentioned	e-Resource	Branch
1	Prof.S.S. Malaj	Basic Electronics	https://vtu.ac.in/pdf/2022syll/BBEE203.pdf	https://nptel.ac.in/courses/122106025	ECE
2	Prof.S.S. Malaj	Basic Electronics	https://vtu.ac.in/pdf/2022syll/BBEE203.pdf	https://nptel.ac.in/courses/108105132 https://nptel.ac.in/courses/117104072	ECE
3	Prof.S.S. Malaj	Introduction to Internet of Things	https://vtu.ac.in/pdf/2022syll/BETCK105H.pdf	https://nptel.ac.in/noc/courses/noc19/sem1/noc19-cs31	ECE
4	Prof. D. B. Madihalli	Introduction to Python Programming	BPLCK105B.pdf (vtu.ac.in)	Learn Python by Examples: https://www.learnbyexample.org/python/ https://www.learnpython.org https://pythontutor.com/visualize.html#mode=edit	ECE
5	Prof.S.S. Malaj	Basic Electronics and communication Engineering	https://vtu.ac.in/pdf/2021syll/21eln24.pdf	https://doi.org/10.4324/9781315737980.BookISBN9781315737980	ECE
6	Dr.S.S. Ittannavar	Basic Signal Processing	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://www.youtube.com/watch?v=KJnAy6hzetw&list=PL41692B571DD0AF9B https://www.youtube.com/watch?v=ZK3O402wf1c&list=PL49CF3715CB9EF31D&index=1	ECE

7	Dr.S.S. Ittannavar	Digital Signal Processing	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/117102060	ECE
8	Dr.S.S.Ittannavar	Digital Communication	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/108102096	ECE
9	Dr.S.S. Ittannavar	Multimedia Communication	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://www.youtube.com/watch?v=rC16fhvXZOo	ECE
10	Dr.S.S. Ittannavar	MATLAB Programming	https://vtu.ac.in/pdf/2022_3to8/2ecesyll.pdf	https://www.youtube.com/watch?v=IuEOMyGuuIg	ECE
11	Dr.S.S. Ittannavar	Digital Signal Processing	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://nptel.ac.in/courses/117102060	ECE
12	Dr.S.S. Ittannavar	Digital Communication	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://nptel.ac.in/courses/108102096	ECE
13	Prof. B. P Khot	Digital Image Processing	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/ArKe6zMkXnk https://youtu.be/nlwH07G9Efg https://youtu.be/MrNafUqh860	ECE
14	Prof. B. P Khot	Network Security	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/2YGUvopGkQc	ECE
15	Prof. B. P Khot	Computer Organization and Architecture	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/Wfau1WC5m4c https://youtu.be/Q7YdIhbRea0 https://youtu.be/s4cVdsK3XiQ	ECE
16	Prof.S.S. Malaj	Circuits and controls	https://vtu.ac.in//pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/108106098 https://nptel.ac.in/courses/108102042	ECE

17	Prof. S. S. Kamate	S&S	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=0nZYen9w_eo&list=PLyqSpQzTE6M8KJ-XQ1m2vl3nd2ZUqKEN8 https://www.youtube.com/watch?v=_vyke3vF4Nk https://www.youtube.com/watch?v=lkAvgVUvYvY	ECE
18	Prof. S. S. Kamate	M&A	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=wx_tIvaajAI&list=PLzJaFd3A7DZsL9dZDCeA3ijHZwwBb6R8y https://www.youtube.com/watch?v=wKL6WsEOl00&list=PLGnJGN4tr1dY3UivHBTJBQAcvlQ1FYEbG	ECE
19	Prof. S. S. Kamate	Engg. Electromagnetics	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=G5P6dInMTFg&list=PLuv3GM6-gsE3-hVNaw-YEb7EeY5XVPZdz https://www.youtube.com/watch?v=pGdr9WLto4A&list=PL1CE5B4FFFA997E5D	ECE
20	Prof. S. S. Kamate	VLSI Design	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=lRpt1fCHd8Y&list=PLU8VFS-HdvKtKswbcvvA8yVhzleTV7OE8 https://www.youtube.com/watch?v=M2x_lSYxvXk https://www.youtube.com/watch?v=faiEVOOCe-s	ECE

List of Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promote experiential learning among the students (2023-24)

S.N.	Faculty Name	Pedagogical initiatives and Innovative teaching aids	Course/Topic	Branch
1	Prof. S. S. Kamate	Models are prepared to teach the basics of coordinate systems.	Concept of Spherical Coordinate System, Cylindrical Coordinate Sytem & Cartesian Coordinate Sstem https://youtu.be/CW3WaE798dU	ECE
2	Prof. P. V. Patil	Concept of Superposition Theorem	Network Theory https://youtu.be/bLqBJCdZgjY	ECE

List of online resources & Web links(2023-24)

S.N.	Faculty Name	Online resources	Web links	Branch
1	Prof. S. S. Patil	Introduction to Embedded Systems	https://www.youtube.com/watch?v=OG91AlP_2XA	ECE
		The Typical Embedded Systems	https://www.youtube.com/watch?v=glEPCAZmcvA	ECE
			https://www.youtube.com/watch?v=0vO14GLGRUs	ECE
			https://www.youtube.com/watch?v=bKPCxj0hiiw	ECE
			https://www.youtube.com/watch?v=aPgZpxQijJ0	ECE
			https://www.youtube.com/watch?v=XZ8hClk0uSQ	ECE
		Characteristics and Quality Attributes of Embedded Systems	https://www.youtube.com/watch?v=jbdtPYtGeY0	ECE

		Embedded Systems-Application and domain specific	https://www.youtube.com/watch?v=hiljMGpCAno	ECE
		Hardware Software Co-design and Program modeling	https://www.youtube.com/watch?v=J-beEbEPNSY	ECE
		Embedded Firmware Design and Development	https://www.youtube.com/watch?v=huBPGmYj138	ECE
		Real-Time Operating System(RTOS) based ES design	https://www.youtube.com/watch?v=qLxEeRpFtUo	ECE
			https://www.youtube.com/watch?v=4RHxzX49vRU	ECE
			https://www.youtube.com/watch?v=9WhPUnwALdc	ECE
			https://www.youtube.com/watch?v=MgfvdUNTo6o	ECE
			https://www.youtube.com/watch?v=FsJh0b_KWGM	ECE
2	Dr.S.S. Ittannavar	Gram Schmidt Orthogonalization Procedure	Digital Communication https://www.youtube.com/watch?v=HX4EMJqdeZI	ECE
3	Prof.S.S. Malaj	Introduction to Control Problem concepts of Stability	Control Systems https://youtube.com/watch?v=vVFDm_CdQw	ECE
4	Prof.P.V. Patil	Microcontroller	https://onlinecourses.nptel.ac.in/noc24_ee46/preview	ECE
5	Prof.P.V. Patil	Microcontroller	https://youtube.com/playlist?list=PLcwp2fRcIXJUFthj5CKNNamSBDtf3We7A&si=4Xyi62FhRWjvuMz_	ECE

Dept: Computer Science & Engineering.

List of Pedagogical Teaching Aid used by teachers for Teaching Learning Process

Sl. No	Name of the Teacher	Title of Teaching Aid used	Topic covered	Link to document if uploaded
1	Dr. K B Manwade	Video Lecture Sub: Full Stack Development	Django Web Frameworks & its MVC Structure	
2	Dr. S V Manjaragi	Sorting & Searching Visualizer Sub: Principles of C Programming	Topic: Simulation of Searching & Sorting Technique	
		NPTEL Video Lectures Sub: Principles of C Programming	Topic: Pointers in C	https://archive.nptel.ac.in/courses/106/104/106104128/
		C Code Visualizer Sub: Principles of C Programming	Topic: Visualize the execution of C Programs	https://www.cs.usfca.edu/~galles/visualization/Search.html
3	Prof. N K Honnagoudar	NPTEL Video Lectures Sub: Principles of C Programming	State Diagram Problem	
		NPTEL Video Lectures Sub: Digital Design & Computer Organisation	Boolean Algebra (Boolean rules & Demogram theorams)	
4	Prof. A A Daptardar	NPTEL Video Lectures Sub :Data Base Management System	Transaction Processing	
		Model/Charts Sub :Data Base Management System	Three Schema Architecture	
5	Prof. M G Ganachari	Models/ Charts Sub: Universal Human Value	Digital Awareness for uneducated pople	
		VTU-UHV Cell Video Lectures Sub: Universal Human Value	Topic: Integrity as a Value	
		Models/Charts Sub: Internet of Things	Topic: IOT ecosystem	
		NPTEL Video Lectures Sub: Internet of Things	IOT Network Configuration	
		Models/ Charts Sub: Digital Design & Computer Organisation	Topic: K-map for 4 Variables	
		NPTEL Video Lectures Sub: Digital Design & Computer Organisation	Topic: Boolean Algebra	
6	Prof. S I Mane	Model/ Charts Sub: Data Structure & Applications	Topic: Basic Tree Terminologies	
		NPTEL Video Lectures Sub: Data Structure & Applications Div-A	Hashing	

		NPTEL Video Lectures Sub: Data Structures & Applications Div-B	Hashing	
		Models/Charts Sub: Data Structures & Applications Div-A	Components of Hashing	
7	Prof.Sapna B Patil	NPTEL Video Display Sub: Software Engineering & Project Management	Topic: SEI Capability Maturity Model(CMM)	
		Model/Charts Sub: Software Engineering & Project Management	Topic: Serum Process Flow	
		NPTEL Video Display Sub: Operating Systems Div-A	Topic: Disk Structure	
		Models/Charts Sub: Operating System Div-A	Topic: Steps in Handling the Page fault.	

H.O.D.
Computer Science & Engineering
HIT, Nidasoshi.

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGG.

ICT Facilities

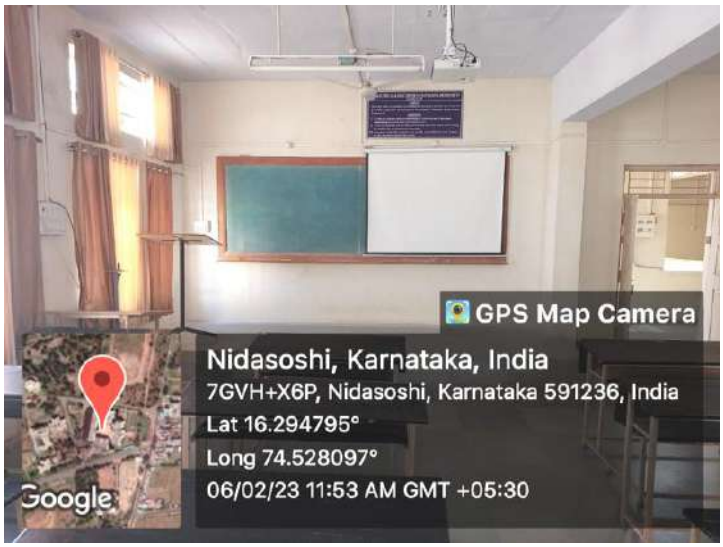
Department: **Electrical & Electronics and Engineering**

Sl. No	Location	ICT Facilities and tools available
1.	Class rooms	1. B303: Projector, Screen, Computer 2. B304: Projector, Screen, Computer 3. B305: Projector, Screen, Computer
2.	Seminar Hall	1. C204: Projector, Screen, Computer
3.	Laboratories	1. D205: Projector, Screen, Computer

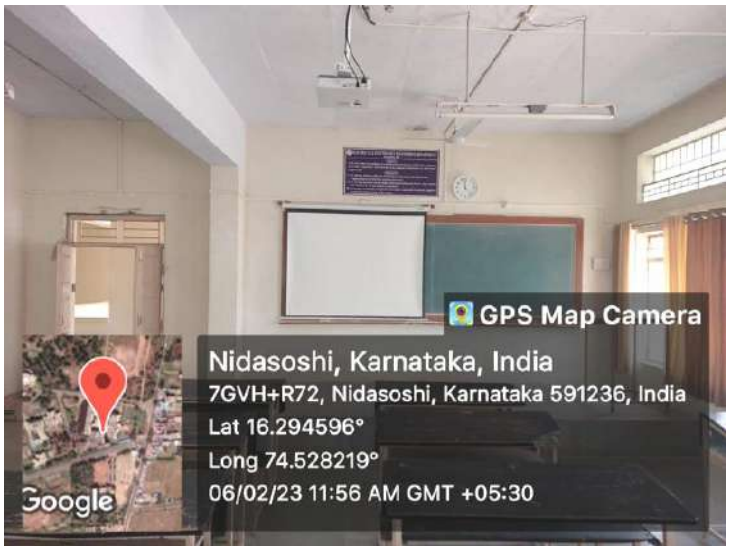
Photos:

Class rooms

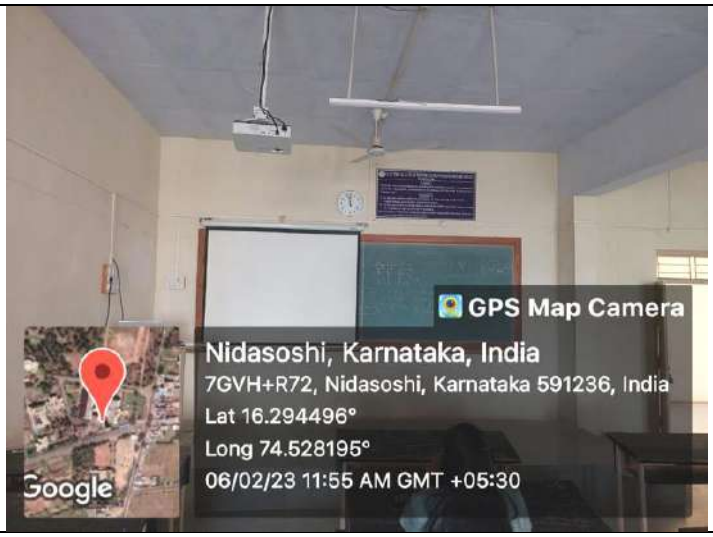
Room No: B303



Room No: B304

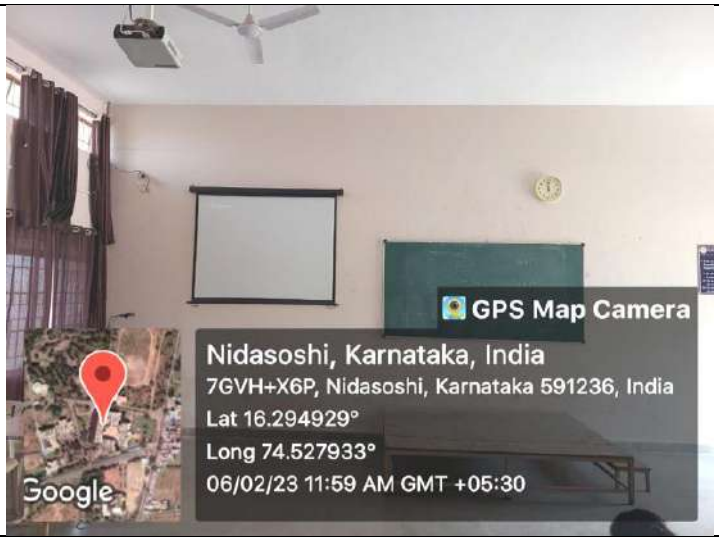


Room No: B305



Seminar Hall

Room No: C204



Laboratory

Room No: D205

A. TEACHING METHOD

The Hirasugar Institute of Technology (HSIT) is affiliated to Visvesvaraya Technological University (VTU), Belagavi Karnataka. The HSIT makes all necessary efforts to ensure effective curriculum delivery and well documentation of all plans & activities. Following are the flow of activities to ensure effective Teaching & Learning process.

- Normally the Odd-semester commences in the first week of August & Even-semester in first week of February.
- Academic activities are conducted in well spaced & ventilated class rooms with modern teaching equipments like LCD projectors for effective teaching-learning process.
- Distribution of work-load for next semester is done soon after the end of current semester based on expertise and choice of faculty.
- Calendar of Event (COE) of the Institute is prepared that indicates academic and other activities for the semester in line with university academic calendar.
- Calendar of Event (COE) of the Department is prepared that indicates academic and other activities for the semester in line with Institute's academic calendar.
- Preparation of Time-Table of the department and ensuring the display of the same at least one week before the commencement of each semester.
- All Teachers prepare the teaching plans in line with academic calendar.
- Teachers prepare subject notes according to curriculum of Visvesvaraya Technological University.
- Teachers prepare the course plan of each course which includes Syllabus, Course outcomes, Course prerequisites, Course delivery plan, Assignment questions, and Results of previous two semesters. Course plan will be given to each student in the form of booklet every semester and also uploaded to institute website. http://hsit.ac.in/ee.php
- Laboratory manuals are prepared for each Laboratory and distributed to the students during the beginning of each semester.
- Theory Internal Assessments (IA) are conducted in each semester centrally & Laboratory IAs are conducted at the department as per the scheduled dates.
- Student's performance in the Internal Assessment & percentage of attendance after every Internal Assessment is communicated to parents through SMS. Poor performers in the Internal Assessment are counseled by individual course coordinator & also at the Department level.
- Remedial classes are conducted for the benefit of slow learners in different courses.
- Special lectures/invited talks are arranged regularly by eminent academicians & Industry persons.
- Faculty feedback by students is collected twice in semester to improve teaching learning process.

- Group of 10-15 students are allocated to each faculty for mentoring & is done on regular basis.
- At the end of each semester an examination is conducted by the university in each course.

B.LEARNING METHOD:

Institute has adopted several practices which are exclusively student centric and also help them in advanced learning like experiential learning, Participative learning and enhancement of problem solving skills.

Experiential Learning:

Students are encouraged to conduct experiments individually in the laboratories to realize the theoretical concepts. Students undergo industrial internships during vacation through institution. Industrial visits are organized regularly for better understanding of full scale working of Engineering processes and machineries. Students are supported to select projects to address community, industrial and environmental issues during final year for better understanding of real time problems and applying Engineering knowledge for resolving.

Participative Learning:

Every department encourages students to participate in co-curricular activities like Mini/Hobby project competitions and Seminars on innovations in Engineering and Technology. Also department organizes such events frequently through staff and student association (EESSA). In addition to this the institute organizes HSIT Quest every year which is a National Level technical event. In addition to outstation students, our students of all departments and all semesters take part in this Mega Event. The events of HSIT Quest include Paper Presentation, Technical Quiz, Program Coding, Trouble Shooting, Robo-Race competition etc. The Institute is providing financial support to the students for attending state level project competitions, conferences, workshops etc. every year at premier institutions, which will help them to learn cutting edge technologies and also update their knowledge at par with students of premier institutions. The department forms the project groups on merit basis, like each group consisting of slow learner, medium learner and advanced learner. The Department also conducts hands on workshop for students to enhance their learning skills. The learning method is made student centric through cooperative learning through Interdisciplinary projects.

Problem Solving:

The students are supported to take part in competitions like Smart India Hackathon organized by All India Council for Technical Education, New Delhi, and 'Anveshana' a project competition organized by Agastya International Foundation every year which enhances the problem solving ability. The institution provides platform for students to make use of modeling and simulation tools in the laboratories for solving complex Engineering problems.

C. USE OF VARIOUS INSTRUCTIONAL METHODS AND PEDAGOGICAL INITIATIVES

Institute practices blended teaching learning processes from chalk-and-talk to smart board. Students are also encouraged to interact during the lecture hour and beyond class room hours to get their doubts cleared. The Institute is equipped with state-of-art teaching aids to improve learning processes a few of them are:

- Use of ICT in teaching and learning
- Teaching with working demo/models
- Teaching with charts
- Demonstration of Engineering Concepts through live projects.
- Organizing Expert talks from academicians/industry experts.
- Use of international journals available online in VTU consortium as & when required to expose in recent innovations & developments for higher semester students.
- Revision for all theory and practical courses after completion of each module.
- Faculty members are making use of sources like National Programme on Technology Enhanced Learning (NPTEL).
- Internet sources.
- Important Websites to understand basics, working methodology of Process and systems, mechanisms and flow diagrams.
- Interactive Learning.
- Interdisciplinary Learning.

Instruction method and Interactive learning:

The faculty use chalk and board, audio visual aids, real world examples, charts & models, in teaching, as teaching aids, to bring the quality in instructional methods such that the students can easily understand the typical and complex concepts. Students are also encouraged to actually interact during the lecture hours and beyond class room hours by getting the doubts clarified.

Computer-assisted learning:

The Department has required number of computers, printers, LCD projectors, application software's and system software's with Wi-Fi connections. These resources are effectively used for (i) Final year projects/mini projects (ii) Guiding the interested and slow learners in critical subjects in extra hours (iii) Guiding the students to search the relevant technical articles/study materials through the various links in websites (iv) Searching e-journals in particular field/area of interest on regular time basis (v) Conducting departmental smart learning activities under department association.

Criteria coordinator

NBA Coordinator

19.12.24
HOD
Dr. B. V. Madiggond
BE,ME,Ph.D
Prof. & Head
Dept. of Electrical & Electronics Engg
HIT NIDASOSHI-591 236

List of ICT- enabled tools including e-resources,Pedagogical Initiatives, and Teaching-aids used for effective teaching-learning process

The institute is permanently affiliated to the Visvesvaraya Technological University (VTU), Belgaum. The VTU'sBoard of Studies (BoS) has published the curriculum (2021 and 2022 Scheme of Studies), which is revised in line with the NEP-2020 of all courses in its website link:https://vtu.ac.in/en/b-e-scheme-syllabus/. Each syllabus of courses contains, 5 modules, text books, reference books, evaluation guidelines, pedagogies such as e-resources, video lectures, supporting experiments, field visits etc., along with these, the 4-5 course outcomes (COs) are also suggested. The awareness to access the VTU curriculum published and its implementation guidelines have been educated to the students during their "Induction Program" and also in the starting introductory classes. The faculty members are also referring these contents to plan teaching-learning lessons/activities/pedagogies and to define the 5 course outcomes (COs) for each module for mapping with POs and assessment of attainment purpose. The following are the VTU weblinks of syllabus, where e-resources are mentioned, Pedagogies and other ICT tools including online resources for effective teaching and learning process.All the class rooms are well connected with 104 Mbps internet and LCD projector to disseminate e-resources in the regular classes. All teachers are utilizing these facilities based on their syllabus content regularly.

S.N.	Online resources	Web links
1	NPTEL Courses on VTU Website	https://vtu.ac.in/en/online-course-jan-june-2023/
2	VTU Model Question papers	https://vtu.ac.in/en/model-question-paper-b-e-b-tech-b-arch/
3	VTU Study materials	https://vtu.ac.in/en/study-material/
4	VTU Board of Studies Proceedings	https://vtu.ac.in/en/board-of-studies-proceedings/
5	VTU Academic Calendar	https://vtu.ac.in/academic-calendar/
6	VTU NISP	https://vtu.ac.in/en/nisp-2/
7	NPTEL Courses on VTU Website	https://vtu.ac.in/en/nptel-online-courses/
8	VTU OPAC Library	http://library.vtu.ac.in/

VTU Board of Studies (BoS) recommended e-Resources which are mentioned in the Syllabus (2021 and 2022 Scheme of Study)
(Web links, Video Lectures, MOOCs, e-Shikhsana Program, NPTEL, EDUSAT, YouTube, Vlab etc.)

S. N.	Course	VTU Syllabus link where e-resources are mentioned	Topic with e-Resource
1	Mathematics-I for CSE I Year	https://vtu.ac.in/pdf/2022syll/BMATS101.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTUe-Shikshana Programand VTU EDUSAT Program
2	Physics for CSE I Year	https://vtu.ac.in/pdf/2022syll/BPHYS102.pdf	Laser: https://www.youtube.com/watch?v=WgzynezPiyc Superconductivity https://www.youtube.com/watch?v=MT5Xl5ppn48 Optical Fiber : https://www.youtube.com/watch?v=N_kA8EpCUQo Quantum Mechanics https://www.youtube.com/watch?v=p7bzE1E5PMY&t=136s Quantum Computing :https://www.youtube.com/watch?v=jHoEjvuPoB8 Quantum Computing: https://www.youtube.com/watch?v=ZuvCUU2jD30 Physics of Animation:https://www.youtube.com/watch?v=kj1kaA_8Fu4 Statistical Physics Simulation:https://phet.colorado.edu/sims/html/plinko-probability/latest/plinkoprobability_en. html NPTEL Superconductivity: https://archive.nptel.ac.in/courses/115/103/115103108/ NPTEL Quantum Computing:https://archive.nptel.ac.in/courses/115/101/115101092 Virtual LAB: https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham Virtual LAB:https://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1
3	Chemistry for CSE I Year	https://vtu.ac.in/pdf/2022syll/BCHES102.pdf	http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDMjHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM **ActivityBasedLearning (SuggestedActivitiesinClass)/PracticalBasedlearning** https://www.vlab.co.in/broad-area-chemical-sciences

			https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science
4	C-Programming for CSE I Year	https://vtu.ac.in/pdf/2022syll/BPOPS103.pdf	1.https://elearning.vtu.ac.in/econtent/courses/video/BS/15PCD23html 2. https://nptel.ac.in/courses/106/105/106105171/ MOOC courses can be adopted for more clarity in understanding the topics and verities of problem solving methods. https://tinyurl.com/4xmrexre Activity Based Learning (Suggested Activities in Class)/ Practical Based learning • Quizzes • Assignments • Seminars
	Mathematics-I for EEE I Year	https://vtu.ac.in/pdf/2022syll/BMATE101.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Program VTU EDUSAT Program Activity Based Learning (Suggested Activities in Class)/ Practical Based learning • Quizzes • Assignments • Seminar
	Physics for EEE I Year	https://vtu.ac.in/pdf/2022syll/BPHYE102.pdf	Web links and Video Lectures (e-Resources): Laser: https://www.britannica.com/technology/laser,k Laser: https://nptel.ac.in/courses/115/102/115102124/ Quantummechanics: https://nptel.ac.in/courses/115/104/115104096/ Physics: http://hyperphysics.phy-astr.gsu.edu/hbase/hframe. html Numerical Aperture of fiber: https://bop-iitk.vlabs.ac.in/exp/numerical-aperture-measurement 16-2-2023 Activity Based Learning (Suggested Activities in Class)/ Practical Based learning: http://nptel.ac.in https://swayam.gov.in https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeethamhttps://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1 https://virtuallabs.merlot.org/vl_physics.html https://phet.colorado.edu https://www.myphysicslab.com
	Chemistry for EEE I Year	https://vtu.ac.in/pdf/2022syll/BCHEE102.pdf	WeblinksandVideoLectures(e-Resources): http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDM

			jHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBased Learning: https://www.vlab.co.in/broad-area-chemical-sciences https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science
	Elements of Electrical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BEEE103.pdf	Web links and Video Lectures (e-Resources): www.nptel.ac.in Activity Based Learning (Suggested Activities in Class)/ Practical Based learning Wherever required, faculty shall demonstrate the concepts through laboratory experiments.
	Basics of Electronics for I year	https://vtu.ac.in/pdf/2022syll/BBEE103.pdf	Web links and Video Lectures (e-Resources): https://nptel.ac.in/courses/122106025 https://nptel.ac.in/courses/108105132 https://nptel.ac.in/courses/117104072
	Mathematics for Mechanical Engineering I year	https://vtu.ac.in/pdf/2022syll/BMATM101.pdf	Web links and Video Lectures (e-Resources): http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Program VTU EDUSAT Program Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning: • Quizzes • Assignments • Seminar
	Mathematics-I for Mechanical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BMAT201.pdf	Web links and Video Lectures (e-Resources): http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Programand VTU EDUSAT Program Activity-Based Learning (Suggested Activities in Class)/ • Practical-Based Learning • Quizzes • Assignments • Seminar
	Physics for Mech	https://vtu.ac.in/pdf/2022syll/BPHYM102.pdf	Simple Harmonic motion: https://www.youtube.com/watch?v=k2FvSzWeVxQ Shock waves:

	anical Engineering I Year		https://physics.info/shock/ Shock waves and its applications: https://www.youtube.com/watch?v=tz_3M3v3kxk Stress- strain curves: https://web.mit.edu/course/3/3.11/www/modules/ss.pdf Stress curves: https://www.youtube.com/watch?v=f08Y39UiC-o Fracture in materials: https://www.youtube.com/watch?v=x47nky4MbK8 Thermo-electricity: https://www.youtube.com/watch?v=2w7NBuu5w9c&list=PLtkeUZItwHK5y6qy1GFxa4Z4Rc mzUaaz6 Thermoelectric generator and coolers: https://www.youtube.com/watch?v=NruYdb31xk8 Cryogenics: https://cevgroup.org/cryogenics-basics-applications/ Liquefaction of gases: https://www.youtube.com/watch?v=aMelwOsGpIs Virtual lab: https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham Material characterization : https://onlinecourses.nptel.ac.in/noc20_mm14/preview https://www.encyclopedia.com/science-and-technology/physics/physics/cryogenicshttps://www.usna.edu/NAOE/_files/documents/Courses/EN380/Course_Notes/Ch10_Deformation.pdf 16-2-2023 4 Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: http://nptel.ac.in https://swayam.gov.in https://virtuallabs.merlot.org/vl_physics.html https://phet.colorado.edu https://www.myphysicslab.com
	Chemistry for Mechanical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BCHEM102.pdf	http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDMjHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM ActivityBasedLearning(SuggestedActivitiesinClass)/ PracticalBasedlearning: https://www.vlab.co.in/broad-area-chemical-sciences https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science

	Elements of Mechanical Engineering for I year	https://vtu.ac.in/pdf/2022syll/BEMEM103.pdf	https://www.tlv.com/global/TI/steam-theory/principal-applications-for-steam.html https://www.forbesmarshall.com/Knowledge/SteamPedia/About-Steam/Fundamental-Applications-of-Steam https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- andprocess-industry/) Videos | Makino (For Machine Tool Operation) Activity Based Learning (Suggested Activities in Class)/ Practical Based learning 1. Visit to any manufacturing/aero/auto industry or any power plant 2. Demonstration of lathe/milling/drilling/CNC operations 3. Demonstration of working of IC engine/refrigerator 4. Demonstration of metal joining process 5. Video demonstration of latest trends in mobility/robotics
	Innovation And Design Thinking	https://vtu.ac.in/pdf/2022syll/BIDTK108.pdf	1. www.tutor2u.net/business/presentations/. /productlifecycle/default.html 2. https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf 3. www.bizfilings.com 4. https://www.mindtools.com/brainstm.html 5. https://www.quicksprout.com/. /how-to-reverse-engineer-your-competit 6. www.vertabelo.com/blog/documentation/reverse-engineering https://support.microsoft.com/en-us/kb/273814 7. https://support.google.com/docs/answer/179740?hl=en 8. https://www.youtube.com/watch?v=2mjSDIBaUlM thevirtualinstructor.com/foreshortening.html https://dschool.stanford.edu/.../designresources/.../ModeGuideBOOTCAMP2010L.pdf https://dschool.stanford.edu/use-our-methods/ https://www.interactiondesign.org/literature/article/5-stages-in-the-design-thinking-process http://www.creativityatwork.com/design-thinking-strategy-for-innovation/498 https://www.nngroup.com/articles/design-thinking/ https://designthinkingforeducators.com/design-thinking/ www.designthinkingformobility.org/wp-content/.../10/NapkinPitch_Worksheet.pdf Activity Based Learning (Suggested Activities in Class)/ Practical Based learning http://dschool.stanford.edu/dgift/ https://onlinecourses.nptel.ac.in/noc19_mg60/preview
	Introduction to Civil Engineering	https://vtu.ac.in/pdf/2022syll/BESCK104A.pdf	Web links and Video Lectures (e-Resources): https://www.youtube.com/watch?v=nGfVTNfNwnk&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwThttps://www.youtube.com/watch?v=nkg7VNW9UCc&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwT&i ndex=2 https://www.youtube.com/watch?v=ljDIIMvxeg&list=PLOSWwFV98rfKXq2KBphJz95rao7q 8PpwT&index=5 https://www.youtube.com/watch?v=VQRcChR9IkU&list=PLOSWwFV98rfKXq2KBphJz95r ao7q8PpwT&index=18

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	Introduction To Mechanical Engineering	https://vtu.ac.in/pdf/2022syll/BESCK104D.pdf	https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- andprocess-industry/ Videos | Makino (For Machine Tool Operation) Activity Based Learning (Suggested Activities in Class)/ Practical Based learning: • Demonstration of lathe/milling/drilling operations • Demonstration of working of IC Engine. Study arc welding, oxy-acetylene gas flame structure. • Video demonstration of latest trends in mobility robotics and Automation • Demonstration of developing models on machine tools
	Smart Materials and systems	https://vtu.ac.in/pdf/2022syll/BETCK105A.pdf	YouTube Videos. Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Site visits to understand the prefabricated building components. • Visit to Smart material manufacturing facilities • Visit to 3-D printing facility
	Green Buildings	https://vtu.ac.in/pdf/2022syll/BETCK105B.pdf	Web links and Video Lectures (e-Resources): https://www.youtube.com/watch?v=THgQF8zHBW8 https://www.youtube.com/watch?v=DRO_rIkywxQ Activity Based Learning (Suggested Activities in Class)/ Practical Based learning Students have to visit a building which is green rated and prepare a report

	Introduction to Nano Technology	https://vtu.ac.in/pdf/2022syll/BETCK105C.pdf	https://nptel.ac.in/courses/118104008https://www.digimat.in/nptel/courses/video/118104008/L16.html https://archive.nptel.ac.in/courses/113/106/113106099/ https://nptel.ac.in/courses/112107283 https://onlinecourses.nptel.ac.in/noc22_me131/preview Practical Based Learning (Any 5 experiments x 2 hours = 10 practical hours): • Preparation of silver nanoparticles and characterization of particle size by optical spectroscopy • Preparation of ZnO nanoparticles by combustion technique Preparation of Al2O3 nanoparticles by precipitation method Preparation of Silica nanoparticles by sol-gel method Preparation of metal oxide nanoparticles by hydrothermal method • Determination of thermal conductivity of nanofluids using a thermal analyser • Preparation of thin films by SILAR method Determination of Band gap of given material using Tauc plot
	Introduction to Sustainable Engineering	https://vtu.ac.in/pdf/2022syll/BETCK105D.pdf	VTU/EDUSAT/SWAYAM/NPTEL/MOOC. https://nptel.ac.in/courses/127105018 https:/https://nptel.ac.in/courses/107103081/www.macfound.org https://unesdoc.unesco.org/ https://unesdoc.unesco.org/ark:/48223/pf0000375644.locale=en https://engineeringforoneplanet.org/ Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Group Discussion of case studies. Solutions to real time case studies • Seminar/Poster Presentation
	Renewable Energy Sources	https://vtu.ac.in/pdf/2022syll/BETCK105E.pdf	E-book:URL:https://www.pdfdrive.com/non-conventional-energy-sources-e10086374.html E-book:URL:https://www.pdfdrive.com/non-conventional-energy-systems-nptel-d17376903.html E-book :https://www.pdfdrive.com/renewable-energy-sources-and-their-applications- e33423592.html E-book: https://www.pdfdrive.com/lecture-notes-on-renewable-energy-sources-e34339149.html https://onlinecourses.nptel.ac.in/noc18_ge09/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Poster presentation on the theme of renewable energy sources • Industry Visit
	Emerging Appli	https://vtu.ac.in/pdf/2022syll/BETCK105G.pdf	https://www.youtube.com/watch?v=kQ6CY1qpGjY https://nptel.ac.in/courses/102101054 https://onlinecourses.nptel.ac.in/noc20_ph13/preview

	cations Of Biosensors		https://onlinecourses.nptel.ac.in/noc22_ph01/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • AV presentation by students (on specific topics). • Discussion of case studies based on research findings. • Model making and Poster presentations
	Introduction to Internet of Things (IOT)	https://vtu.ac.in/pdf/2022syll/BETCK105H.pdf	https://nptel.ac.in/noc/courses/noc19/SEM1/noc19-cs31/ Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Demonstrate a sensor based application
	Introduction to Cyber Security	https://vtu.ac.in/pdf/2022syll/BETCK105I.pdf	https://www.youtube.com/watch?v=yC_hFm0BX28&list=PLxApjaSnQGi6Jm7LLSxvmNQjS_rt9swsu https://www.youtube.com/watch?v=nzZkKoREEGo&list=PL9ooVrP1hQOGPQVeapGsJCktzIO4DtI4_ https://www.youtube.com/watch?v=6wi5DI6du-4&list=PL_uaeekrhGzJlB8XQBxU3z__hDwT95xlk https://www.youtube.com/watch?v=KqSqyKwVuA8 16-2-2023 Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Illustration of standard case study of cyber crime • Setup a cyber court at Institute level
	Introduction To Embedded Systems	https://vtu.ac.in/pdf/2022syll/22ETC15J.pdf	NPTL Lectures: https://nptel.ac.in/courses/108102045 Embedded Systems, IIT Delhi, Prof. Santanu Chaudhary Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • To design a simple Embedded System like simple remote • To demonstrate simple microcontroller-based experiments like LED interfacing, LCD interfacing, DAC etc
	Introduction to Web Programming	https://vtu.ac.in/pdf/2022syll/BPLCK105A.pdf	https://onlinecourses.swayam2.ac.in/aic20_sp11/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: ● Develop simple GUI interfaces for a computer program to interact with users
	Introduction to Python	https://vtu.ac.in/pdf/2022syll/BPLCK105B.pdf	https://www.learnbyexample.org/python/ https://www.learnpython.org/ https://pythontutor.com/visualize.html#mode=edit Activity Based Learning (Suggested Activities in Class)/ Practical Based

	Programming		Learning: ● Quizzes for list, tuple, string dictionary slicing operations using below link https://github.com/sushantkhara/Data-Structures-And-AlgorithmswithPython/raw/main/Python%203%20_%20400%20exercises%20and%20solutions%20for%20beginn ers.pdf
	Basics of Java Programming	https://vtu.ac.in/pdf/2022syll/BPLCK105C.pdf	https://onlinecourses.nptel.ac.in/noc22_cs47/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: ● Conduct on spot problem solving based on JAVA ● Develop simple GUI interfaces for a computer program to interact with users
	III and IV Semesters Computer Science and Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2cssessyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ http://www.bookstreet.in. VTU EDUSAT PROGRAMME–20 and VTU e-Shikshana Program Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning: ● Programming Assignment ● Seminars **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Civil Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2civsyll.pdf	1.Strength of Materials web course by IIT Roorkee https://nptel.ac.in/courses/112107146/ 2.Strength of Materials video course by IIT Kharagpur https://nptel.ac.in/courses/105105108/ 3.Strength of Materials video course by IIT Roorkee https://nptel.ac.in/courses/112107147/18 4.All contents organized http://www.nptelvideos.in/2012/11/strengthof-materials-prof.html Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Quiz (To assist in GATE Preparations) • Demonstrations in Lab Virtual Lab Experiments **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV	https://vtu.ac.in/pdf/2022_3to8/2ecesyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/

	Semesters Electronics and Communication Engineering Courses		• VTU e-Shikshana Program • VTU EDUSAT Program. Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning • Quizzes • Assignments • Seminar **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Electrical and Electronics Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2eesyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ • VTU e-Shikshana Program • VTU EDUSAT Program. Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning • Quizzes • Assignments • Seminar **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Mechanical Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2mecsyll.pdf	Statics and Strength of Materials, Shehata, 2nd edition, 1994. http://www.astm.org/DIGITAL_LIBRARY/JOURNALS/TESTEVAL/PAGES/JTE12637J.htm http://www.astm.org/DIGITAL_LIBRARY/JOURNALS/TESTEVAL/PAGE S/JTE12637J.htm http://www.freeengineeringbooks.com/Civil/Strength-of-MaterialBooks.php Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning • Use Mdsolids (https://web.mst.edu/mdsolids/) or any open source software for active teaching and learning. **Note:**Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	Shape Memory Alloys [07/01, 12:10 pm] Dr.S.N.Topannavar:		https://www.slideshare.net/sureshdaravath/shape-memory-alloys-71483726

	[07/01, 12:29 pm] Dr.S.N.Topannavar: Martensite transformation animation	https://padeepz.net/shape-memory-alloys/ https://www.youtube.com/watch?v=r-o-neQiT24
	Properties of NiTi Alloys [14/01, 12:41 pm] Dr.S.N.Topannavar: [14/01, 1:12 pm] Dr.S.N.Topannavar:	https://youtu.be/EKimWj8c-MQ?si=xt2IV2XroB-TGDCU https://youtu.be/60G1KCe31DA?si=-fH9w8qqdcF6tA4i
	Shape Memory Alloys [14/01, 12:58 pm] Dr.S.N.Topannavar: [14/01, 1:05 pm] Dr.S.N.Topannavar: [14/01, 1:10 pm] Dr.S.N.Topannavar: 14/01, 2:52 pm] Dr.S.N.Topannavar:	https://youtu.be/7PKJ1TSCQWk?si=94xqFo17R6Gd6dpk https://youtu.be/M4lDuktUaeI?si=31_nLc_qIrO4Brwt https://youtu.be/yR-6_lS9vts?si=NytO45sqMLpHUPGh https://youtu.be/I7doX1zWGdw?si=Cc3GafcswLn-HvxE
	Applications of Shape Memory Alloys [14/01, 2:37 pm] Dr.S.N.Topannavar: [14/01, 2:40 pm] Dr.S.N.Topannavar:	https://youtu.be/5hYOxFFjZ-8?si=Vw4bGVDbBb6HKR46 https://youtu.be/I7doX1zWGdw?si=eese-szhufVq6pU6
	Piezoelectric Materials and Applications [14/01, 3:14 pm] Dr.S.N.Topannavar [14/01, 3:21 pm] Dr.S.N.Topannavar [14/01, 3:25 pm] Dr.S.N.Topannavar: [14/01, 3:31 pm] Dr.S.N.Topannavar: [14/01, 3:33 pm] Dr.S.N.Topannavar: [14/01, 3:34 pm] Dr.S.N.Topannavar:	https://youtu.be/_XABS0dR15o?si=w_lp1UghKxbuqPF5 https://youtu.be/4nbBAG-848c?si=GPQBzxnSeCjOYNhl https://youtu.be/pnvpsl3bzwQ?si=7LT4KBfRU_1Y04ll https://youtu.be/INaPVsVZkR8?si=5L7Axd4M7UMZSlDW https://youtu.be/ULbNZuZulPg?si=BKmQ69mMmVV_J2fi https://youtu.be/p-rPep0-3cE?si=yC-m6ocf7OkFMl3p
	Self Healing Materials [30/01, 7:22 am] Dr.S.N.Topannavar:	https://youtu.be/xDp3PU8azmY?si=HDAEMX9awZIzcpMr
	Electrical Self Healing Materials [30/01, 7:21 am] Dr.S.N.Topannavar	https://youtu.be/N_ijvkl51LM?si=4M0VGpAwO1X6_aMb
	Self Healing Polymers [30/01, 7:21 am] Dr.S.N.Topannavar	https://youtu.be/XnJbH9re2rI?si=fMa7FPwTGcmjecxx
	Targeted Drug Delivery System (TDDS)	https://youtu.be/2k2BLFFQssg?si=ydD6e0s6PkXiWBl9

	[30/01, 7:16 am] Dr.S.N.Topannavar:	
	Smart Drug Delivery System [30/01, 7:14 am] Dr.S.N.Topannavar:	https://youtu.be/AqWzqhDaoz0?si=ws0q9YWplRmF4Txg
	Bimorph MFC Actuator	https://www.youtube.com/watch?v=w79wTb2zOQQ
	Bimorph Piezoelectric Cantilever Mode Shapes	https://www.youtube.com/watch?v=-XAIQQUcQk0
	Synthesis of Carbon Nanotubes (CNTs) by CVD Method	https://www.youtube.com/watch?v=FQ5Fe5I8vYU
	Azobenzene : Organic Synthesis	https://www.youtube.com/watch?v=novE6nQrBmU
	Azobenzene and Polyimide Film Shape Changing Polymer	https://www.youtube.com/watch?v=HiI22ttaBf0
	A crystal of azobenzene showing different patterns of flipping motion	https://www.youtube.com/watch?v=YGqEgrcnfXc
	Smart coatings for corrosion protection	https://www.youtube.com/watch?v=6PJuJ1-fp7c
	Scratching the Surface: Self Healing and Smart Coatings [30/01, 7:20 am] Dr.S.N.Topannavar	https://youtu.be/T0w_r8hrt5Q?si=CA-kfloLc4CyKiSz
	New asphalt repairs its own cracks [30/01, 7:19 am] Dr.S.N.Topannavar:	https://youtu.be/C2CYClNVkCs?si=43Puhf-ifBMLKY7G
	Self Healing Polymers by CIDETEC [30/01, 7:18 am] Dr.S.N.Topannavar:	https://youtu.be/fVTfSHEPnr8?si=uH6hdCcQRxt2cR2T
	Nano particles for Targeted Drug Delivery System [30/01, 7:17 am] Dr.S.N.Topannavar:	https://youtu.be/xElVrV9zxRY?si=OczXLNpdu-Rof3bZ
	Biomaterials in Drug Delivery System [30/01, 7:15 am] Dr.S.N.Topannavar:	https://youtu.be/tx6IVsErnj8?si=ITeg26itxUnTBnx_
	Piezo Disk Actuator, Bimorph Disk Actuator Long Travel, Molecualr Valve by www.pi.ws	https://www.youtube.com/watch?v=mAAT5fvbl4Y
	Thermal Bimorph	https://www.youtube.com/watch?v=NpxoUU1rLTs

	How Carbon Nanotubes Will Change the World	https://www.youtube.com/watch?v=SIif11QOsRI
	pH Responsive Lipids-Use in Smart Drug Delivery Systems	https://www.youtube.com/watch?v=UpjLULz9Aq8
	Smart Polymers: The Game-Changing, Responsive, Resilient, and Revolutionary Polymer Developments	https://www.youtube.com/watch?v=6hVJvXL3tMs
	Smart Materials of the Future - with Anna Ploszajski	https://www.youtube.com/watch?v=4-_rwDgLMpk
	Research Spotlight: Julianna Abel - developing 'smart' fabrics for medical and space applications	https://www.youtube.com/watch?v=NTZDy8jkw68
	Electronics in Space Applications	https://www.youtube.com/watch?v=c4UtMI_xEQY
	Self-Healing Coatings to Prevent Corrosion Damage	https://www.youtube.com/watch?v=66mpHrlk_Fk
	SMART COATINGS FOR CORROSION PROTECTION DR S K DHAWAN	https://www.youtube.com/watch?v=yD1Bt-jIwHw
	How to Make PowerPoint PPT in Mobile | ppt in mobile phone | Power-point in mobile :	https://youtu.be/pdjiue2YbgY?si=YeBEV1pKstV-4pQL
	How to speak on Stage	https://youtube.com/shorts/V0tPkayEkKs?si=HYEf0zC-JM10mK9t
	How to start presentations?| Presentation Skills| Five Tips For Presentation by Jaswant Sir	https://youtu.be/QPt_CHcjDMU?si=zuvR5WnzKCTxQvG5
	How to make great presentations | 10 powerful presentation tips	https://youtu.be/yPhUz6xjhGY?si=_hme-IRdI3L03XL-
	A Recipe For Self-healing Concrete! - Science Snapshot	https://youtu.be/JZbQURpXdaA?si=r4r4qZlM9YbPbmjF

	SMART COATINGS FOR CORROSION PROTECTION DR S K DHAWAN	https://youtu.be/yD1Bt-jIwHw?si=L5WLFGyKixCtezcw
	A Recipe For Self-healing Concrete! - Science Snapshot	https://youtu.be/JZbQURpXdaA?si=r4r4qZlM9YbPbmjF
	Scratching the Surface: Self-Healing and Smart Coatings Research at BP-ICAM	https://youtu.be/T0w_r8hrt5Q?si=Ev4abZFvuDbVwLBX
	Corrosion in Reinforced Concrete	https://youtu.be/cX2FdjV4eOY?feature=shared
	Graphene anti-corrosion coating - Enerage Inc.	https://youtu.be/h6VFemlHXTU?si=7gzR6MHrsJ4ZBXMb
	Liquid Crystals | NSF Chalk Talk	https://youtu.be/nAJgchCI3kg?si=-ev34gRf1LFe4_Bi
	This new material heals—not cracks—under pressure	https://youtu.be/VJCX0xgQFBE?si=N7a1spYPUiqg1Ci9
	Self-Healing Coatings to Prevent Corrosion Damage	https://youtu.be/66mpHrlk_Fk?si=cgPOyRbZRRbSixR0
	Shape Memory Alloy Heat Engine	https://youtu.be/I78ZTkdZ0b0?feature=shared
	Photoresponsive Liquid Crystalline Epoxy Networks with Shape Memory Behavior and Dynamic Ester	https://youtu.be/dldwbymd7eA?si=CFtTWbYPGvU9XmD4
	Azobenzene and Polyimide Film Shape Changing Polymer	https://youtu.be/HiI22ttaBf0?si=Bl-TElmdm81LeuFI
	Hair Gel	https://youtube.com/shorts/0eirRrU312Y?si=bry6aPBVY5iyOxar
		https://youtu.be/Y6K7h9tbD_s?si=GTjcsrEwblb35E-S

	Liquid Crystals Painted on Heat Pipes	
	What are Liquid Crystals?	https://youtu.be/MuWDwVHVLio?si=xrSjouoB7Zu4m95V
	New Gel Protects Eggs and May Lead to Better Sports Helmets | Headline Science	https://youtu.be/yBMWBhpeiy8?si=57TdmzORewh7pwha
	Self-Healing Material	https://youtu.be/DAUl6upA3q4?si=mQHDknLx3AIIiZcL
	Smart Gel	https://youtu.be/W-YYtQkldgU?si=i1fhaN8H8Pa67SYO
	What are Liquid Crystals : Definition ,Formation, Types , Uses & Properties of Liquid Crystals	https://youtu.be/JlZhHhpVRrI?si=HU-UCu71guAiA4ay
	Colour changing Liquid Crystals	https://youtube.com/shorts/lFY-HufqZPU?si=Kxj1NyqMEBvixmzy
	Liquid Crystals	https://youtube.com/shorts/R7kbdWBVQF0?si=aoINogRmKKtkjGgc
	Learn to deliver PRESENTATIONS confidently in ENGLISH!	https://youtu.be/Q074YSGwRTM?si=6YnCRvt6xOGWK-2O
	India on path to triple renewable energy capacity by 2030 but faces financing hurdle: Report 29/11, 2:57 pm] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/economy/india-on-path-to-triple-renewable-energy-capacity-by-2030-but-faces-financing-hurdle-report-11826361.html
	India on path to triple renewable energy capacity by 2030 but faces financing hurdle: Report - [30/11, 4:32 pm] Dr.S.N.Topannavar	https://www.notebookcheck.net/Energy-start-up-designs-offshore-wind-turbine-to-double-power-generation.771828.0.html
	30/11, 4:39 pm] Dr.S.N.Topannavar:	[https://solarquarter.com/2023/11/28/solar-and-wind-power-constitute-over-88-of-total-renewable-installed-capacity-by-october-2023/
	[04/12, 6:10 am] Dr.S.N.Topannavar:	https://www.business-standard.com/economy/news/proposed-5-biogas-blending-with-lng-can-cut-imports-worth-1-17-bn-iba-123120300252_1.html
	[10/12, 1:22 am]	https://solarquarter.com/2023/12/05/quarterly-analysis-of-solar-pv-installed-

	Dr.S.N.Topannavar:	capacity-in-india-q1-2021-to-q3-2023/
	[10/12, 9:14 am] Dr.S.N.Topannavar:	https://www.financialexpress.com/business/sustainability-indias-potential-as-a-global-hydrogen-electrolyzer-manufacturing-hub-3334155/
	[10/12, 9:26 am] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/kundan-energy-to-develop-80-mw-hydropower-at-rs-1000-crore-investment-in-uttarakhand-11878161.html
	[10/12, 9:27 am] Dr.S.N.Topannavar:	https://www.iamrenew.com/green-energy/revolutionizing-biogas-production-lehmann-umts-bioextrusion-process/
	[10/12, 9:29 am] Dr.S.N.Topannavar:	https://electrek.co/2023/12/08/us-first-large-scale-offshore-wind-farm-vineyard-wind-1/
	[10/12, 9:30 am] Dr.S.N.Topannavar:	https://www.businesstoday.in/impact-feature/story/forging-the-path-to-net-zero-how-to-drive-a-world-class-net-zero-transformation-408570-2023-12-07
	[10/12, 9:31 am] Dr.S.N.Topannavar:	https://solarquarter.com/2023/12/06/masdar-edf-renewables-and-nesma-renewable-energy-wins-a-contract-for-a-1-1-gw-solar-project-in-saudi-arabia/
	15/12, 7:14 am] Dr.S.N.Topannavar	: https://www.businesstoday.in/visualstories/news/india-to-build-worlds-largest-solar-farm-equivalent-to-the-size-of-singapore-80799-08-12-2023
	[16/12, 7:53 am] Dr.S.N.Topannavar	: https://www.saurenergy.com/solar-energy-news/zetwerk-secures-375-mw-solar-module-deal-with-ntpc
	[16/12, 7:54 am] Dr.S.N.Topannavar:	https://solarquarter.com/2023/12/13/sembcorp-secures-singapores-largest-solar-power-project/
	[16/12, 7:56 am] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/companies/india-gets-bids-for-green-hydrogen-electrolyser-incentives-11911761.html
	[16/12, 7:57 am] Dr.S.N.Topannavar:	https://www.pv-magazine.com/2023/12/12/french-startup-offers-ai-algorythm-package-for-rooftop-pv-monitoring/
	[16/12, 7:58 am] Dr.S.N.Topannavar:	https://tradebrains.in/features/renewable-energy-stock-jumps-after-it-bags-100-8-mw-wind-power-project-in-gujarat/
	[16/12, 7:59 am] Dr.S.N.Topannavar:	https://www.financialexpress.com/web-stories/sme/10-solar-business-ideas-to-start-in-2024/
	[10/12, 9:36 am] Dr.S.N.Topannavar:	https://youtu.be/pdjiue2YbgY?si=YeBEV1pKstV-4pQL
	[10/12, 9:45 am] Dr.S.N.Topannavar:	https://youtu.be/Q074YSGwRTM?si=6YnCRvt6xOGWK-2O
	[10/12, 9:50 am] Dr.S.N.Topannavar:	https://youtube.com/shorts/V0tPkayEkKs?si=HYEf0zC-JM10mK9t
	[10/12, 9:51 am] Dr.S.N.Topannavar:	https://youtu.be/QPt_CHcjDMU?si=zuvR5WnzKCTxQvG5

	[10/12, 9:53 am] Dr.S.N.Topannavar:	https://youtu.be/yPhUz6xjhGY?si=_hme-IRdI3L03XL-
	VTU Curriculum-book URL:	https://www.pdfdrive.com/non-conventional-energy-sources-e10086374.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/non-conventional-energy-systems-nptel-d17376903.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/renewable-energy-sources-and-their-applications- e33423592.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/lecture-notes-on-renewable-energy-sources-e34339149.html
	VTU Curriculum-book URL:	https://onlinecourses.nptel.ac.in/noc18_ge09/preview
	Models and charts to realise atomic structures of different materials and phase transformations	
	Material Testing lab visit to realise the strengths and properties of different materials	
	Models show the stimuli and responses of smart materials	
	Application oriented pedagogical teaching in the class	

VTU Board of Studies (BoS) recommended e-Resources
(Web links, Video Lectures, MOOCs, e-Shikhsana Program, NPTEL, EDUSAT, YouTube, Vlab etc.), (2018-19 to 2023-24)

S.N.	Faculty Name	Course	VTU Syllabus link where e-resources are mentioned	e-Resource	Branch
1	Prof.S.S. Malaj	Basic Electronics	https://vtu.ac.in/pdf/2022syll/BBEE203.pdf	https://nptel.ac.in/courses/122106025	ECE
2	Prof.S.S. Malaj	Basic Electronics	https://vtu.ac.in/pdf/2022syll/BBEE203.pdf	https://nptel.ac.in/courses/108105132 https://nptel.ac.in/courses/117104072	ECE
3	Prof.S.S. Malaj	Introduction to Internet of Things	https://vtu.ac.in/pdf/2022syll/BETCK105H.pdf	https://nptel.ac.in/noc/courses/noc19/sem1/noc19-cs31	ECE
4	Prof. D. B. Madihalli	Introduction to Python Programming	BPLCK105B.pdf (vtu.ac.in)	Learn Python by Examples: https://www.learnbyexample.org/python/ https://www.learnpython.org https://pythontutor.com/visualize.html#mode=edit	ECE

5	Prof.S.S. Malaj	Basic Electronics and communication Engineering	https://vtu.ac.in/pdf/2021syll/21eln24.pdf	https://doi.org/10.4324/9781315737980.BookISBN9781315737980	ECE
6	Dr.S.S. Ittannavar	Basic Signal Processing	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://www.youtube.com/watch?v=KJnAy6hzetw&list=PL41692B571DD0AF9B https://www.youtube.com/watch?v=ZK3O402wf1c&list=PL49CF3715CB9EF31D&index=1	ECE
7	Dr.S.S. Ittannavar	Digital Signal Processing	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/117102060	ECE
8	Dr.S.S.I ttannavar	Digital Communication	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/108102096	ECE
9	Dr.S.S. Ittannavar	Multimedia Communication	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://www.youtube.com/watch?v=rC16fhvXZOo	ECE
10	Dr.S.S. Ittannavar	MATLAB Programming	https://vtu.ac.in/pdf/2022_3to8/2ecesyll.pdf	https://www.youtube.com/watch?v=IuEOMyGuuIg	ECE
11	Dr.S.S. Ittannavar	Digital Signal Processing	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://nptel.ac.in/courses/117102060	ECE
12	Dr.S.S. Ittannavar	Digital Communication	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://nptel.ac.in/courses/108102096	ECE
13	Prof. B. P Khot	Digital Image Processing	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/ArKe6zMkXnk https://youtu.be/nlwH07G9Efg https://youtu.be/MrNafUqh860	ECE
14	Prof. B. P Khot	Network Security	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/2YGUvopGkQc	ECE
15	Prof. B. P Khot	Computer Organization and Architecture	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/Wfau1WC5m4c https://youtu.be/Q7YdIhbRea0 https://youtu.be/s4cVdsK3XiQ	ECE
16	Prof.S.S. Malaj	Circuits and controls	https://vtu.ac.in//pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/108106098 https://nptel.ac.in/courses/108102042	ECE

17	Prof. S. S. Kamate	S&S	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=0nZYen9w_eo&list=PLyqSpQzTE6M8KJ-XQ1m2vl3nd2ZUqKEN8 https://www.youtube.com/watch?v=_vyke3vF4Nk https://www.youtube.com/watch?v=lkAvgVUvYvY	ECE
18	Prof. S. S. Kamate	M&A	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=wx_tIvaajAI&list=PLzJaFd3A7DZsL9dZDCeA3ijHZwwBb6R8yhttps://www.youtube.com/watch?v=wKL6WsEOl00&list=PLGnJGN4tr1dY3UivHBTJBQAcvlQ1FYEbG	ECE
19	Prof. S. S. Kamate	Engg. Electromagnetics	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=G5P6dInMTFg&list=PLuv3GM6-gsE3-hVNaw-YEb7EeY5XVPZdz https://www.youtube.com/watch?v=pGdr9WLto4A&list=PL1CE5B4FFFA997E5D	ECE
20	Prof. S. S. Kamate	VLSI Design	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=lRpt1fCHd8Y&list=PLU8VFS-HdvKtKswbcvvA8yVhzleTV7OE8 https://www.youtube.com/watch?v=M2x_lSYxvXk https://www.youtube.com/watch?v=faiEVOOCe-s	ECE

List of Self-prepared Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promoteexperiential learning among the students

S.N.	Self-prepared Pedagogical initiatives and Innovative teaching aids	Course/Topic	Dept
1.	Concept realization through learning models/charts in the class room.	EME: IC engine models, Gears, Milling	Mech. Engg.
2.	Concept realization through	EME: Turbines & Pumps in the Fluid	Mech.

	equipment demonstration in the respective laboratories.	Machinery Lab, Lathe, Drilling, Milling Machines in the Machine Shop and Welding in the Workshop	Engg.
3.	Inspiring students to arrive basic definitions/laws by giving examples/case studies/current affairs/routine activities/events etc. indirectly	Thermodynamics Laws and Properties, Refrigerating Effect, Ton of Refrigeration, IC engine efficiencies and powers, Definitions/functions of Turbines and Pumps, Speed Ratios of Gear Trains/Belt Drives	Mech. Engg.
4.	Motivating students to comprehensive understanding of the numerical problem statements (basic & Logic) before solving.	Numerical solving on Thermodynamic Concepts, Steam Formation, Gear Trains, Belt Drives, IC engines	Mech. Engg.
5.	Teaching students how to read and understand formulae, graphs and tables? , and predicting, analyzing and reasoning on technical parameters.	T-h diagram of steam formation, PV diagram of Thermodynamics/IC engines, Steam Tables, energy conversion equations	Mech. Engg.
6.	Teaching derivations and their derivatives (final & intermediate) through units and their different forms.	Equations of I and II law of thermodynamics, entropy, IC engine efficiencies/powers, enthalpy of steam, Specific heats, latent heats	Mech. Engg.
7.	Realizing and feeling the scale of the equipment, quantity, process etc. through sketches, actions, demos etc.	Showing the height of the boiler w.r.t man avg. height, Feeling of 1 bar pressure/1 N force/Temperature, 1 Joule energy	Mech. Engg.
8.	After teaching, ensuring the students' learning by motivating students to list the comparisons, differentiations, classification, similarities with reasons in the class rooms.	Classifications of Steams/turbines/pumps/engines/boilers, Comparisons between Energy sources, similarity between heat and work.	Mech. Engg.
9.	Promoting Cooperative/Informal learning through interactions outside the class room between slow learners and bright student/s.	Elements of Mechanical Engineering	Mech. Engg.
10.	Discussion on the end results/solutions of the complex problems	Elements of Mechanical Engineering	Mech. Engg.
11.	Videos and Poster presentations in the class rooms	Functions renewable energy conversion systems/boilers/turbines/pumps/gears/welding/lathes	Mech. Engg.
12.	Industry Visits	Elements of Mechanical Engineering	Mech. Engg.
13.	Application oriented teaching and creating curiosity to learn and understand the concepts.	Fans and their blade design for energy conversion/thermodynamics concepts, Density/specific volume, heat transfer	Mech. Engg.
14.	Enhancing students' participation by asking questions, creating curiosity, connecting routine applications/practices etc.	Elements of Mechanical Engineering	Mech. Engg.
15.	Flapped Teaching and Learning	Elements of Mechanical Engineering	Mech.

	process		Engg.
16.	Spot quantifying of learning and motivating students to express the feedback about teaching and learning process	Elements of Mechanical Engineering	Mech. Engg.
17.	Teaching by the students on his/her chosen topic	Elements of Mechanical Engineering	Mech. Engg.
18.	Motivational teaching to draw meaningful and logical based sketches including graphics.	Strokes in IC engines, Refrigeration cycles, Turbines, Pumps, Lathe and its machining operations	Mech. Engg.
19.	Inspiring students to read reputed reference books and to make their own notes.	Elements of Mechanical Engineering	Mech. Engg.
20.	Motivational teaching to create own sketches to understand the critical concepts and express them in the exams to strengthen the answers	Elements of Mechanical Engineering	Mech. Engg.
21.	Facilitating self-Video Lectures for Slow learners and absentees	Elements of Mechanical Engineering	Mech. Engg.
22.	https://www.youtube.com/watch?v=qSWm_nprfqE https://www.youtube.com/watch?v=xy9nj94xvKA	Wind Energy	Mech. Engg.
23.	https://www.youtube.com/watch?v=xKxrkht7CpY https://www.youtube.com/watch?v=8nJXN6kwyqA https://www.youtube.com/watch?v=xKxrkht7CpY https://www.youtube.com/watch?v=ZAJeDVLO1_w https://www.youtube.com/watch?v=lrRTCbXE0Jc	Solar Energy Conversion	Mech. Engg.
24.	https://www.youtube.com/watch?v=IdPTuwKEfmA	Thermal Power Plant	Mech. Engg.
25.	https://www.youtube.com/watch?v=tPHyYM7UqSo https://www.youtube.com/watch?v=c1adiK8nLbA https://www.youtube.com/watch?v=OJw6WFkTPZo	Bio fuel/gas production	Mech. Engg.
26.	https://www.youtube.com/watch?v=2W-GEE6YU4M https://www.youtube.com/watch?v=mBdVK4cqiFs https://www.youtube.com/watch?v=xrk7Mt2fx6Y https://www.youtube.com/watch?v=_	Nuclear Energy Production	Mech. Engg.

	UwexvaCMWA https://www.youtube.com/watch?v=AMXxXoHtM-o		
27.	https://www.youtube.com/watch?v=q8HmRLCgDAI https://www.youtube.com/watch?v=Uhjhufhg3Xk https://www.youtube.com/watch?v=hC8NEiwrLTg	Hydroelectric power plant	Mech. Engg.
28.	Basics of Thermodynamics: 1) https://youtu.be/QgcX8svUm4c 2) https://youtu.be/ouEjwbRraNo 3) https://youtu.be/z1nE-23ZglQ 4) https://youtu.be/_krp-ATP30s 5) https://youtu.be/3Sxj9OG3lPU Steam Formation-Properties: 1) https://youtu.be/uFlocTrVEOg 2) https://youtu.be/jmjOITS4a94 3) https://youtu.be/ahuXCZ91ats	• Basics of Thermodynamics • Steam Formation-Properties	Mech. Engg.
29.	Boilers: 1) https://youtu.be/PRtvB00d5V0 2) https://youtu.be/AWSJVmg1w58 3) https://youtu.be/28S0rS5ScgI 4) https://youtu.be/XuV5MusoAqc Turbines: 1) https://youtu.be/cESnwE2hgxA 2) https://youtu.be/3_5VEuA_ctw 3) https://youtu.be/d3-BqXwbQcY 4) https://youtu.be/UB0DyOaDwxU 5) https://youtu.be/H8x1rIdiHWc Hydraulic Pumps: 1) https://youtu.be/LFv4NGA2qtw 2) https://youtu.be/SX9rkMO2iKo 3) https://youtu.be/6VRYJcZXotI	• Boilers • Turbines Hydraulic Pumps	Mech. Engg.
30.	IC Engines: 1) https://youtu.be/ltp_gx4oc0U 2) https://youtu.be/BrQJVA-Ne2E 3) https://youtu.be/xyB8DnIw3Co 4) https://youtu.be/TStNvU5KORg 5) https://youtu.be/1sKl7POCJ08 6) https://youtu.be/3DLJoMc708I 7) https://youtu.be/ahqHOdLmtCc 8) https://youtu.be/wtHiUvTEoD8 9) https://youtu.be/3Fw5_aEfrbU Refrigeration: 1) https://youtu.be/y9gCc4jYkPY 2) https://youtu.be/zwNaU_6dMgY 3) https://youtu.be/JEgjgSkhEIo 4) https://youtu.be/KQRb_25gR7M	• Internal Combustion (IC) Engines • Refrigeration and Air Conditioning (AC)	Mech. Engg.

	5) https://youtu.be/kurwDfOSlBk Air-Conditioning (AC): 1) https://youtu.be/1BEKiLNNjRQ 2) https://youtu.be/AJ508pSoci0 3) https://youtu.be/lIoouWdNU7k		
31.	Engineering Materials: 1) https://youtu.be/3cZmDZepNAE 2) https://youtu.be/FproDJHrxeA Joining Processes: 1) https://youtu.be/Jpev1oGMEhg 2) https://youtu.be/9NXTKdX_qu4 3) https://youtu.be/Z0WOeVYg81c 4) https://youtu.be/iXraH72qwcY 5) https://youtu.be/5srRIznYEdY 6) https://youtu.be/qAIqOSpBf_Q 7) https://youtu.be/GNLsxnjsIzs 8) https://youtu.be/uRmgDTcNEQU Belt Drives: 1) https://youtu.be/L9iuKli2WZY 2) https://youtu.be/SGOBo7tp8gY 3) https://youtu.be/o_ZTtr2vlho 4) https://youtu.be/13zz8qey_K0 5) https://youtu.be/9u_Fgi2G_uw 6) https://youtu.be/l_KxQzi3SCY 7) https://youtu.be/KrfsP5VdGp8 8) https://youtu.be/Ba_0FDzFYH0 Gear Drives: 1) https://youtu.be/x0pA5boJh1M 2) https://youtu.be/6ZIHS4_j6yQ 3) https://youtu.be/jBacF4mkVAA	• Properties, Compositions and Industrial Applications of Engineering Materials • Joining Processes • Belt Drives • Gear Drives	Mech. Engg.
32.	Lathe Machine: 1) https://youtu.be/j8eKqrjaoFU 2) https://youtu.be/4FoTMmlO60s 3) https://youtu.be/pngcpwmQABw 4) https://youtu.be/zcFtZVywZ-s 5) https://youtu.be/RY7zAyPF1Lo Milling Machine: 1) https://youtu.be/RcfqhRRsJhI 2) https://youtu.be/K1el91hK36k 3) https://youtu.be/bgq1xRb-kdM 4) https://youtu.be/-I8gjY0GDYA 5) https://youtu.be/5Ygf-u5P3oU 6) https://youtu.be/sZ1AJ7nDbFo Advanced Manufacturing Systems: 1) https://youtu.be/5sseHUWBuHs 2) https://youtu.be/yXvm84m-5t0 3) https://youtu.be/Vy3-VmJvV9E Robots:	• Lathe Machine • Milling Machine • Introduction to Advanced Manufacturing Systems • Robots	Mech. Engg.

	1) https://youtu.be/VONRliCuT_w 2) https://youtu.be/lrlt1aKr2ck		
33.	https://www.youtube.com/watch?v=e6a2q9k2JCA https://www.youtube.com/watch?v=sA99mw3D2Ds https://www.youtube.com/watch?v=A0BuHEqDm88 https://www.youtube.com/watch?v=dyYkUUtOYpQ https://www.youtube.com/watch?v=EpbuI6CbMRU https://www.youtube.com/watch?v=G_8G2ObAbZ8 https://www.youtube.com/watch?v=HtgFMXZw2Fw&list=PLWPirh4EWFpEduIfhK_VnKCK7VqHDoZKV https://www.youtube.com/watch?v=5NCOnr3VSAY https://www.youtube.com/watch?v=vy2LW9tUFHA	Fluid Properties	Mech. Engg.
34.	https://www.youtube.com/watch?v=qGQ4fojjwvQ https://www.youtube.com/watch?v=wHMHxO9Ys_0 https://www.youtube.com/watch?v=oUF3hWw4tY4 https://www.youtube.com/watch?v=YuSKghET21A	Pascal Law	Mech. Engg.
35.	https://www.youtube.com/watch?v=g0kpcCBuXe0 https://www.youtube.com/watch?v=WmWw_IB6nv4 https://www.youtube.com/watch?v=-P1EvVuuPoI https://www.youtube.com/watch?v=JTM-NvuCW9w https://www.youtube.com/watch?v=1_ey4oBuNSw https://www.youtube.com/watch?v=zPdB4MdRErc	Manometers	Mech. Engg.
36.	https://www.youtube.com/watch?v=yYYzEdJHkak https://www.youtube.com/watch?v=nMlXU97E-uQ https://www.youtube.com/watch?v=2RefIvqaYg8 https://www.youtube.com/watch?v=khc2wUBsFU4	Buoyancy & Floating	Mech. Engg.

	https://www.youtube.com/watch?v=W5vv6hTMrFo https://www.youtube.com/watch?v=_p-hwElkrlk https://www.youtube.com/watch?v=QUgXf2Rj2YQ https://www.youtube.com/watch?v=aEw5NdZb2is https://www.youtube.com/watch?v=BoTk646edcQ https://www.youtube.com/watch?v=jXEE1PboXKg https://www.youtube.com/watch?v=Z3vgsp4vKQs https://www.youtube.com/watch?v=cSjNd2kZW-k https://www.youtube.com/watch?v=u8Kikx14LWU https://www.youtube.com/watch?v=CvWrkxzCiaY https://www.youtube.com/watch?v=16HDJNoXQII https://www.youtube.com/watch?v=bOKa3rDnTeM		
37.	https://www.youtube.com/watch?v=grMmkSP637w https://www.youtube.com/watch?v=nhd8fCCAlIo https://www.youtube.com/watch?v=6kTvQEMwOfM https://www.youtube.com/watch?v=FgY38h2LDeo https://www.youtube.com/watch?v=XZ7CqISBIfE https://www.youtube.com/watch?v=56AyTIhNQBo https://www.youtube.com/watch?v=FZYnewBWUoc	Types of Fluid Flow	Mech. Engg.
38.	https://www.youtube.com/watch?v=E8yPWd-DwcQ https://www.youtube.com/watch?v=96fYQFPGwzU https://www.youtube.com/watch?v=c6ndD5kTkP4 https://www.youtube.com/watch?v=H9u8O4osE0g https://www.youtube.com/watch?v=vC569UD49yA	Fluid Deformations	Mech. Engg.
39.	https://www.youtube.com/channel/U	Continuity Equation	Mech.

	CkDw-LPU1Nnd2WRsfnDbUcA?v=lN20VrPmxdk https://www.youtube.com/watch?v=jn_g6cW9r0w https://www.youtube.com/watch?v=WGuzqF2GCBg https://www.youtube.com/watch?v=ycgJvnm24ks https://www.youtube.com/watch?v=8wM7_vgBSQA		Engg.
40.	https://www.youtube.com/watch?v=UJ3-Zm1wbIQ https://www.youtube.com/watch?v=bC8v6hlXnSk https://www.youtube.com/watch?v=mgeIWXld9FU https://www.youtube.com/watch?v=8vqMotb6m3c https://www.youtube.com/watch?v=YyeX6ArxCYI https://www.youtube.com/watch?v=brN9citH0RA https://www.youtube.com/watch?v=O8qCA2mZvVI https://www.youtube.com/watch?v=UxYH41vV-DI	Bernoulli's Equation	Mech. Engg.
41.	https://www.youtube.com/watch?v=JH3l-NliCkM https://www.youtube.com/watch?v=vxJrb7JKigQ https://www.youtube.com/watch?v=5w4cJBdFHFw https://www.youtube.com/watch?v=b5CwH5AlCkw https://www.youtube.com/watch?v=qCosEM9h0AU https://www.youtube.com/watch?v=k7ZZtxdtmeQ https://www.youtube.com/watch?v=zMfssrddyRU https://www.youtube.com/watch?v=G3bO8RcRgxQ https://www.youtube.com/watch?v=xwyssfQ6oVc https://www.youtube.com/watch?v=_hvgvZuIZOc https://www.youtube.com/watch?v=6zoOBwI5BEY	N-S equations & Applications like CoutteandHagen- Poiseuille Flows	Mech. Engg.

42.	https://www.youtube.com/watch?v=6DFe8eUrbcI https://www.youtube.com/watch?v=G4rbUtAxgHM https://www.youtube.com/watch?v=UflurPbj-UA https://www.youtube.com/watch?v=kJlJoAKveJA https://www.youtube.com/watch?v=D8I9JvlvZuQ https://www.youtube.com/watch?v=jbRkpXEJO64 https://www.youtube.com/watch?v=TKMPpcxSER4	Losses in Pipe-flow	Mech. Engg.
43.	https://www.youtube.com/watch?v=5ltjFEei3AI https://www.youtube.com/watch?v=9_xhJ0-OROg https://www.youtube.com/watch?v=w78JT6azrZU https://www.youtube.com/watch?v=Fev8FWVcC-A https://www.youtube.com/watch?v=gsUlaQ6IxSU https://www.youtube.com/watch?v=O0TBcasl8u0 https://www.youtube.com/watch?v=AXjiThF1LXU https://www.youtube.com/watch?v=S1kU6sSefr0 https://www.youtube.com/watch?v=ZbD0Ebc8RGg https://www.youtube.com/watch?v=8pp47Y8dLJk https://www.youtube.com/watch?v=Ftj6A2P7lmw https://www.youtube.com/watch?v=djCCno4Cbcw	Lift and Drag Forces	Mech. Engg.
44.	https://www.youtube.com/watch?v=FHXkouhw758 https://www.youtube.com/watch?v=BJ96HCVTTew https://www.youtube.com/watch?v=AkBn-lpWgVs	Streamline and Bluff Body	Mech. Engg.
45.	https://www.youtube.com/watch?v=LBJ3tXCjzN0 https://www.youtube.com/watch?v=X871jMv0aKk https://www.youtube.com/watch?v=B	Mach No. and Supersonic, Subsonic Flows	Mech. Engg.

	hqo6ne6Y_A https://www.youtube.com/watch?v=xsp0kGrwXW4 https://www.youtube.com/watch?v=PTc0yftUA2c https://www.youtube.com/watch?v=fxeQOQSmqRs https://www.youtube.com/watch?v=W9dhUPkFBR8 https://www.youtube.com/watch?v=VlaGxYjnoPY https://www.youtube.com/watch?v=1m3_dx2E4Z8 https://www.youtube.com/watch?v=ugPJYJ-BKkU https://www.youtube.com/watch?v=IiV3cPADCgg https://www.youtube.com/watch?v=XsntPXYOgpQ https://www.youtube.com/watch?v=rrCs-KYZ57Y		
46.	https://www.youtube.com/watch?v=tUSG6SMsn10 https://www.youtube.com/watch?v=ltpSEn-vQS8 https://www.youtube.com/watch?v=B-z54jx8u5k https://www.youtube.com/watch?v=hzTCCcsOTg8	CFD Applications	Mech. Engg.
47.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur.htm	Fluid Statics	Mech. Engg.
48.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur1.htm	Kinematics of Fluids	Mech. Engg.
49.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur3.htm	Equations of Motion	Mech. Engg.

50.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20KAnpur4.htm	Dimensional Analysis	Mech. Engg.
51.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur5.htm	Ideal Flow	Mech. Engg.
52.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur6.htm	Viscous Incompressible flow	Mech. Engg.
53.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur7.htm	Flow over flat plate and Boundary Layer Equations	Mech. Engg.
54.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur9.htm	Flow through pipes	Mech. Engg.
55.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur10.htm	Compressible flow	Mech. Engg.
56.	**1)** Compiled Question bank has been supplied and solved in the class. **2)** Notes has been supplied to the students. **3)** The soft and hard copies of VTU question papers provided to the students.	Fluid Mechanics	Mech. Engg.

List of Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promote experiential learning among the students (2018-19 to 2023-24)

S.N.	Faculty Name	Pedagogical initiatives and Innovative teaching aids	Course/Topic	Branch
1	Prof. S. S. Kamate	Models are prepared to teach the basics of coordinate systems.	Concept of Spherical Coordinate System, Cylindrical Coordinate Sytem& Cartesian Coordinate Sstem https://youtu.be/CW3WaE798dU	ECE
2	Prof. P. V. Patil	Concept of Superposition Theorem	Network Theory https://youtu.be/bLqBJCdZgjY	ECE

List of online resources & Web links(2018-19 to 2023-24)

S.N.	Faculty Name	Online resources	Web links	Branch
1	Prof. S. S. Patil	Introduction to Embedded Systems	https://www.youtube.com/watch?v=OG91AlP_2XA	ECE
		The Typical Embedded Systems	https://www.youtube.com/watch?v=glEPCAZmcvA	ECE
			https://www.youtube.com/watch?v=0vO14GLGRUs	ECE
			https://www.youtube.com/watch?v=bKPCxj0hiiw	ECE
			https://www.youtube.com/watch?v=aPgZpxQijJ0	ECE
			https://www.youtube.com/watch?v=XZ8hClk0uSQ	ECE
		Characteristics and Quality Attributes of Embedded Systems	https://www.youtube.com/watch?v=jbdtPYtGeY0	ECE
		Embedded Systems-Application and domain specific	https://www.youtube.com/watch?v=hiljMGpCAno	ECE
		Hardware Software Co-design and Program modeling	https://www.youtube.com/watch?v=J-beEbEPNSY	ECE
		Embedded Firmware Design and Development	https://www.youtube.com/watch?v=huBPGmYj138	ECE
		Real-Time Operating System(RTOS) based ES	https://www.youtube.com/watch?v=qLxEeRpFtUo	ECE

		design	https://www.youtube.com/watch?v=4RHxzX49vRU	ECE
			https://www.youtube.com/watch?v=9WhPUnwALdc	ECE
			https://www.youtube.com/watch?v=MgfvdUNTo6o	ECE
			https://www.youtube.com/watch?v=FsJh0b_KWGM	ECE
2	Dr.S.S. Ittannavar	Gram Schmidt Orthogonalization Procedure	Digital Communication https://www.youtube.com/watch?v=HX4EMJqdeZI	ECE
3	Prof.S.S. Malaj	Introduction to Control Problem concepts of Stability	Control Systems https://youtube.com/watch?v=vVFDm_CdQw	ECE
4	Prof.P.V. Patil	Microcontroller	https://onlinecourses.nptel.ac.in/noc24_ee46/preview	ECE
5	Prof.P.V. Patil	Microcontroller	https://youtube.com/playlist?list=PLcwp2fRcIXJUFthj5CKNNamSBDtf3We7A&si=4Xyi62FhRWjvuMz_	ECE

E-resource

S.N.	ICT enabled tools, Video lectures, e-resource etc	Course/ Topic	Dept.
1.	https://nptel.ac.in/courses/108102095/	Analog Electronic Circuits	EEE
2.	https://youtu.be/l6M6FvjUdTI		
3.	https://youtu.be/c3oKdjDImXo		
4.	https://youtu.be/jaOxeB-BQ8E		
5.	https://youtu.be/6Zm9Kt5-cxQ		
6.	https://youtu.be/iLCQUHJkFM8		
7.	https://youtu.be/SpvmeG1hs7k		
8.	https://youtu.be/0K6vyowDAKM		
9.	https://youtu.be/Sr-Sm_d3oVE		
10.	https://youtu.be/Pe6BmuAc2OY		
11.	https://youtu.be/btphIK1d4Ro		
12.	http://nptel.vtu.ac.in/econtent/courses/EEE/15EE32/index.php	Network Analysis	
13.	http://nptel.vtu.ac.in/econtent/courses/ECE/15EC34/index.php		
14.	https://www.youtube.com/watch?v=3rOvQ3qFZpI	Measurements and Instrumentation	
15.	https://www.youtube.com/watch?v=EWTPvrJQG_4		
16.	https://www.youtube.com/watch?v=jyRT2dJAuAg		

17.	https://www.youtube.com/watch?v=u5lh_nyCXEs		
18.	https://www.youtube.com/watch?v=xX2YjPwZY-g		
19.	https://www.youtube.com/watch?v=jlPzA95zXKs		
20.	https://www.youtube.com/watch?v=KsykW43-g24		
21.	https://www.youtube.com/watch?v=wO6Eh_r8IEs		
22.	https://www.youtube.com/watch?v=-orsmxHOLOM		
23.	https://www.youtube.com/watch?v=Bf3547WB5qs		
24.	https://www.youtube.com/watch?v=SNMI2skCOpQ		
25.	https://www.youtube.com/watch?v=uy9lZCdkQIM&list=P	Electrical Power Generation	
26.	https://www.youtube.com/watch?v=Yg6XsepGCKY&list=PLD4ED2FAF3C155625&index=2		
27.	https://www.youtube.com/watch?v=45_nQN-9XSs&list=PLD4ED2FAF3C155625&index=3		
28.	https://www.youtube.com/watch?v=MqWeH3zp5GY&list=PLXgxwcpUnIG-EvGsehcV8Rj7VZcsd1JYB	Micro controller	
29.	https://www.youtube.com/watch?v=liRPtvj7bFU&list=PL692A7B9169289C4F		
30.	https://www.youtube.com/watch?v=zXMklO-jxIo		
31.	https://www.youtube.com/watch?v=EEaOR2p9G2k		
32.	https://www.youtube.com/watch?v=pA6K5NgWTow		
33.	https://www.youtube.com/watch?v=1Auay7ja2oY&list=PL6D4C867487881352	Power Electronics	
34.	https://www.youtube.com/watch?v=PEg0zb3cg2A&list=PL6D4C869487881352&index=2		
35.	https://www.youtube.com/watch?v=p_4j_x4ZyzM&list=PL6D4C869487881352&index=3		
36.	https://www.youtube.com/watch?v=QqFlHhSkayw&list=PL6D4C869487881352&index=4		
37.	https://www.youtube.com/watch?v=R-ZGu5KAF90&list=PL6D4C869487881352&index=5		
38.	https://www.youtube.com/watch?v=ZYzuUWypgVw&list=PL6D4C869487881352&index=9		
39.	https://youtu.be/qmcriUdYBW0?list=PL59861DBF8EC85491	Transformer & Induction Machines	EEE
40.	https://youtu.be/KOE_ec-MkAA?list=PL59861DBF8EC85491		
41.	https://youtu.be/cneuckplrtI?list=PL59861DBF8EC85491		
42.	https://youtu.be/pNTsowZYUSs?list=PL59861DBF8EC85		
43.	https://youtu.be/dZyO5gcWP-o?list=PLLQiBbMXygz7zALKpbP87g4QaS9YGesZ5		
44.	http://www.nptelvideos.in/2012/12/signals-and-system.html	Signals and Systems	
45.	https://www.youtube.com/watch?v=xrVWB9VYZ64&list=PLq-Gm0yRYwTjwxaqapPsSAHzs4_nkQLVr		
46.	https://www.youtube.com/watch?v=879pXoml0XI		
47.	https://youtu.be/NiHPu5PltCY?list=PL59861DBF8EC85491	D.C. Machines and Synch. Machines	
48.	https://youtu.be/E15Xs-5rFS0?list=PL59861DBF8EC85491		
49.	https://youtu.be/b24jORRoxEc		
50.	https://youtu.be/o9-xSeWuhng?list=PL59861DBF8EC85491		
51.	https://www.youtube.com/watch?v=ZjcLlHcsDZs	Linear IC's and	

52.	https://www.youtube.com/watch?v=egCiRSasxpw	Applications	
53.	https://www.youtube.com/watch?v=TQlyLhOFyKI		
54.	https://www.youtube.com/watch?v=gbUXbaxvX94		
55.	https://pt.coursera.org/lecture/electronics/3-2-first-order-highpass-filters-OhCWF		
56.	https://www.youtube.com/watch?v=gEeF8sEQTEc		
57.	https://www.youtube.com/watch?v=vVfLRM2DgLY	High Voltage Engg.	
58.	https://www.youtube.com/watch?v=yP7OACmLP48		
59.	https://www.youtube.com/watch?v=1bkiWJKxkfo		
60.	https://www.youtube.com/watch?v=aMux1jYFFY8&list=PLc259DvjuXMDo8n_BFwoNwAagCxPL0dDk&index=5&t=0s		
61.	https://www.youtube.com/watch?v=3aQsJYZaw_U		
62.	https://www.youtube.com/watch?v=PKXPeTvmVQg		
63.	https://www.youtube.com/watch?v=CODhHSpWp3k		
64.	https://nptel.ac.in/courses/108104052/	Power System Operation and Control	
65.	https://www.youtube.com/watch?%2049EM82UO99c		
66.	https://nptel.ac.in/courses/11210422/22	Renewable Energy sources	
67.	https://nptel.ac.in/courses/18105058/37		
68.	https://www.youtube.com/wtch?v=GRwJqD4StEU		
69.	https://nptel.ac.in/courses/10805060/	Electrical Power Utilization	
70.	https://nptel.ac.in/courses/11314008/38		

List of Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promote experiential learning among the students

AY: 2018-19

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	ICT Enabled Tools: PPT	Management & Entrepreneurship for IT Industry	CSE
02	ICT Enabled Tools: PPT, Notes	Automata Theory & Computability	CSE
03	ICT Enabled Tools: Notes	Data Structures & Application	CSE
04	ICT Enabled Tools: PPT, Notes	Cloud Computing & Its Application	CSE
05	ICT Enabled Tools: PPT, Notes	Advanced Java and J2EE	CSE
06	ICT Enabled Tools: PPT	Computer Organization	CSE

07	ICT Enabled Tools: PPT, Notes	Computer Programming & Solving	CSE
08	ICT Enabled Tools: PPT, Notes	.Net Framework For Application Development	CSE
09	ICT Enabled Tools: Notes	Discrete Mathematical Structure	CSE
10	ICT Enabled Tools: PPT, Notes	Web Technology & Its Applications	CSE
11	ICT Enabled Tools: Notes	Introduction to Software Testing	CSE
12	ICT Enabled Tools: PPT, Notes	Machine Learning	CSE
13	ICT Enabled Tools: PPT, Notes	Unix Shell Programming	CSE
14	ICT Enabled Tools: PPT, Notes	Database Management Systems	CSE
15	ICT Enabled Tools: PPT, Notes	Storage Area Networks	CSE
16	ICT Enabled Tools: PPT, Notes	Computer Networks	CSE
17	ICT Enabled Tools: PPT, Notes	C Programming for Problem Solving	CSE

AY: 2019-20

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	ICT Enabled Tools: PPT	Management & Entrepreneurship for IT Industry	CSE
02	ICT Enabled Tools: PPT, Notes	Automata Theory & Computability	CSE
03	ICT Enabled Tools: Notes	Data Structures & Application	CSE
04	ICT Enabled Tools: PPT, Notes	Cloud Computing & Its Application	CSE
05	ICT Enabled Tools: PPT, Notes	Advanced Java and J2EE	CSE
06	ICT Enabled Tools: PPT	Computer Organization	CSE
07	ICT Enabled Tools: PPT, Notes	Computer Programming & Solving	CSE
08	ICT Enabled Tools: PPT, Notes	.Net Framework For Application Development	CSE
09	ICT Enabled Tools: Notes	Discrete Mathematical Structure	CSE
10	ICT Enabled Tools: PPT, Notes	Web Technology & Its Applications	CSE
11	ICT Enabled Tools: Notes	Introduction to Software Testing	CSE
12	ICT Enabled Tools: PPT, Notes	Machine Learning	CSE
13	ICT Enabled Tools: PPT, Notes	Unix Shell Programming	CSE
14	ICT Enabled Tools: PPT, Notes	Database Management Systems	CSE
15	ICT Enabled Tools: PPT, Notes	Storage Area Networks	CSE
16	ICT Enabled Tools: PPT, Notes	Computer Networks	CSE
17	ICT Enabled Tools: PPT, Notes	C Programming for Problem Solving	CSE

AY: 2020-21

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Models / Charts	Computer Graphics Lab with Mini Projects(Recursive subdivision of tetrahendra to form 3D sierpinski gasket)	CSE
02	ICT Enabled Tools: Simulation	Application Development using Python Programming (Function Definition & Function Call)	CSE

AY: 2021-22

S.N.	**Pedagogical Initiatives and Innovative Teaching Aids** (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Video Lectures	Big Data Analytics (Decision Trees)	CSE
02	ICT Enabled Tools: PPT	Data Mining & Ware Housing (Apache Pig)	CSE
03	ICT Enabled Tools: PPT	Big Data Analytics(Decision Trees)	CSE
04	ICT Enabled Tools: PPT	System Software and Compilers (Introduction to Compilers andLexical Analysis)	CSE
05	ICT Enabled Tools: PPT	Object Oriented Concepts (Objects and Arrays C++ Part)	CSE
06	NPTEL Video Lectures	System Software and Compilers (Parsing)	CSE
07	Models / Charts	Data Mining and Data Warehousing (OLAP Operations)	CSE
08	NPTEL Video Lectures	Web Technology and it's Applications (HTML Forms)	CSE
09	NPTEL Video Lectures	Application Development Using Python (Exception Handling and Strings)	CSE
10	Models / Charts	Artificial Intelligence and Machine Learning (Machine Learning Process and Types)	CSE
11	NPTEL Video Lectures	Computer Networks and Security (Universal Hashing)	CSE
12	NPTEL Video Lectures	Big Data Analytics (Mongo DB)	CSE
13	Models / Charts	Big Data Analytics (Apache Hadoop Ecosystem)	CSE
14	NPTEL Video Lectures	Management & Entrepreneurship for IT Industry (Entrepreneurship and Employment)	CSE
15	Models / Charts	Management & Entrepreneurship for IT Industry (Corporate/Social Entrepreneur)	CSE
16	Models / Charts	Computer Networks & Security (Network Security Mechanisms)	CSE

AY: 2022-23

S.N.	**Pedagogical Initiatives and Innovative Teaching Aids** (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Models/ Charts	Database Management Systems (Three Schema Architecture)	CSE
02	Models/ Charts	Cryptography (Data Encryption Standard)	CSE
03	ICT Enabled Tools : Technical Session	Python Application Programming (Setting up Python Environment to create, run and bug)	CSE
04	Models/ Charts	Python Application Programming (Cheat Sheets of Python)	CSE
05	NPTEL Video Lectures	Web Technology & Its Applications (HTML Forms)	CSE
06	NPTEL Video Lectures	Design & Analysis of Algorithms (Greedy Method)	CSE
07	NPTEL Video Lectures	Web Technology & Its Applications (Sate in Web Applications)	CSE
08	Models/ Charts	Design & Analysis of Algorithms (Backtracking)	CSE

09	Models/ Charts	Storage Area Networks	CSE
10	Models/ Charts	Computer Graphics & Visualization (OpenGL Primitives, CG Components, 2D Transformations)	CSE
11	Models/ Charts	Operating System (Types, Components, Scheduling and Deadlock)	CSE
12	Models/ Charts	Programming in Java (Cheat Sheets of Java)	CSE
13	ICT Enabled Tools : Technical Session	Programming in Java (Setting up Java JDK Environment to create, run and debug)	CSE
14	Models/ Charts	Introduction to Python Programming (Visual execution of python programs)	CSE
15	Models/ Charts	Principles of programming using C (Visual execution of C programs)	CSE
16	Tool Demonstration	Data Mining & Data Warehousing (Data Visualization Tool Tableau Desktop)	CSE
17	Tool Demonstration	Big Data Analytics (Apache Hive)	CSE
18	NPTEL Video Lectures	Principles of C Programming (Structures & Pointers)	CSE
19	Models/ Charts	Principles of C Programming (Simulation of Searching & Sorting Techniques)	CSE
20	Models / Charts	Principles of C Programming (Visualize the execution of C Programs)	CSE
21	Models / Charts	Unix Programming (UNIX System Architecture)	CSE
22	NPTEL Video Lectures	Unix Programming (File System in UNIX)	CSE
23	Models / Charts	System Software & Compilers (Phases of Compiler)	CSE
24	NPTEL Video Lectures	Compiler Design (Syntax Directed Translation)	CSE
25	Models / Charts	Introduction to Python Programming (Demonstrate & visualize basic data types (list, tuple, directory) and code execution.	CSE
26	NPTEL Video Lectures	Data Structures & Applications (Arrays)	CSE
27	Models / Charts	Data Structures & Applications (Tower of Hanoi Problem)	CSE
28	NPTEL Video Lectures	Automata Theory & Computability (Turing Machines)	CSE

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List of ICT- enabled tools including e-resources,Pedagogical Initiatives, and Teaching-aids used for effective teaching-learning process

The institute is permanently affiliated to the Visvesvaraya Technological University (VTU), Belgaum. The VTU'sBoard of Studies (BoS) has published the curriculum (2021 and 2022 Scheme of Studies), which is revised in line with the NEP-2020 of all courses in its website link:https://vtu.ac.in/en/b-e-scheme-syllabus/. Each syllabus of courses contains, 5 modules, text books, reference books, evaluation guidelines, pedagogies such as e-resources, video lectures, supporting experiments, field visits etc., along with these, the 4-5 course outcomes (COs) are also suggested. The awareness to access the VTU curriculum published and its implementation guidelines have been educated to the students during their "Induction Program" and also in the starting introductory classes. The faculty members are also referring these contents to plan teaching-learning lessons/activities/pedagogies and to define the 5 course outcomes (COs) for each module for mapping with POs and assessment of attainment purpose. The following are the VTU weblinks of syllabus, where e-resources are mentioned, Pedagogies and other ICT tools including online resources for effective teaching and learning process.All the class rooms are well connected with 104 Mbps internet and LCD projector to disseminate e-resources in the regular classes. All teachers are utilizing these facilities based on their syllabus content regularly.

S.N.	Online resources	Web links
1	NPTEL Courses on VTU Website	https://vtu.ac.in/en/online-course-jan-june-2023/
2	VTU Model Question papers	https://vtu.ac.in/en/model-question-paper-b-e-b-tech-b-arch/
3	VTU Study materials	https://vtu.ac.in/en/study-material/
4	VTU Board of Studies Proceedings	https://vtu.ac.in/en/board-of-studies-proceedings/
5	VTU Academic Calendar	https://vtu.ac.in/academic-calendar/
6	VTU NISP	https://vtu.ac.in/en/nisp-2/
7	NPTEL Courses on VTU Website	https://vtu.ac.in/en/nptel-online-courses/
8	VTU OPAC Library	http://library.vtu.ac.in/

VTU Board of Studies (BoS) recommended e-Resources which are mentioned in the Syllabus (2021 and 2022 Scheme of Study)
(Web links, Video Lectures, MOOCs, e-Shikhsana Program, NPTEL, EDUSAT, YouTube, Vlab etc.)

S. N.	Course	VTU Syllabus link where e-resources are mentioned	Topic with e-Resource
1	Mathematics-I for CSE I Year	https://vtu.ac.in/pdf/2022syll/BMATS101.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTUe-Shikshana Programand VTU EDUSAT Program
2	Physics for CSE I Year	https://vtu.ac.in/pdf/2022syll/BPHYS102.pdf	Laser: https://www.youtube.com/watch?v=WgzynezPiyc Superconductivity https://www.youtube.com/watch?v=MT5Xl5ppn48 Optical Fiber : https://www.youtube.com/watch?v=N_kA8EpCUQo Quantum Mechanics https://www.youtube.com/watch?v=p7bzE1E5PMY&t=136s Quantum Computing :https://www.youtube.com/watch?v=jHoEjvuPoB8 Quantum Computing: https://www.youtube.com/watch?v=ZuvCUU2jD30 Physics of Animation:https://www.youtube.com/watch?v=kj1kaA_8Fu4 Statistical Physics Simulation:https://phet.colorado.edu/sims/html/plinko-probability/latest/plinkoprobability_en. html NPTEL Superconductivity: https://archive.nptel.ac.in/courses/115/103/115103108/ NPTEL Quantum Computing:https://archive.nptel.ac.in/courses/115/101/115101092 Virtual LAB: https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham Virtual LAB:https://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1
3	Chemistry for CSE I Year	https://vtu.ac.in/pdf/2022syll/BCHES102.pdf	http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDMjHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM **ActivityBasedLearning (SuggestedActivitiesinClass)/PracticalBasedlearning** https://www.vlab.co.in/broad-area-chemical-sciences

			https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science
4	C-Programming for CSE I Year	https://vtu.ac.in/pdf/2022syll/BPOPS103.pdf	1.https://elearning.vtu.ac.in/econtent/courses/video/BS/15PCD23html 2. https://nptel.ac.in/courses/106/105/106105171/ MOOC courses can be adopted for more clarity in understanding the topics and verities of problem solving methods. https://tinyurl.com/4xmrexre Activity Based Learning (Suggested Activities in Class)/ Practical Based learning • Quizzes • Assignments • Seminars
	Mathematics-I for EEE I Year	https://vtu.ac.in/pdf/2022syll/BMATE101.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Program VTU EDUSAT Program Activity Based Learning (Suggested Activities in Class)/ Practical Based learning • Quizzes • Assignments • Seminar
	Physics for EEE I Year	https://vtu.ac.in/pdf/2022syll/BPHYE102.pdf	Web links and Video Lectures (e-Resources): Laser: https://www.britannica.com/technology/laser,k Laser: https://nptel.ac.in/courses/115/102/115102124/ Quantummechanics: https://nptel.ac.in/courses/115/104/115104096/ Physics: http://hyperphysics.phy-astr.gsu.edu/hbase/hframe. html Numerical Aperture of fiber: https://bop-iitk.vlabs.ac.in/exp/numerical-aperture-measurement 16-2-2023 Activity Based Learning (Suggested Activities in Class)/ Practical Based learning: http://nptel.ac.in https://swayam.gov.in https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeethamhttps://vlab.amrita.edu/index.php?sub=1&brch=189&sim=343&cnt=1 https://virtuallabs.merlot.org/vl_physics.html https://phet.colorado.edu https://www.myphysicslab.com
	Chemistry for EEE I Year	https://vtu.ac.in/pdf/2022syll/BCHEE102.pdf	WeblinksandVideoLectures(e-Resources): http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDM

			jHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBased Learning: https://www.vlab.co.in/broad-area-chemical-sciences https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science
	Elements of Electrical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BEEE103.pdf	Web links and Video Lectures (e-Resources): www.nptel.ac.in Activity Based Learning (Suggested Activities in Class)/ Practical Based learning Wherever required, faculty shall demonstrate the concepts through laboratory experiments.
	Basics of Electronics for I year	https://vtu.ac.in/pdf/2022syll/BBEE103.pdf	Web links and Video Lectures (e-Resources): https://nptel.ac.in/courses/122106025 https://nptel.ac.in/courses/108105132 https://nptel.ac.in/courses/117104072
	Mathematics for Mechanical Engineering I year	https://vtu.ac.in/pdf/2022syll/BMATM101.pdf	Web links and Video Lectures (e-Resources): http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Program VTU EDUSAT Program Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning: • Quizzes • Assignments • Seminar
	Mathematics-I for Mechanical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BMAT201.pdf	Web links and Video Lectures (e-Resources): http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ VTU e-Shikshana Programand VTU EDUSAT Program Activity-Based Learning (Suggested Activities in Class)/ • Practical-Based Learning • Quizzes • Assignments • Seminar
	Physics for Mech	https://vtu.ac.in/pdf/2022syll/BPHYM102.pdf	Simple Harmonic motion: https://www.youtube.com/watch?v=k2FvSzWeVxQ Shock waves:

	anical Engineering I Year		https://physics.info/shock/ Shock waves and its applications: https://www.youtube.com/watch?v=tz_3M3v3kxk Stress- strain curves: https://web.mit.edu/course/3/3.11/www/modules/ss.pdf Stress curves: https://www.youtube.com/watch?v=f08Y39UiC-o Fracture in materials: https://www.youtube.com/watch?v=x47nky4MbK8 Thermo-electricity: https://www.youtube.com/watch?v=2w7NBuu5w9c&list=PLtkeUZItwHK5y6qy1GFxa4Z4Rc mzUaaz6 Thermoelectric generator and coolers: https://www.youtube.com/watch?v=NruYdb31xk8 Cryogenics: https://cevgroup.org/cryogenics-basics-applications/ Liquefaction of gases: https://www.youtube.com/watch?v=aMelwOsGpIs Virtual lab: https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham Material characterization : https://onlinecourses.nptel.ac.in/noc20_mm14/preview https://www.encyclopedia.com/science-and-technology/physics/physics/cryogenicshttps://www.usna.edu/NAOE/_files/documents/Courses/EN380/Course_Notes/Ch10_Deformation.pdf 16-2-2023 4 Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: http://nptel.ac.in https://swayam.gov.in https://virtuallabs.merlot.org/vl_physics.html https://phet.colorado.edu https://www.myphysicslab.com
	Chemistry for Mechanical Engineering I Year	https://vtu.ac.in/pdf/2022syll/BCHEM102.pdf	http://libgen.rs/ https://nptel.ac.in/downloads/122101001/ https://nptel.ac.in/courses/104/103/104103019/ https://ndl.iitkgp.ac.in/ https://www.youtube.com/watch?v=faESCxAWR9khttps://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X9IbHrDMjHWWh https://www.youtube.com/watch?v=j5Hml6KN4TI https://www.youtube.com/watch?v=X9GHBdyYcyo https://www.youtube.com/watch?v=1xWBPZnEJk8 https://www.youtube.com/watch?v=wRAo-M8xBHM ActivityBasedLearning(SuggestedActivitiesinClass)/ PracticalBasedlearning: https://www.vlab.co.in/broad-area-chemical-sciences https://demonstrations.wolfram.com/topics.php https://interestingengineering.com/science

	Elements of Mechanical Engineering for I year	https://vtu.ac.in/pdf/2022syll/BEMEM103.pdf	https://www.tlv.com/global/TI/steam-theory/principal-applications-for-steam.html https://www.forbesmarshall.com/Knowledge/SteamPedia/About-Steam/Fundamental-Applications-of-Steam https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- andprocess-industry/) Videos | Makino (For Machine Tool Operation) Activity Based Learning (Suggested Activities in Class)/ Practical Based learning 1. Visit to any manufacturing/aero/auto industry or any power plant 2. Demonstration of lathe/milling/drilling/CNC operations 3. Demonstration of working of IC engine/refrigerator 4. Demonstration of metal joining process 5. Video demonstration of latest trends in mobility/robotics
	Innovation And Design Thinking	https://vtu.ac.in/pdf/2022syll/BIDTK108.pdf	1. www.tutor2u.net/business/presentations/. /productlifecycle/default.html 2. https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf 3. www.bizfilings.com 4. https://www.mindtools.com/brainstm.html 5. https://www.quicksprout.com/. /how-to-reverse-engineer-your-competit 6. www.vertabelo.com/blog/documentation/reverse-engineering https://support.microsoft.com/en-us/kb/273814 7. https://support.google.com/docs/answer/179740?hl=en 8. https://www.youtube.com/watch?v=2mjSDIBaUlM thevirtualinstructor.com/foreshortening.html https://dschool.stanford.edu/.../designresources/.../ModeGuideBOOTCAMP2010L.pdf https://dschool.stanford.edu/use-our-methods/ https://www.interactiondesign.org/literature/article/5-stages-in-the-design-thinking-process http://www.creativityatwork.com/design-thinking-strategy-for-innovation/498 https://www.nngroup.com/articles/design-thinking/ https://designthinkingforeducators.com/design-thinking/ www.designthinkingformobility.org/wp-content/.../10/NapkinPitch_Worksheet.pdf Activity Based Learning (Suggested Activities in Class)/ Practical Based learning http://dschool.stanford.edu/dgift/ https://onlinecourses.nptel.ac.in/noc19_mg60/preview
	Introduction to Civil Engineering	https://vtu.ac.in/pdf/2022syll/BESCK104A.pdf	Web links and Video Lectures (e-Resources): https://www.youtube.com/watch?v=nGfVTNfNwnk&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwThttps://www.youtube.com/watch?v=nkg7VNW9UCc&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwT&i ndex=2 https://www.youtube.com/watch?v=ljDIIMvxeg&list=PLOSWwFV98rfKXq2KBphJz95rao7q 8PpwT&index=5 https://www.youtube.com/watch?v=VQRcChR9IkU&list=PLOSWwFV98rfKXq2KBphJz95r ao7q8PpwT&index=18

			https://www.youtube.com/watch?v=3YBXteL-qY4https://www.youtube.com/watch?v=z95UW4wwzSc&list=PLOSWwFV98rfKXq2KBphJz95r ao7q8PpwT&index=10 https://www.youtube.com/watch?v=lheoBL2QaqU&list=PLOSWwFV98rfKXq2KBphJz95rao 7q8PpwT&index=7 https://www.youtube.com/watch?v=atoP5_DeTPE https://www.youtube.com/watch?v=ksmsp9OzAsI https://www.youtube.com/watch?v=x1ef048b3CE https://www.youtube.com/watch?v=l_Nck-X49qc https://play.google.com/store/apps/details?id=appinventor.ai_jgarc322.Resultant_Force https://www.youtube.com/watch?v=RIBeeW1DSZg https://www.youtube.com/watch?v=R8wKV0UQtlo https://www.youtube.com/watch?v=0RZHHgL8m_A https://www.youtube.com/watch?v=Bls5KnQOWkY Activity-Based Learning (Suggested Activities in Class)/ Practical Based Learning: https://www.youtube.com/watch?v=Zrc_gB1YYS0 https://play.google.com/store/apps/details?id=vn.edu.best4u.com.bieudonoiluc https://www.youtube.com/watch?v=Hn_iozUo9m4 https://play.google.com/store/apps/details?id=com.teobou https://www.youtube.com/watch?v=WOHRp3V-QA0
	Introduction To Mechanical Engineering	https://vtu.ac.in/pdf/2022syll/BESCK104D.pdf	https://rakhoh.com/en/applications-and-advantages-of-steam-in-manufacturing- andprocess-industry/ Videos | Makino (For Machine Tool Operation) Activity Based Learning (Suggested Activities in Class)/ Practical Based learning: • Demonstration of lathe/milling/drilling operations • Demonstration of working of IC Engine. Study arc welding, oxy-acetylene gas flame structure. • Video demonstration of latest trends in mobility robotics and Automation • Demonstration of developing models on machine tools
	Smart Materials and systems	https://vtu.ac.in/pdf/2022syll/BETCK105A.pdf	YouTube Videos. Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Site visits to understand the prefabricated building components. • Visit to Smart material manufacturing facilities • Visit to 3-D printing facility
	Green Buildings	https://vtu.ac.in/pdf/2022syll/BETCK105B.pdf	Web links and Video Lectures (e-Resources): https://www.youtube.com/watch?v=THgQF8zHBW8 https://www.youtube.com/watch?v=DRO_rIkywxQ Activity Based Learning (Suggested Activities in Class)/ Practical Based learning Students have to visit a building which is green rated and prepare a report

	Introduction to Nano Technology	https://vtu.ac.in/pdf/2022syll/BETCK105C.pdf	https://nptel.ac.in/courses/118104008https://www.digimat.in/nptel/courses/video/118104008/L16.html https://archive.nptel.ac.in/courses/113/106/113106099/ https://nptel.ac.in/courses/112107283 https://onlinecourses.nptel.ac.in/noc22_me131/preview Practical Based Learning (Any 5 experiments x 2 hours = 10 practical hours): • Preparation of silver nanoparticles and characterization of particle size by optical spectroscopy • Preparation of ZnO nanoparticles by combustion technique Preparation of Al2O3 nanoparticles by precipitation method Preparation of Silica nanoparticles by sol-gel method Preparation of metal oxide nanoparticles by hydrothermal method • Determination of thermal conductivity of nanofluids using a thermal analyser • Preparation of thin films by SILAR method Determination of Band gap of given material using Tauc plot
	Introduction to Sustainable Engineering	https://vtu.ac.in/pdf/2022syll/BETCK105D.pdf	VTU/EDUSAT/SWAYAM/NPTEL/MOOC. https://nptel.ac.in/courses/127105018 https:/https://nptel.ac.in/courses/107103081/www.macfound.org https://unesdoc.unesco.org/ https://unesdoc.unesco.org/ark:/48223/pf0000375644.locale=en https://engineeringforoneplanet.org/ Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Group Discussion of case studies. Solutions to real time case studies • Seminar/Poster Presentation
	Renewable Energy Sources	https://vtu.ac.in/pdf/2022syll/BETCK105E.pdf	E-book:URL:https://www.pdfdrive.com/non-conventional-energy-sources-e10086374.html E-book:URL:https://www.pdfdrive.com/non-conventional-energy-systems-nptel-d17376903.html E-book :https://www.pdfdrive.com/renewable-energy-sources-and-their-applications- e33423592.html E-book: https://www.pdfdrive.com/lecture-notes-on-renewable-energy-sources-e34339149.html https://onlinecourses.nptel.ac.in/noc18_ge09/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Poster presentation on the theme of renewable energy sources • Industry Visit
	Emerging Appli	https://vtu.ac.in/pdf/2022syll/BETCK105G.pdf	https://www.youtube.com/watch?v=kQ6CY1qpGjY https://nptel.ac.in/courses/102101054 https://onlinecourses.nptel.ac.in/noc20_ph13/preview

	cations Of Biosensors		https://onlinecourses.nptel.ac.in/noc22_ph01/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • AV presentation by students (on specific topics). • Discussion of case studies based on research findings. • Model making and Poster presentations
	Introduction to Internet of Things (IOT)	https://vtu.ac.in/pdf/2022syll/BETCK105H.pdf	https://nptel.ac.in/noc/courses/noc19/SEM1/noc19-cs31/ Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Demonstrate a sensor based application
	Introduction to Cyber Security	https://vtu.ac.in/pdf/2022syll/BETCK105I.pdf	https://www.youtube.com/watch?v=yC_hFm0BX28&list=PLxApjaSnQGi6Jm7LLSxvmNQjS_rt9swsu https://www.youtube.com/watch?v=nzZkKoREEGo&list=PL9ooVrP1hQOGPQVeapGsJCktzIO4DtI4_ https://www.youtube.com/watch?v=6wi5DI6du-4&list=PL_uaeekrhGzJlB8XQBxU3z__hDwT95xlk https://www.youtube.com/watch?v=KqSqyKwVuA8 16-2-2023 Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Illustration of standard case study of cyber crime • Setup a cyber court at Institute level
	Introduction To Embedded Systems	https://vtu.ac.in/pdf/2022syll/22ETC15J.pdf	NPTL Lectures: https://nptel.ac.in/courses/108102045 Embedded Systems, IIT Delhi, Prof. Santanu Chaudhary Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • To design a simple Embedded System like simple remote • To demonstrate simple microcontroller-based experiments like LED interfacing, LCD interfacing, DAC etc
	Introduction to Web Programming	https://vtu.ac.in/pdf/2022syll/BPLCK105A.pdf	https://onlinecourses.swayam2.ac.in/aic20_sp11/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: ● Develop simple GUI interfaces for a computer program to interact with users
	Introduction to Python	https://vtu.ac.in/pdf/2022syll/BPLCK105B.pdf	https://www.learnbyexample.org/python/ https://www.learnpython.org/ https://pythontutor.com/visualize.html#mode=edit Activity Based Learning (Suggested Activities in Class)/ Practical Based

	Programming		Learning: ● Quizzes for list, tuple, string dictionary slicing operations using below link https://github.com/sushantkhara/Data-Structures-And-AlgorithmswithPython/raw/main/Python%203%20_%20400%20exercises%20and%20solutions%20for%20beginn ers.pdf
	Basics of Java Programming	https://vtu.ac.in/pdf/2022syll/BPLCK105C.pdf	https://onlinecourses.nptel.ac.in/noc22_cs47/preview Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: ● Conduct on spot problem solving based on JAVA ● Develop simple GUI interfaces for a computer program to interact with users
	III and IV Semesters Computer Science and Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2cssessyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ http://www.bookstreet.in. VTU EDUSAT PROGRAMME–20 and VTU e-Shikshana Program Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning: ● Programming Assignment ● Seminars **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Civil Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2civsyll.pdf	1.Strength of Materials web course by IIT Roorkee https://nptel.ac.in/courses/112107146/ 2.Strength of Materials video course by IIT Kharagpur https://nptel.ac.in/courses/105105108/ 3.Strength of Materials video course by IIT Roorkee https://nptel.ac.in/courses/112107147/18 4.All contents organized http://www.nptelvideos.in/2012/11/strengthof-materials-prof.html Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning: • Quiz (To assist in GATE Preparations) • Demonstrations in Lab Virtual Lab Experiments **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV	https://vtu.ac.in/pdf/2022_3to8/2ecesyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/

	Semesters Electronics and Communication Engineering Courses		• VTU e-Shikshana Program • VTU EDUSAT Program. Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning • Quizzes • Assignments • Seminar **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Electrical and Electronics Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2eesyll.pdf	http://nptel.ac.in/courses.php?disciplineID=111 http://www.class-central.com/subject/math(MOOCs) http://academicearth.org/ • VTU e-Shikshana Program • VTU EDUSAT Program. Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning Activity-Based Learning (Suggested Activities in Class)/Practical-Based Learning • Quizzes • Assignments • Seminar **Note:** Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	III and IV Semesters Mechanical Engineering Courses	https://vtu.ac.in/pdf/2022_3to8/2mecsyll.pdf	Statics and Strength of Materials, Shehata, 2nd edition, 1994. http://www.astm.org/DIGITAL_LIBRARY/JOURNALS/TESTEVAL/PAGES/JTE12637J.htm http://www.astm.org/DIGITAL_LIBRARY/JOURNALS/TESTEVAL/PAGE S/JTE12637J.htm http://www.freeengineeringbooks.com/Civil/Strength-of-MaterialBooks.php Activity Based Learning (Suggested Activities in Class)/ Practical Based Learning • Use Mdsolids (https://web.mst.edu/mdsolids/) or any open source software for active teaching and learning. **Note:**Above are sample e-resources and practicals mentioned in one subject and e-resources of remaining courses are available in the VTU mentioned and are practicing regularly
	Shape Memory Alloys [07/01, 12:10 pm] Dr.S.N.Topannavar:		https://www.slideshare.net/sureshdaravath/shape-memory-alloys-71483726

	[07/01, 12:29 pm] Dr.S.N.Topannavar: Martensite transformation animation	https://padeepz.net/shape-memory-alloys/ https://www.youtube.com/watch?v=r-o-neQiT24
	Properties of NiTi Alloys [14/01, 12:41 pm] Dr.S.N.Topannavar: [14/01, 1:12 pm] Dr.S.N.Topannavar:	https://youtu.be/EKimWj8c-MQ?si=xt2IV2XroB-TGDCU https://youtu.be/60G1KCe31DA?si=-fH9w8qqdcF6tA4i
	Shape Memory Alloys [14/01, 12:58 pm] Dr.S.N.Topannavar: [14/01, 1:05 pm] Dr.S.N.Topannavar: [14/01, 1:10 pm] Dr.S.N.Topannavar: 14/01, 2:52 pm] Dr.S.N.Topannavar:	https://youtu.be/7PKJ1TSCQWk?si=94xqFo17R6Gd6dpk https://youtu.be/M4lDuktUaeI?si=31_nLc_qIrO4Brwt https://youtu.be/yR-6_lS9vts?si=NytO45sqMLpHUPGh https://youtu.be/I7doX1zWGdw?si=Cc3GafcswLn-HvxE
	Applications of Shape Memory Alloys [14/01, 2:37 pm] Dr.S.N.Topannavar: [14/01, 2:40 pm] Dr.S.N.Topannavar:	https://youtu.be/5hYOxFFjZ-8?si=Vw4bGVDbBb6HKR46 https://youtu.be/I7doX1zWGdw?si=eese-szhufVq6pU6
	Piezoelectric Materials and Applications [14/01, 3:14 pm] Dr.S.N.Topannavar [14/01, 3:21 pm] Dr.S.N.Topannavar [14/01, 3:25 pm] Dr.S.N.Topannavar: [14/01, 3:31 pm] Dr.S.N.Topannavar: [14/01, 3:33 pm] Dr.S.N.Topannavar: [14/01, 3:34 pm] Dr.S.N.Topannavar:	https://youtu.be/_XABS0dR15o?si=w_lp1UghKxbuqPF5 https://youtu.be/4nbBAG-848c?si=GPQBzxnSeCjOYNhl https://youtu.be/pnvpsl3bzwQ?si=7LT4KBfRU_1Y04ll https://youtu.be/INaPVsVZkR8?si=5L7Axd4M7UMZSlDW https://youtu.be/ULbNZuZulPg?si=BKmQ69mMmVV_J2fi https://youtu.be/p-rPep0-3cE?si=yC-m6ocf7OkFMl3p
	Self Healing Materials [30/01, 7:22 am] Dr.S.N.Topannavar:	https://youtu.be/xDp3PU8azmY?si=HDAEMX9awZIzcpMr
	Electrical Self Healing Materials [30/01, 7:21 am] Dr.S.N.Topannavar	https://youtu.be/N_ijvkl51LM?si=4M0VGpAwO1X6_aMb
	Self Healing Polymers [30/01, 7:21 am] Dr.S.N.Topannavar	https://youtu.be/XnJbH9re2rI?si=fMa7FPwTGcmjecxx
	Targeted Drug Delivery System (TDDS)	https://youtu.be/2k2BLFFQssg?si=ydD6e0s6PkXiWBl9

	[30/01, 7:16 am] Dr.S.N.Topannavar:	
	Smart Drug Delivery System [30/01, 7:14 am] Dr.S.N.Topannavar:	https://youtu.be/AqWzqhDaoz0?si=ws0q9YWplRmF4Txg
	Bimorph MFC Actuator	https://www.youtube.com/watch?v=w79wTb2zOQQ
	Bimorph Piezoelectric Cantilever Mode Shapes	https://www.youtube.com/watch?v=-XAIQQUcQk0
	Synthesis of Carbon Nanotubes (CNTs) by CVD Method	https://www.youtube.com/watch?v=FQ5Fe5I8vYU
	Azobenzene : Organic Synthesis	https://www.youtube.com/watch?v=novE6nQrBmU
	Azobenzene and Polyimide Film Shape Changing Polymer	https://www.youtube.com/watch?v=HiI22ttaBf0
	A crystal of azobenzene showing different patterns of flipping motion	https://www.youtube.com/watch?v=YGqEgrcnfXc
	Smart coatings for corrosion protection	https://www.youtube.com/watch?v=6PJuJ1-fp7c
	Scratching the Surface: Self Healing and Smart Coatings [30/01, 7:20 am] Dr.S.N.Topannavar	https://youtu.be/T0w_r8hrt5Q?si=CA-kfloLc4CyKiSz
	New asphalt repairs its own cracks [30/01, 7:19 am] Dr.S.N.Topannavar:	https://youtu.be/C2CYClNVkCs?si=43Puhf-ifBMLKY7G
	Self Healing Polymers by CIDETEC [30/01, 7:18 am] Dr.S.N.Topannavar:	https://youtu.be/fVTfSHEPnr8?si=uH6hdCcQRxt2cR2T
	Nano particles for Targeted Drug Delivery System [30/01, 7:17 am] Dr.S.N.Topannavar:	https://youtu.be/xElVrV9zxRY?si=OczXLNpdu-Rof3bZ
	Biomaterials in Drug Delivery System [30/01, 7:15 am] Dr.S.N.Topannavar:	https://youtu.be/tx6IVsErnj8?si=ITeg26itxUnTBnx_
	Piezo Disk Actuator, Bimorph Disk Actuator Long Travel, Molecualr Valve by www.pi.ws	https://www.youtube.com/watch?v=mAAT5fvbl4Y
	Thermal Bimorph	https://www.youtube.com/watch?v=NpxoUU1rLTs

	How Carbon Nanotubes Will Change the World	https://www.youtube.com/watch?v=SIif11QOsRI
	pH Responsive Lipids-Use in Smart Drug Delivery Systems	https://www.youtube.com/watch?v=UpjLULz9Aq8
	Smart Polymers: The Game-Changing, Responsive, Resilient, and Revolutionary Polymer Developments	https://www.youtube.com/watch?v=6hVJvXL3tMs
	Smart Materials of the Future - with Anna Ploszajski	https://www.youtube.com/watch?v=4-_rwDgLMpk
	Research Spotlight: Julianna Abel - developing 'smart' fabrics for medical and space applications	https://www.youtube.com/watch?v=NTZDy8jkw68
	Electronics in Space Applications	https://www.youtube.com/watch?v=c4UtMI_xEQY
	Self-Healing Coatings to Prevent Corrosion Damage	https://www.youtube.com/watch?v=66mpHrlk_Fk
	SMART COATINGS FOR CORROSION PROTECTION DR S K DHAWAN	https://www.youtube.com/watch?v=yD1Bt-jIwHw
	How to Make PowerPoint PPT in Mobile | ppt in mobile phone | Power-point in mobile :	https://youtu.be/pdjiue2YbgY?si=YeBEV1pKstV-4pQL
	How to speak on Stage	https://youtube.com/shorts/V0tPkayEkKs?si=HYEf0zC-JM10mK9t
	How to start presentations?| Presentation Skills| Five Tips For Presentation by Jaswant Sir	https://youtu.be/QPt_CHcjDMU?si=zuvR5WnzKCTxQvG5
	How to make great presentations | 10 powerful presentation tips	https://youtu.be/yPhUz6xjhGY?si=_hme-IRdI3L03XL-
	A Recipe For Self-healing Concrete! - Science Snapshot	https://youtu.be/JZbQURpXdaA?si=r4r4qZlM9YbPbmjF

	SMART COATINGS FOR CORROSION PROTECTION DR S K DHAWAN	https://youtu.be/yD1Bt-jIwHw?si=L5WLFGyKixCtezcw
	A Recipe For Self-healing Concrete! - Science Snapshot	https://youtu.be/JZbQURpXdaA?si=r4r4qZlM9YbPbmjF
	Scratching the Surface: Self-Healing and Smart Coatings Research at BP-ICAM	https://youtu.be/T0w_r8hrt5Q?si=Ev4abZFvuDbVwLBX
	Corrosion in Reinforced Concrete	https://youtu.be/cX2FdjV4eOY?feature=shared
	Graphene anti-corrosion coating - Enerage Inc.	https://youtu.be/h6VFemlHXTU?si=7gzR6MHrsJ4ZBXMb
	Liquid Crystals | NSF Chalk Talk	https://youtu.be/nAJgchCI3kg?si=-ev34gRf1LFe4_Bi
	This new material heals—not cracks—under pressure	https://youtu.be/VJCX0xgQFBE?si=N7a1spYPUiqg1Ci9
	Self-Healing Coatings to Prevent Corrosion Damage	https://youtu.be/66mpHrlk_Fk?si=cgPOyRbZRRbSixR0
	Shape Memory Alloy Heat Engine	https://youtu.be/I78ZTkdZ0b0?feature=shared
	Photoresponsive Liquid Crystalline Epoxy Networks with Shape Memory Behavior and Dynamic Ester	https://youtu.be/dldwbymd7eA?si=CFtTWbYPGvU9XmD4
	Azobenzene and Polyimide Film Shape Changing Polymer	https://youtu.be/HiI22ttaBf0?si=Bl-TElmdm81LeuFI
	Hair Gel	https://youtube.com/shorts/0eirRrU312Y?si=bry6aPBVY5iyOxar
		https://youtu.be/Y6K7h9tbD_s?si=GTjcsrEwblb35E-S

	Liquid Crystals Painted on Heat Pipes	
	What are Liquid Crystals?	https://youtu.be/MuWDwVHVLio?si=xrSjouoB7Zu4m95V
	New Gel Protects Eggs and May Lead to Better Sports Helmets | Headline Science	https://youtu.be/yBMWBhpeiy8?si=57TdmzORewh7pwha
	Self-Healing Material	https://youtu.be/DAUl6upA3q4?si=mQHDknLx3AIIiZcL
	Smart Gel	https://youtu.be/W-YYtQkldgU?si=i1fhaN8H8Pa67SYO
	What are Liquid Crystals : Definition ,Formation, Types , Uses & Properties of Liquid Crystals	https://youtu.be/JlZhHhpVRrI?si=HU-UCu71guAiA4ay
	Colour changing Liquid Crystals	https://youtube.com/shorts/lFY-HufqZPU?si=Kxj1NyqMEBvixmzy
	Liquid Crystals	https://youtube.com/shorts/R7kbdWBVQF0?si=aoINogRmKKtkjGgc
	Learn to deliver PRESENTATIONS confidently in ENGLISH!	https://youtu.be/Q074YSGwRTM?si=6YnCRvt6xOGWK-2O
	India on path to triple renewable energy capacity by 2030 but faces financing hurdle: Report 29/11, 2:57 pm] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/economy/india-on-path-to-triple-renewable-energy-capacity-by-2030-but-faces-financing-hurdle-report-11826361.html
	India on path to triple renewable energy capacity by 2030 but faces financing hurdle: Report - [30/11, 4:32 pm] Dr.S.N.Topannavar	https://www.notebookcheck.net/Energy-start-up-designs-offshore-wind-turbine-to-double-power-generation.771828.0.html
	30/11, 4:39 pm] Dr.S.N.Topannavar:	[https://solarquarter.com/2023/11/28/solar-and-wind-power-constitute-over-88-of-total-renewable-installed-capacity-by-october-2023/
	[04/12, 6:10 am] Dr.S.N.Topannavar:	https://www.business-standard.com/economy/news/proposed-5-biogas-blending-with-lng-can-cut-imports-worth-1-17-bn-iba-123120300252_1.html
	[10/12, 1:22 am]	https://solarquarter.com/2023/12/05/quarterly-analysis-of-solar-pv-installed-

	Dr.S.N.Topannavar:	capacity-in-india-q1-2021-to-q3-2023/
	[10/12, 9:14 am] Dr.S.N.Topannavar:	https://www.financialexpress.com/business/sustainability-indias-potential-as-a-global-hydrogen-electrolyzer-manufacturing-hub-3334155/
	[10/12, 9:26 am] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/kundan-energy-to-develop-80-mw-hydropower-at-rs-1000-crore-investment-in-uttarakhand-11878161.html
	[10/12, 9:27 am] Dr.S.N.Topannavar:	https://www.iamrenew.com/green-energy/revolutionizing-biogas-production-lehmann-umts-bioextrusion-process/
	[10/12, 9:29 am] Dr.S.N.Topannavar:	https://electrek.co/2023/12/08/us-first-large-scale-offshore-wind-farm-vineyard-wind-1/
	[10/12, 9:30 am] Dr.S.N.Topannavar:	https://www.businesstoday.in/impact-feature/story/forging-the-path-to-net-zero-how-to-drive-a-world-class-net-zero-transformation-408570-2023-12-07
	[10/12, 9:31 am] Dr.S.N.Topannavar:	https://solarquarter.com/2023/12/06/masdar-edf-renewables-and-nesma-renewable-energy-wins-a-contract-for-a-1-1-gw-solar-project-in-saudi-arabia/
	15/12, 7:14 am] Dr.S.N.Topannavar	: https://www.businesstoday.in/visualstories/news/india-to-build-worlds-largest-solar-farm-equivalent-to-the-size-of-singapore-80799-08-12-2023
	[16/12, 7:53 am] Dr.S.N.Topannavar	: https://www.saurenergy.com/solar-energy-news/zetwerk-secures-375-mw-solar-module-deal-with-ntpc
	[16/12, 7:54 am] Dr.S.N.Topannavar:	https://solarquarter.com/2023/12/13/sembcorp-secures-singapores-largest-solar-power-project/
	[16/12, 7:56 am] Dr.S.N.Topannavar:	https://www.moneycontrol.com/news/business/companies/india-gets-bids-for-green-hydrogen-electrolyser-incentives-11911761.html
	[16/12, 7:57 am] Dr.S.N.Topannavar:	https://www.pv-magazine.com/2023/12/12/french-startup-offers-ai-algorythm-package-for-rooftop-pv-monitoring/
	[16/12, 7:58 am] Dr.S.N.Topannavar:	https://tradebrains.in/features/renewable-energy-stock-jumps-after-it-bags-100-8-mw-wind-power-project-in-gujarat/
	[16/12, 7:59 am] Dr.S.N.Topannavar:	https://www.financialexpress.com/web-stories/sme/10-solar-business-ideas-to-start-in-2024/
	[10/12, 9:36 am] Dr.S.N.Topannavar:	https://youtu.be/pdjiue2YbgY?si=YeBEV1pKstV-4pQL
	[10/12, 9:45 am] Dr.S.N.Topannavar:	https://youtu.be/Q074YSGwRTM?si=6YnCRvt6xOGWK-2O
	[10/12, 9:50 am] Dr.S.N.Topannavar:	https://youtube.com/shorts/V0tPkayEkKs?si=HYEf0zC-JM10mK9t
	[10/12, 9:51 am] Dr.S.N.Topannavar:	https://youtu.be/QPt_CHcjDMU?si=zuvR5WnzKCTxQvG5

	[10/12, 9:53 am] Dr.S.N.Topannavar:	https://youtu.be/yPhUz6xjhGY?si=_hme-IRdI3L03XL-
	VTU Curriculum-book URL:	https://www.pdfdrive.com/non-conventional-energy-sources-e10086374.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/non-conventional-energy-systems-nptel-d17376903.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/renewable-energy-sources-and-their-applications- e33423592.html
	VTU Curriculum-book URL:	https://www.pdfdrive.com/lecture-notes-on-renewable-energy-sources-e34339149.html
	VTU Curriculum-book URL:	https://onlinecourses.nptel.ac.in/noc18_ge09/preview
	Models and charts to realise atomic structures of different materials and phase transformations	
	Material Testing lab visit to realise the strengths and properties of different materials	
	Models show the stimuli and responses of smart materials	
	Application oriented pedagogical teaching in the class	

VTU Board of Studies (BoS) recommended e-Resources
(Web links, Video Lectures, MOOCs, e-Shikhsana Program, NPTEL, EDUSAT, YouTube, Vlab etc.), (2018-19 to 2023-24)

S.N.	Faculty Name	Course	VTU Syllabus link where e-resources are mentioned	e-Resource	Branch
1	Prof.S.S. Malaj	Basic Electronics	https://vtu.ac.in/pdf/2022syll/BBEE203.pdf	https://nptel.ac.in/courses/122106025	ECE
2	Prof.S.S. Malaj	Basic Electronics	https://vtu.ac.in/pdf/2022syll/BBEE203.pdf	https://nptel.ac.in/courses/108105132 https://nptel.ac.in/courses/117104072	ECE
3	Prof.S.S. Malaj	Introduction to Internet of Things	https://vtu.ac.in/pdf/2022syll/BETCK105H.pdf	https://nptel.ac.in/noc/courses/noc19/sem1/noc19-cs31	ECE
4	Prof. D. B. Madihalli	Introduction to Python Programming	BPLCK105B.pdf (vtu.ac.in)	Learn Python by Examples: https://www.learnbyexample.org/python/ https://www.learnpython.org https://pythontutor.com/visualize.html#mode=edit	ECE

5	Prof.S.S. Malaj	Basic Electronics and communication Engineering	https://vtu.ac.in/pdf/2021syll/21eln24.pdf	https://doi.org/10.4324/9781315737980.BookISBN9781315737980	ECE
6	Dr.S.S. Ittannavar	Basic Signal Processing	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://www.youtube.com/watch?v=KJnAy6hzetw&list=PL41692B571DD0AF9B https://www.youtube.com/watch?v=ZK3O402wf1c&list=PL49CF3715CB9EF31D&index=1	ECE
7	Dr.S.S. Ittannavar	Digital Signal Processing	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/117102060	ECE
8	Dr.S.S.I ttannavar	Digital Communication	https://vtu.ac.in/pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/108102096	ECE
9	Dr.S.S. Ittannavar	Multimedia Communication	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://www.youtube.com/watch?v=rC16fhvXZOo	ECE
10	Dr.S.S. Ittannavar	MATLAB Programming	https://vtu.ac.in/pdf/2022_3to8/2ecesyll.pdf	https://www.youtube.com/watch?v=IuEOMyGuuIg	ECE
11	Dr.S.S. Ittannavar	Digital Signal Processing	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://nptel.ac.in/courses/117102060	ECE
12	Dr.S.S. Ittannavar	Digital Communication	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://nptel.ac.in/courses/108102096	ECE
13	Prof. B. P Khot	Digital Image Processing	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/ArKe6zMkXnk https://youtu.be/nlwH07G9Efg https://youtu.be/MrNafUqh860	ECE
14	Prof. B. P Khot	Network Security	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/2YGUvopGkQc	ECE
15	Prof. B. P Khot	Computer Organization and Architecture	https://vtu.ac.in/pdf/2018syll/ec.pdf	https://youtu.be/Wfau1WC5m4c https://youtu.be/Q7YdIhbRea0 https://youtu.be/s4cVdsK3XiQ	ECE
16	Prof.S.S. Malaj	Circuits and controls	https://vtu.ac.in//pdf/2021syll/ecschsyll.pdf	https://nptel.ac.in/courses/108106098 https://nptel.ac.in/courses/108102042	ECE

17	Prof. S. S. Kamate	S&S	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=0nZYen9w_eo&list=PLyqSpQzTE6M8KJ-XQ1m2vl3nd2ZUqKEN8 https://www.youtube.com/watch?v=_vyke3vF4Nk https://www.youtube.com/watch?v=lkAvgVUvYvY	ECE
18	Prof. S. S. Kamate	M&A	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=wx_tIvaajAI&list=PLzJaFd3A7DZsL9dZDCeA3ijHZwwBb6R8yhttps://www.youtube.com/watch?v=wKL6WsEOl00&list=PLGnJGN4tr1dY3UivHBTJBQAcvlQ1FYEbG	ECE
19	Prof. S. S. Kamate	Engg. Electromagnetics	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=G5P6dInMTFg&list=PLuv3GM6-gsE3-hVNaw-YEb7EeY5XVPZdz https://www.youtube.com/watch?v=pGdr9WLto4A&list=PL1CE5B4FFFA997E5D	ECE
20	Prof. S. S. Kamate	VLSI Design	https://vtu.ac.in/wp-content/uploads/2019/12/Electronics-Communication-sch-and-syla.pdf	https://www.youtube.com/watch?v=lRpt1fCHd8Y&list=PLU8VFS-HdvKtKswbcvvA8yVhzleTV7OE8 https://www.youtube.com/watch?v=M2x_lSYxvXk https://www.youtube.com/watch?v=faiEVOOCe-s	ECE

List of Self-prepared Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promoteexperiential learning among the students

S.N.	Self-prepared Pedagogical initiatives and Innovative teaching aids	Course/Topic	Dept
1.	Concept realization through learning models/charts in the class room.	EME: IC engine models, Gears, Milling	Mech. Engg.
2.	Concept realization through	EME: Turbines & Pumps in the Fluid	Mech.

	equipment demonstration in the respective laboratories.	Machinery Lab, Lathe, Drilling, Milling Machines in the Machine Shop and Welding in the Workshop	Engg.
3.	Inspiring students to arrive basic definitions/laws by giving examples/case studies/current affairs/routine activities/events etc. indirectly	Thermodynamics Laws and Properties, Refrigerating Effect, Ton of Refrigeration, IC engine efficiencies and powers, Definitions/functions of Turbines and Pumps, Speed Ratios of Gear Trains/Belt Drives	Mech. Engg.
4.	Motivating students to comprehensive understanding of the numerical problem statements (basic & Logic) before solving.	Numerical solving on Thermodynamic Concepts, Steam Formation, Gear Trains, Belt Drives, IC engines	Mech. Engg.
5.	Teaching students how to read and understand formulae, graphs and tables? , and predicting, analyzing and reasoning on technical parameters.	T-h diagram of steam formation, PV diagram of Thermodynamics/IC engines, Steam Tables, energy conversion equations	Mech. Engg.
6.	Teaching derivations and their derivatives (final & intermediate) through units and their different forms.	Equations of I and II law of thermodynamics, entropy, IC engine efficiencies/powers, enthalpy of steam, Specific heats, latent heats	Mech. Engg.
7.	Realizing and feeling the scale of the equipment, quantity, process etc. through sketches, actions, demos etc.	Showing the height of the boiler w.r.t man avg. height, Feeling of 1 bar pressure/1 N force/Temperature, 1 Joule energy	Mech. Engg.
8.	After teaching, ensuring the students' learning by motivating students to list the comparisons, differentiations, classification, similarities with reasons in the class rooms.	Classifications of Steams/turbines/pumps/engines/boilers, Comparisons between Energy sources, similarity between heat and work.	Mech. Engg.
9.	Promoting Cooperative/Informal learning through interactions outside the class room between slow learners and bright student/s.	Elements of Mechanical Engineering	Mech. Engg.
10.	Discussion on the end results/solutions of the complex problems	Elements of Mechanical Engineering	Mech. Engg.
11.	Videos and Poster presentations in the class rooms	Functions renewable energy conversion systems/boilers/turbines/pumps/gears/welding/lathes	Mech. Engg.
12.	Industry Visits	Elements of Mechanical Engineering	Mech. Engg.
13.	Application oriented teaching and creating curiosity to learn and understand the concepts.	Fans and their blade design for energy conversion/thermodynamics concepts, Density/specific volume, heat transfer	Mech. Engg.
14.	Enhancing students' participation by asking questions, creating curiosity, connecting routine applications/practices etc.	Elements of Mechanical Engineering	Mech. Engg.
15.	Flapped Teaching and Learning	Elements of Mechanical Engineering	Mech.

	process		Engg.
16.	Spot quantifying of learning and motivating students to express the feedback about teaching and learning process	Elements of Mechanical Engineering	Mech. Engg.
17.	Teaching by the students on his/her chosen topic	Elements of Mechanical Engineering	Mech. Engg.
18.	Motivational teaching to draw meaningful and logical based sketches including graphics.	Strokes in IC engines, Refrigeration cycles, Turbines, Pumps, Lathe and its machining operations	Mech. Engg.
19.	Inspiring students to read reputed reference books and to make their own notes.	Elements of Mechanical Engineering	Mech. Engg.
20.	Motivational teaching to create own sketches to understand the critical concepts and express them in the exams to strengthen the answers	Elements of Mechanical Engineering	Mech. Engg.
21.	Facilitating self-Video Lectures for Slow learners and absentees	Elements of Mechanical Engineering	Mech. Engg.
22.	https://www.youtube.com/watch?v=qSWm_nprfqE https://www.youtube.com/watch?v=xy9nj94xvKA	Wind Energy	Mech. Engg.
23.	https://www.youtube.com/watch?v=xKxrkht7CpY https://www.youtube.com/watch?v=8nJXN6kwyqA https://www.youtube.com/watch?v=xKxrkht7CpY https://www.youtube.com/watch?v=ZAJeDVLO1_w https://www.youtube.com/watch?v=lrRTCbXE0Jc	Solar Energy Conversion	Mech. Engg.
24.	https://www.youtube.com/watch?v=IdPTuwKEfmA	Thermal Power Plant	Mech. Engg.
25.	https://www.youtube.com/watch?v=tPHyYM7UqSo https://www.youtube.com/watch?v=c1adiK8nLbA https://www.youtube.com/watch?v=OJw6WFkTPZo	Bio fuel/gas production	Mech. Engg.
26.	https://www.youtube.com/watch?v=2W-GEE6YU4M https://www.youtube.com/watch?v=mBdVK4cqiFs https://www.youtube.com/watch?v=xrk7Mt2fx6Y https://www.youtube.com/watch?v=_	Nuclear Energy Production	Mech. Engg.

	UwexvaCMWA https://www.youtube.com/watch?v=AMXxXoHtM-o		
27.	https://www.youtube.com/watch?v=q8HmRLCgDAI https://www.youtube.com/watch?v=Uhjhufhg3Xk https://www.youtube.com/watch?v=hC8NEiwrLTg	Hydroelectric power plant	Mech. Engg.
28.	Basics of Thermodynamics: 1) https://youtu.be/QgcX8svUm4c 2) https://youtu.be/ouEjwbRraNo 3) https://youtu.be/z1nE-23ZglQ 4) https://youtu.be/_krp-ATP30s 5) https://youtu.be/3Sxj9OG3lPU Steam Formation-Properties: 1) https://youtu.be/uFlocTrVEOg 2) https://youtu.be/jmjOITS4a94 3) https://youtu.be/ahuXCZ91ats	• Basics of Thermodynamics • Steam Formation-Properties	Mech. Engg.
29.	Boilers: 1) https://youtu.be/PRtvB00d5V0 2) https://youtu.be/AWSJVmg1w58 3) https://youtu.be/28S0rS5ScgI 4) https://youtu.be/XuV5MusoAqc Turbines: 1) https://youtu.be/cESnwE2hgxA 2) https://youtu.be/3_5VEuA_ctw 3) https://youtu.be/d3-BqXwbQcY 4) https://youtu.be/UB0DyOaDwxU 5) https://youtu.be/H8x1rIdiHWc Hydraulic Pumps: 1) https://youtu.be/LFv4NGA2qtw 2) https://youtu.be/SX9rkMO2iKo 3) https://youtu.be/6VRYJcZXotI	• Boilers • Turbines Hydraulic Pumps	Mech. Engg.
30.	IC Engines: 1) https://youtu.be/ltp_gx4oc0U 2) https://youtu.be/BrQJVA-Ne2E 3) https://youtu.be/xyB8DnIw3Co 4) https://youtu.be/TStNvU5KORg 5) https://youtu.be/1sKl7POCJ08 6) https://youtu.be/3DLJoMc708I 7) https://youtu.be/ahqHOdLmtCc 8) https://youtu.be/wtHiUvTEoD8 9) https://youtu.be/3Fw5_aEfrbU Refrigeration: 1) https://youtu.be/y9gCc4jYkPY 2) https://youtu.be/zwNaU_6dMgY 3) https://youtu.be/JEgjgSkhEIo 4) https://youtu.be/KQRb_25gR7M	• Internal Combustion (IC) Engines • Refrigeration and Air Conditioning (AC)	Mech. Engg.

	5) https://youtu.be/kurwDfOSlBk Air-Conditioning (AC): 1) https://youtu.be/1BEKiLNNjRQ 2) https://youtu.be/AJ508pSoci0 3) https://youtu.be/lIoouWdNU7k		
31.	Engineering Materials: 1) https://youtu.be/3cZmDZepNAE 2) https://youtu.be/FproDJHrxeA Joining Processes: 1) https://youtu.be/Jpev1oGMEhg 2) https://youtu.be/9NXTKdX_qu4 3) https://youtu.be/Z0WOeVYg81c 4) https://youtu.be/iXraH72qwcY 5) https://youtu.be/5srRIznYEdY 6) https://youtu.be/qAIqOSpBf_Q 7) https://youtu.be/GNLsxnjsIzs 8) https://youtu.be/uRmgDTcNEQU Belt Drives: 1) https://youtu.be/L9iuKli2WZY 2) https://youtu.be/SGOBo7tp8gY 3) https://youtu.be/o_ZTtr2vlho 4) https://youtu.be/13zz8qey_K0 5) https://youtu.be/9u_Fgi2G_uw 6) https://youtu.be/l_KxQzi3SCY 7) https://youtu.be/KrfsP5VdGp8 8) https://youtu.be/Ba_0FDzFYH0 Gear Drives: 1) https://youtu.be/x0pA5boJh1M 2) https://youtu.be/6ZIHS4_j6yQ 3) https://youtu.be/jBacF4mkVAA	• Properties, Compositions and Industrial Applications of Engineering Materials • Joining Processes • Belt Drives • Gear Drives	Mech. Engg.
32.	Lathe Machine: 1) https://youtu.be/j8eKqrjaoFU 2) https://youtu.be/4FoTMmlO60s 3) https://youtu.be/pngcpwmQABw 4) https://youtu.be/zcFtZVywZ-s 5) https://youtu.be/RY7zAyPF1Lo Milling Machine: 1) https://youtu.be/RcfqhRRsJhI 2) https://youtu.be/K1el91hK36k 3) https://youtu.be/bgq1xRb-kdM 4) https://youtu.be/-I8gjY0GDYA 5) https://youtu.be/5Ygf-u5P3oU 6) https://youtu.be/sZ1AJ7nDbFo Advanced Manufacturing Systems: 1) https://youtu.be/5sseHUWBuHs 2) https://youtu.be/yXvm84m-5t0 3) https://youtu.be/Vy3-VmJvV9E Robots:	• Lathe Machine • Milling Machine • Introduction to Advanced Manufacturing Systems • Robots	Mech. Engg.

	1) https://youtu.be/VONRliCuT_w 2) https://youtu.be/lrlt1aKr2ck		
33.	https://www.youtube.com/watch?v=e6a2q9k2JCA https://www.youtube.com/watch?v=sA99mw3D2Ds https://www.youtube.com/watch?v=A0BuHEqDm88 https://www.youtube.com/watch?v=dyYkUUtOYpQ https://www.youtube.com/watch?v=EpbuI6CbMRU https://www.youtube.com/watch?v=G_8G2ObAbZ8 https://www.youtube.com/watch?v=HtgFMXZw2Fw&list=PLWPirh4EWFpEduIfhK_VnKCK7VqHDoZKV https://www.youtube.com/watch?v=5NCOnr3VSAY https://www.youtube.com/watch?v=vy2LW9tUFHA	Fluid Properties	Mech. Engg.
34.	https://www.youtube.com/watch?v=qGQ4fojjwvQ https://www.youtube.com/watch?v=wHMHxO9Ys_0 https://www.youtube.com/watch?v=oUF3hWw4tY4 https://www.youtube.com/watch?v=YuSKghET21A	Pascal Law	Mech. Engg.
35.	https://www.youtube.com/watch?v=g0kpcCBuXe0 https://www.youtube.com/watch?v=WmWw_IB6nv4 https://www.youtube.com/watch?v=-P1EvVuuPoI https://www.youtube.com/watch?v=JTM-NvuCW9w https://www.youtube.com/watch?v=1_ey4oBuNSw https://www.youtube.com/watch?v=zPdB4MdRErc	Manometers	Mech. Engg.
36.	https://www.youtube.com/watch?v=yYYzEdJHkak https://www.youtube.com/watch?v=nMlXU97E-uQ https://www.youtube.com/watch?v=2RefIvqaYg8 https://www.youtube.com/watch?v=khc2wUBsFU4	Buoyancy & Floating	Mech. Engg.

	https://www.youtube.com/watch?v=W5vv6hTMrFo https://www.youtube.com/watch?v=_p-hwElkrlk https://www.youtube.com/watch?v=QUgXf2Rj2YQ https://www.youtube.com/watch?v=aEw5NdZb2is https://www.youtube.com/watch?v=BoTk646edcQ https://www.youtube.com/watch?v=jXEE1PboXKg https://www.youtube.com/watch?v=Z3vgsp4vKQs https://www.youtube.com/watch?v=cSjNd2kZW-k https://www.youtube.com/watch?v=u8Kikx14LWU https://www.youtube.com/watch?v=CvWrkxzCiaY https://www.youtube.com/watch?v=16HDJNoXQII https://www.youtube.com/watch?v=bOKa3rDnTeM		
37.	https://www.youtube.com/watch?v=grMmkSP637w https://www.youtube.com/watch?v=nhd8fCCAlIo https://www.youtube.com/watch?v=6kTvQEMwOfM https://www.youtube.com/watch?v=FgY38h2LDeo https://www.youtube.com/watch?v=XZ7CqISBIfE https://www.youtube.com/watch?v=56AyTIhNQBo https://www.youtube.com/watch?v=FZYnewBWUoc	Types of Fluid Flow	Mech. Engg.
38.	https://www.youtube.com/watch?v=E8yPWd-DwcQ https://www.youtube.com/watch?v=96fYQFPGwzU https://www.youtube.com/watch?v=c6ndD5kTkP4 https://www.youtube.com/watch?v=H9u8O4osE0g https://www.youtube.com/watch?v=vC569UD49yA	Fluid Deformations	Mech. Engg.
39.	https://www.youtube.com/channel/U	Continuity Equation	Mech.

	CkDw-LPU1Nnd2WRsfnDbUcA?v=lN20VrPmxdk https://www.youtube.com/watch?v=jn_g6cW9r0w https://www.youtube.com/watch?v=WGuzqF2GCBg https://www.youtube.com/watch?v=ycgJvnm24ks https://www.youtube.com/watch?v=8wM7_vgBSQA		Engg.
40.	https://www.youtube.com/watch?v=UJ3-Zm1wbIQ https://www.youtube.com/watch?v=bC8v6hlXnSk https://www.youtube.com/watch?v=mgeIWXld9FU https://www.youtube.com/watch?v=8vqMotb6m3c https://www.youtube.com/watch?v=YyeX6ArxCYI https://www.youtube.com/watch?v=brN9citH0RA https://www.youtube.com/watch?v=O8qCA2mZvVI https://www.youtube.com/watch?v=UxYH41vV-DI	Bernoulli's Equation	Mech. Engg.
41.	https://www.youtube.com/watch?v=JH3l-NliCkM https://www.youtube.com/watch?v=vxJrb7JKigQ https://www.youtube.com/watch?v=5w4cJBdFHFw https://www.youtube.com/watch?v=b5CwH5AlCkw https://www.youtube.com/watch?v=qCosEM9h0AU https://www.youtube.com/watch?v=k7ZZtxdtmeQ https://www.youtube.com/watch?v=zMfssrddyRU https://www.youtube.com/watch?v=G3bO8RcRgxQ https://www.youtube.com/watch?v=xwyssfQ6oVc https://www.youtube.com/watch?v=_hvgvZuIZOc https://www.youtube.com/watch?v=6zoOBwI5BEY	N-S equations & Applications like CoutteandHagen- Poiseuille Flows	Mech. Engg.

42.	https://www.youtube.com/watch?v=6DFe8eUrbcI https://www.youtube.com/watch?v=G4rbUtAxgHM https://www.youtube.com/watch?v=UflurPbj-UA https://www.youtube.com/watch?v=kJlJoAKveJA https://www.youtube.com/watch?v=D8I9JvlvZuQ https://www.youtube.com/watch?v=jbRkpXEJO64 https://www.youtube.com/watch?v=TKMPpcxSER4	Losses in Pipe-flow	Mech. Engg.
43.	https://www.youtube.com/watch?v=5ltjFEei3AI https://www.youtube.com/watch?v=9_xhJ0-OROg https://www.youtube.com/watch?v=w78JT6azrZU https://www.youtube.com/watch?v=Fev8FWVcC-A https://www.youtube.com/watch?v=gsUlaQ6IxSU https://www.youtube.com/watch?v=O0TBcasl8u0 https://www.youtube.com/watch?v=AXjiThF1LXU https://www.youtube.com/watch?v=S1kU6sSefr0 https://www.youtube.com/watch?v=ZbD0Ebc8RGg https://www.youtube.com/watch?v=8pp47Y8dLJk https://www.youtube.com/watch?v=Ftj6A2P7lmw https://www.youtube.com/watch?v=djCCno4Cbcw	Lift and Drag Forces	Mech. Engg.
44.	https://www.youtube.com/watch?v=FHXkouhw758 https://www.youtube.com/watch?v=BJ96HCVTTew https://www.youtube.com/watch?v=AkBn-lpWgVs	Streamline and Bluff Body	Mech. Engg.
45.	https://www.youtube.com/watch?v=LBJ3tXCjzN0 https://www.youtube.com/watch?v=X871jMv0aKk https://www.youtube.com/watch?v=B	Mach No. and Supersonic, Subsonic Flows	Mech. Engg.

	hqo6ne6Y_A https://www.youtube.com/watch?v=xsp0kGrwXW4 https://www.youtube.com/watch?v=PTc0yftUA2c https://www.youtube.com/watch?v=fxeQOQSmqRs https://www.youtube.com/watch?v=W9dhUPkFBR8 https://www.youtube.com/watch?v=VlaGxYjnoPY https://www.youtube.com/watch?v=1m3_dx2E4Z8 https://www.youtube.com/watch?v=ugPJYJ-BKkU https://www.youtube.com/watch?v=IiV3cPADCgg https://www.youtube.com/watch?v=XsntPXYOgpQ https://www.youtube.com/watch?v=rrCs-KYZ57Y		
46.	https://www.youtube.com/watch?v=tUSG6SMsn10 https://www.youtube.com/watch?v=ltpSEn-vQS8 https://www.youtube.com/watch?v=B-z54jx8u5k https://www.youtube.com/watch?v=hzTCCcsOTg8	CFD Applications	Mech. Engg.
47.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur.htm	Fluid Statics	Mech. Engg.
48.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur1.htm	Kinematics of Fluids	Mech. Engg.
49.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur3.htm	Equations of Motion	Mech. Engg.

50.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20KAnpur4.htm	Dimensional Analysis	Mech. Engg.
51.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur5.htm	Ideal Flow	Mech. Engg.
52.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur6.htm	Viscous Incompressible flow	Mech. Engg.
53.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur7.htm	Flow over flat plate and Boundary Layer Equations	Mech. Engg.
54.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur9.htm	Flow through pipes	Mech. Engg.
55.	file:///D:/Department/SUBJECTS/Fluid%20Mechanics/Fluid%20Mechanics%20Notes/fluid%20mechanics%20NPTEL%20Notes/NPTEL%20Online-IIT%20Kanpur10.htm	Compressible flow	Mech. Engg.
56.	**1)** Compiled Question bank has been supplied and solved in the class. **2)** Notes has been supplied to the students. **3)** The soft and hard copies of VTU question papers provided to the students.	Fluid Mechanics	Mech. Engg.

List of Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promote experiential learning among the students (2018-19 to 2023-24)

S.N.	Faculty Name	Pedagogical initiatives and Innovative teaching aids	Course/Topic	Branch
1	Prof. S. S. Kamate	Models are prepared to teach the basics of coordinate systems.	Concept of Spherical Coordinate System, Cylindrical Coordinate Sytem& Cartesian Coordinate Sstem https://youtu.be/CW3WaE798dU	ECE
2	Prof. P. V. Patil	Concept of Superposition Theorem	Network Theory https://youtu.be/bLqBJCdZgjY	ECE

List of online resources & Web links(2018-19 to 2023-24)

S.N.	Faculty Name	Online resources	Web links	Branch
1	Prof. S. S. Patil	Introduction to Embedded Systems	https://www.youtube.com/watch?v=OG91AlP_2XA	ECE
		The Typical Embedded Systems	https://www.youtube.com/watch?v=glEPCAZmcvA	ECE
			https://www.youtube.com/watch?v=0vO14GLGRUs	ECE
			https://www.youtube.com/watch?v=bKPCxj0hiiw	ECE
			https://www.youtube.com/watch?v=aPgZpxQijJ0	ECE
			https://www.youtube.com/watch?v=XZ8hClk0uSQ	ECE
		Characteristics and Quality Attributes of Embedded Systems	https://www.youtube.com/watch?v=jbdtPYtGeY0	ECE
		Embedded Systems-Application and domain specific	https://www.youtube.com/watch?v=hiljMGpCAno	ECE
		Hardware Software Co-design and Program modeling	https://www.youtube.com/watch?v=J-beEbEPNSY	ECE
		Embedded Firmware Design and Development	https://www.youtube.com/watch?v=huBPGmYj138	ECE
		Real-Time Operating System(RTOS) based ES	https://www.youtube.com/watch?v=qLxEeRpFtUo	ECE

		design	https://www.youtube.com/watch?v=4RHxzX49vRU	ECE
			https://www.youtube.com/watch?v=9WhPUnwALdc	ECE
			https://www.youtube.com/watch?v=MgfvdUNTo6o	ECE
			https://www.youtube.com/watch?v=FsJh0b_KWGM	ECE
2	Dr.S.S. Ittannavar	Gram Schmidt Orthogonalization Procedure	Digital Communication https://www.youtube.com/watch?v=HX4EMJqdeZI	ECE
3	Prof.S.S. Malaj	Introduction to Control Problem concepts of Stability	Control Systems https://youtube.com/watch?v=vVFDm_CdQw	ECE
4	Prof.P.V. Patil	Microcontroller	https://onlinecourses.nptel.ac.in/noc24_ee46/preview	ECE
5	Prof.P.V. Patil	Microcontroller	https://youtube.com/playlist?list=PLcwp2fRcIXJUFthj5CKNNamSBDtf3We7A&si=4Xyi62FhRWjvuMz_	ECE

E-resource

S.N.	ICT enabled tools, Video lectures, e-resource etc	Course/ Topic	Dept.
1.	https://nptel.ac.in/courses/108102095/	Analog Electronic Circuits	EEE
2.	https://youtu.be/l6M6FvjUdTI		
3.	https://youtu.be/c3oKdjDImXo		
4.	https://youtu.be/jaOxeB-BQ8E		
5.	https://youtu.be/6Zm9Kt5-cxQ		
6.	https://youtu.be/iLCQUHJkFM8		
7.	https://youtu.be/SpvmeG1hs7k		
8.	https://youtu.be/0K6vyowDAKM		
9.	https://youtu.be/Sr-Sm_d3oVE		
10.	https://youtu.be/Pe6BmuAc2OY		
11.	https://youtu.be/btphIK1d4Ro		
12.	http://nptel.vtu.ac.in/econtent/courses/EEE/15EE32/index.php	Network Analysis	
13.	http://nptel.vtu.ac.in/econtent/courses/ECE/15EC34/index.php		
14.	https://www.youtube.com/watch?v=3rOvQ3qFZpI	Measurements and Instrumentation	
15.	https://www.youtube.com/watch?v=EWTPvrJQG_4		
16.	https://www.youtube.com/watch?v=jyRT2dJAuAg		

17.	https://www.youtube.com/watch?v=u5lh_nyCXEs		
18.	https://www.youtube.com/watch?v=xX2YjPwZY-g		
19.	https://www.youtube.com/watch?v=jlPzA95zXKs		
20.	https://www.youtube.com/watch?v=KsykW43-g24		
21.	https://www.youtube.com/watch?v=wO6Eh_r8IEs		
22.	https://www.youtube.com/watch?v=-orsmxHOLOM		
23.	https://www.youtube.com/watch?v=Bf3547WB5qs		
24.	https://www.youtube.com/watch?v=SNMI2skCOpQ		
25.	https://www.youtube.com/watch?v=uy9lZCdkQIM&list=P	Electrical Power Generation	
26.	https://www.youtube.com/watch?v=Yg6XsepGCKY&list=PLD4ED2FAF3C155625&index=2		
27.	https://www.youtube.com/watch?v=45_nQN-9XSs&list=PLD4ED2FAF3C155625&index=3		
28.	https://www.youtube.com/watch?v=MqWeH3zp5GY&list=PLXgxwcpUnIG-EvGsehcV8Rj7VZcsd1JYB	Micro controller	
29.	https://www.youtube.com/watch?v=liRPtvj7bFU&list=PL692A7B9169289C4F		
30.	https://www.youtube.com/watch?v=zXMklO-jxIo		
31.	https://www.youtube.com/watch?v=EEaOR2p9G2k		
32.	https://www.youtube.com/watch?v=pA6K5NgWTow		
33.	https://www.youtube.com/watch?v=1Auay7ja2oY&list=PL6D4C867487881352	Power Electronics	
34.	https://www.youtube.com/watch?v=PEg0zb3cg2A&list=PL6D4C869487881352&index=2		
35.	https://www.youtube.com/watch?v=p_4j_x4ZyzM&list=PL6D4C869487881352&index=3		
36.	https://www.youtube.com/watch?v=QqFlHhSkayw&list=PL6D4C869487881352&index=4		
37.	https://www.youtube.com/watch?v=R-ZGu5KAF90&list=PL6D4C869487881352&index=5		
38.	https://www.youtube.com/watch?v=ZYzuUWypgVw&list=PL6D4C869487881352&index=9		
39.	https://youtu.be/qmcriUdYBW0?list=PL59861DBF8EC85491	Transformer & Induction Machines	EEE
40.	https://youtu.be/KOE_ec-MkAA?list=PL59861DBF8EC85491		
41.	https://youtu.be/cneuckplrtI?list=PL59861DBF8EC85491		
42.	https://youtu.be/pNTsowZYUSs?list=PL59861DBF8EC85		
43.	https://youtu.be/dZyO5gcWP-o?list=PLLQiBbMXygz7zALKpbP87g4QaS9YGesZ5		
44.	http://www.nptelvideos.in/2012/12/signals-and-system.html	Signals and Systems	
45.	https://www.youtube.com/watch?v=xrVWB9VYZ64&list=PLq-Gm0yRYwTjwxaqapPsSAHzs4_nkQLVr		
46.	https://www.youtube.com/watch?v=879pXoml0XI		
47.	https://youtu.be/NiHPu5PltCY?list=PL59861DBF8EC85491	D.C. Machines and Synch. Machines	
48.	https://youtu.be/E15Xs-5rFS0?list=PL59861DBF8EC85491		
49.	https://youtu.be/b24jORRoxEc		
50.	https://youtu.be/o9-xSeWuhng?list=PL59861DBF8EC85491		
51.	https://www.youtube.com/watch?v=ZjcLlHcsDZs	Linear IC's and	

52.	https://www.youtube.com/watch?v=egCiRSasxpw	Applications	
53.	https://www.youtube.com/watch?v=TQlyLhOFyKI		
54.	https://www.youtube.com/watch?v=gbUXbaxvX94		
55.	https://pt.coursera.org/lecture/electronics/3-2-first-order-highpass-filters-OhCWF		
56.	https://www.youtube.com/watch?v=gEeF8sEQTEc		
57.	https://www.youtube.com/watch?v=vVfLRM2DgLY	High Voltage Engg.	
58.	https://www.youtube.com/watch?v=yP7OACmLP48		
59.	https://www.youtube.com/watch?v=1bkiWJKxkfo		
60.	https://www.youtube.com/watch?v=aMux1jYFFY8&list=PLc259DvjuXMDo8n_BFwoNwAagCxPL0dDk&index=5&t=0s		
61.	https://www.youtube.com/watch?v=3aQsJYZaw_U		
62.	https://www.youtube.com/watch?v=PKXPeTvmVQg		
63.	https://www.youtube.com/watch?v=CODhHSpWp3k		
64.	https://nptel.ac.in/courses/108104052/	Power System Operation and Control	
65.	https://www.youtube.com/watch?%2049EM82UO99c		
66.	https://nptel.ac.in/courses/11210422/22	Renewable Energy sources	
67.	https://nptel.ac.in/courses/18105058/37		
68.	https://www.youtube.com/wtch?v=GRwJqD4StEU		
69.	https://nptel.ac.in/courses/10805060/	Electrical Power Utilization	
70.	https://nptel.ac.in/courses/11314008/38		

List of Pedagogical Initiatives and Innovative Teaching aids used by the teachers to promote experiential learning among the students

AY: 2018-19

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	ICT Enabled Tools: PPT	Management & Entrepreneurship for IT Industry	CSE
02	ICT Enabled Tools: PPT, Notes	Automata Theory & Computability	CSE
03	ICT Enabled Tools: Notes	Data Structures & Application	CSE
04	ICT Enabled Tools: PPT, Notes	Cloud Computing & Its Application	CSE
05	ICT Enabled Tools: PPT, Notes	Advanced Java and J2EE	CSE
06	ICT Enabled Tools: PPT	Computer Organization	CSE

07	ICT Enabled Tools: PPT, Notes	Computer Programming & Solving	CSE
08	ICT Enabled Tools: PPT, Notes	.Net Framework For Application Development	CSE
09	ICT Enabled Tools: Notes	Discrete Mathematical Structure	CSE
10	ICT Enabled Tools: PPT, Notes	Web Technology & Its Applications	CSE
11	ICT Enabled Tools: Notes	Introduction to Software Testing	CSE
12	ICT Enabled Tools: PPT, Notes	Machine Learning	CSE
13	ICT Enabled Tools: PPT, Notes	Unix Shell Programming	CSE
14	ICT Enabled Tools: PPT, Notes	Database Management Systems	CSE
15	ICT Enabled Tools: PPT, Notes	Storage Area Networks	CSE
16	ICT Enabled Tools: PPT, Notes	Computer Networks	CSE
17	ICT Enabled Tools: PPT, Notes	C Programming for Problem Solving	CSE

AY: 2019-20

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	ICT Enabled Tools: PPT	Management & Entrepreneurship for IT Industry	CSE
02	ICT Enabled Tools: PPT, Notes	Automata Theory & Computability	CSE
03	ICT Enabled Tools: Notes	Data Structures & Application	CSE
04	ICT Enabled Tools: PPT, Notes	Cloud Computing & Its Application	CSE
05	ICT Enabled Tools: PPT, Notes	Advanced Java and J2EE	CSE
06	ICT Enabled Tools: PPT	Computer Organization	CSE
07	ICT Enabled Tools: PPT, Notes	Computer Programming & Solving	CSE
08	ICT Enabled Tools: PPT, Notes	.Net Framework For Application Development	CSE
09	ICT Enabled Tools: Notes	Discrete Mathematical Structure	CSE
10	ICT Enabled Tools: PPT, Notes	Web Technology & Its Applications	CSE
11	ICT Enabled Tools: Notes	Introduction to Software Testing	CSE
12	ICT Enabled Tools: PPT, Notes	Machine Learning	CSE
13	ICT Enabled Tools: PPT, Notes	Unix Shell Programming	CSE
14	ICT Enabled Tools: PPT, Notes	Database Management Systems	CSE
15	ICT Enabled Tools: PPT, Notes	Storage Area Networks	CSE
16	ICT Enabled Tools: PPT, Notes	Computer Networks	CSE
17	ICT Enabled Tools: PPT, Notes	C Programming for Problem Solving	CSE

AY: 2020-21

S.N.	Pedagogical Initiatives and Innovative Teaching Aids (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Models / Charts	Computer Graphics Lab with Mini Projects(Recursive subdivision of tetrahendra to form 3D sierpinski gasket)	CSE
02	ICT Enabled Tools: Simulation	Application Development using Python Programming (Function Definition & Function Call)	CSE

AY: 2021-22

S.N.	**Pedagogical Initiatives and Innovative Teaching Aids** (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Video Lectures	Big Data Analytics (Decision Trees)	CSE
02	ICT Enabled Tools: PPT	Data Mining & Ware Housing (Apache Pig)	CSE
03	ICT Enabled Tools: PPT	Big Data Analytics(Decision Trees)	CSE
04	ICT Enabled Tools: PPT	System Software and Compilers (Introduction to Compilers andLexical Analysis)	CSE
05	ICT Enabled Tools: PPT	Object Oriented Concepts (Objects and Arrays C++ Part)	CSE
06	NPTEL Video Lectures	System Software and Compilers (Parsing)	CSE
07	Models / Charts	Data Mining and Data Warehousing (OLAP Operations)	CSE
08	NPTEL Video Lectures	Web Technology and it's Applications (HTML Forms)	CSE
09	NPTEL Video Lectures	Application Development Using Python (Exception Handling and Strings)	CSE
10	Models / Charts	Artificial Intelligence and Machine Learning (Machine Learning Process and Types)	CSE
11	NPTEL Video Lectures	Computer Networks and Security (Universal Hashing)	CSE
12	NPTEL Video Lectures	Big Data Analytics (Mongo DB)	CSE
13	Models / Charts	Big Data Analytics (Apache Hadoop Ecosystem)	CSE
14	NPTEL Video Lectures	Management & Entrepreneurship for IT Industry (Entrepreneurship and Employment)	CSE
15	Models / Charts	Management & Entrepreneurship for IT Industry (Corporate/Social Entrepreneur)	CSE
16	Models / Charts	Computer Networks & Security (Network Security Mechanisms)	CSE

AY: 2022-23

S.N.	**Pedagogical Initiatives and Innovative Teaching Aids** (ICT Enabled Tools, Video Lectures, E-resources etc.)	Course/Topic	Dept.
01	Models/ Charts	Database Management Systems (Three Schema Architecture)	CSE
02	Models/ Charts	Cryptography (Data Encryption Standard)	CSE
03	ICT Enabled Tools : Technical Session	Python Application Programming (Setting up Python Environment to create, run and bug)	CSE
04	Models/ Charts	Python Application Programming (Cheat Sheets of Python)	CSE
05	NPTEL Video Lectures	Web Technology & Its Applications (HTML Forms)	CSE
06	NPTEL Video Lectures	Design & Analysis of Algorithms (Greedy Method)	CSE
07	NPTEL Video Lectures	Web Technology & Its Applications (Sate in Web Applications)	CSE
08	Models/ Charts	Design & Analysis of Algorithms (Backtracking)	CSE

09	Models/ Charts	Storage Area Networks	CSE
10	Models/ Charts	Computer Graphics & Visualization (OpenGL Primitives, CG Components, 2D Transformations)	CSE
11	Models/ Charts	Operating System (Types, Components, Scheduling and Deadlock)	CSE
12	Models/ Charts	Programming in Java (Cheat Sheets of Java)	CSE
13	ICT Enabled Tools : Technical Session	Programming in Java (Setting up Java JDK Environment to create, run and debug)	CSE
14	Models/ Charts	Introduction to Python Programming (Visual execution of python programs)	CSE
15	Models/ Charts	Principles of programming using C (Visual execution of C programs)	CSE
16	Tool Demonstration	Data Mining & Data Warehousing (Data Visualization Tool Tableau Desktop)	CSE
17	Tool Demonstration	Big Data Analytics (Apache Hive)	CSE
18	NPTEL Video Lectures	Principles of C Programming (Structures & Pointers)	CSE
19	Models/ Charts	Principles of C Programming (Simulation of Searching & Sorting Techniques)	CSE
20	Models / Charts	Principles of C Programming (Visualize the execution of C Programs)	CSE
21	Models / Charts	Unix Programming (UNIX System Architecture)	CSE
22	NPTEL Video Lectures	Unix Programming (File System in UNIX)	CSE
23	Models / Charts	System Software & Compilers (Phases of Compiler)	CSE
24	NPTEL Video Lectures	Compiler Design (Syntax Directed Translation)	CSE
25	Models / Charts	Introduction to Python Programming (Demonstrate & visualize basic data types (list, tuple, directory) and code execution.	CSE
26	NPTEL Video Lectures	Data Structures & Applications (Arrays)	CSE
27	Models / Charts	Data Structures & Applications (Tower of Hanoi Problem)	CSE
28	NPTEL Video Lectures	Automata Theory & Computability (Turing Machines)	CSE

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List of Projects works carried out by the students for experiential learning and methodologies for problem solving during the last 5 Years

Institute is permanently affiliated to the Visvesvaraya Technological University, Belgaum. In view of NEP-2020 based revised curriculum of the affiliated university and in the interest of the nation development, the institute has provided well established policies, guidelines and ecosystem to promote project-based learning (PBL) to the pre-final year and final year students to complete their mini-projects and to complete projects during phase-I and phase-II respectively. During the project work and under the faculty guidance, students will learn to write and present the project synopsis to attract sponsorships and awards from the various agencies. Students will also acquire skills such as conducting literature survey, deigning of components, fabrication and assembling of parts, demonstration, synthesis, simulation, report writing etc. Each department facilitated to conduct progress review meeting time to time till completion of the project successfully. The synopsis and progress presentation of project team is evaluated through the proper rubrics defined by the evaluation committee at the HOD's meeting. The institute also facilitates to conduct project exhibitions and demonstrations in the campus, where the students will participate. The students are also encouraged to exhibit their project in the external competitions and some teams won the prizes. Every year students' projects attracted sponsorship/financial supports from the various agencies. Some students' projects published in the reputed international journals. The following are the list of projects (Mini & major) carried out by the students during last 5 years.

S.N.	Project Title	Academic Year	Dept.
1.	Study on performs and emission characteristics of diesel engine fueled with Honge Biodiesel	2018-19	ME
2.	Cooling of Solar Photovoltaic Cells by Passive system using PCM Material	2018-19	ME
3.	Analysis of Aerodynamics of Car Body in wind tunnel	2018-19	ME
4.	Analysis of wind turbine blade Aerodynamic Profile in wind tunnel	2018-19	ME
5.	Analysis and optimization of diesel engine component	2018-19	ME
6.	Experimental investigation of the effect of CR and oxygen compound on four stroke single cylinder DI diesel engine Operated on Bio-Diesel	2018-19	ME
7.	Analysis of aero file profiles using wind tunnel	2018-19	ME
8.	Smart Bike	2018-19	ME
9.	Experimental Investigation on effect of chemical composition on stability of the flame	2018-19	ME
10.	Experimental Investigation on effect of Flame structure on the Flame transfer Pressurized gas .	2018-19	ME
11.	Effect of IOP, IT and EGR On the performance of diesel engine operated	2018-19	ME

	with Tallow Oil Methyl Ester. (Sponsored By KSCST)		
12.	Effect of Diesel fuel additive CR and EGR on the performance and emission of diesel engine operated with FOME	2018-19	ME
13.	Hydrogen Engine	2018-19	ME
14.	Experimental investigation of Aluminium alloy through surface treatment.	2018-19	ME
15.	Design and fabrication of fitness equipment for generation (Sponsored By KSCST)	2018-19	ME
16.	Solar Lawn cutter with fertilizer sprayer.	2018-19	ME
17.	Design development of Two wheeler seat Accessory	2018-19	ME
18.	Multi Degree Freedom Robotic Arm (Sponsored By KSCST)	2018-19	ME
19.	Electric assisted air propelled bicycle	2018-19	ME
20.	Design and fabrication of chair less chair.	2018-19	ME
21.	Design of deferent blades for soil tiller, weeder Gross cutter	2018-19	ME
22.	Seed collecting and bagging machine	2018-19	ME
23.	Design and fabrication of water cooler cum heater and Air cooler cum Heater.	2018-19	ME
24.	Versatile Plantation Machine .	2018-19	ME
25.	Electricity Generation by Foot step.	2018-19	ME
26.	Manufacturing of electrically Operated waste collecting machine from stagnant water, ponds etc.	2018-19	ME
27.	Fabrication composite material based on waste materials(Wood - Plastics). (Sponsored By KSCST)	2018-19	ME
28.	Thermal behavior of Ground nut cell based composites .	2018-19	ME
29.	Design and fabrication of composite file making multi functional machine by using recycling plastics.	2018-19	ME
30.	Analysis and Optimization combustion chamber of diesel engine.	2018-19	ME
31.	Multi-purpose stove using agriculture waste as fuel	2019-20	ME
32.	Cam Operated Affordable Screening Machine	2019-20	ME
33.	Design and fabrication of specimen polishing machine for metallurgical applications	2019-20	ME
34.	Inbuilt Hydraulic lifting machine	2019-20	ME
35.	Effect of Multi- walled Carbon Nanotube (CNT) as a nano additive in DI-CI engine fuelled with Tallow Oil Methyl Ester	2019-20	ME
36.	Design and Fabrication of Magnetically Levitated Harmony Vertical Axis Wind Turbine	2019-20	ME
37.	Solar Powered Flood Assist Vehicle for Flood and disaster control Management	2019-20	ME
38.	Production and testing of cellulose-based bio-composites	2019-20	ME
39.	Small Scale Unit to Manufacture Organic Incense (DHOOP) (Sponsored By KSCST)	2019-20	ME
40.	Influence of Aluminum oxide (Al_2O_3) Nano particle added Fish oil Methyl Ester biodiesel on the Performance & Emission of Diesel Engine (Sponsored By KSCST)	2019-20	ME
41.	Power Generation using Waste Garbage	2019-20	ME
42.	Electrical Assisted Agricultural plough and soil annealing machine	2019-20	ME
43.	Compact Bicycle	2019-20	ME

44.	Conversion of conventional two wheeler to hybrid two wheeler	2019-20	ME
45.	Influence of Injection Pressure and Injector geometry on the performance and emission of Diesel operated with Catton seed oil methyl ester	2019-20	ME
46.	Development of Agriculture waste briquetting machine	2019-20	ME
47.	Design and fabrication of Utensils washing machine	2019-20	ME
48.	Former friendly pesticide sprayer	2019-20	ME
49.	Mixed mode solar cabinet dryer (Sponsored By KSCST)	2019-20	ME
50.	Pendulum based water pumping and power generation	2019-20	ME
51.	Domestic Solar water Purification System for rural India	2019-20	ME
52.	Development of hybrid composite material using armide fiber and jute fiber for manufacturing the Helmet (Sponsored By KSCST)	2019-20	ME
53.	Multidirectional Advanced Dumping Trailer	2019-20	ME
54.	Investigation of Mechanical Properties for wood Plastic Composite Material	2019-20	ME
55.	Solar cum pedal operated water purifier.	2019-20	ME
56.	Eco Friendly Mosquito Repellent Coil manufacturing Unit for Future India	2019-20	ME
57.	Investigation of fire behavior and degradation of bio-composites to enhance its durability	2019-20	ME
58.	Design and Fabrication of an Automatic Black Board Cleaner (Sponsored By KSCST)	2019-20	ME
59.	Solar Operated automatic Sugarcane lifting Machine	2019-20	ME
60.	Low cost Eco carrier bag Making Machine	2019-20	ME
61.	Multipurpose agricultural equipment	2019-20	ME
62.	Exhaust emission and its control technology by using Activated viscous fibre and Zeolite from exhaust gas of an IC engine (Sponsored By KSCST)	2019-20	ME
63.	Eco-friendly Fly Ash-saw Dust Composite Material	2020-21	ME
64.	Design and Manufacturing of solar powered seed sowing machine	2020-21	ME
65.	Solar Bubble Dryer (Sponsored By KSCST)	2020-21	ME
66.	Three wheeled segway for patroling	2020-21	ME
67.	Design and Implementation of a Solar powered smart irrigation system	2020-21	ME
68.	Lawn mower with wireless robot in Agriculture Field (Sponsored By VTU)	2020-21	ME
69.	Recycling of plastic waste by shredding process	2020-21	ME
70.	Advanced Car Jack controlled by Wireless system (Sponsored By KSCST)	2020-21	ME
71.	Investigation of Mechanical properties of Natural and hybrid composite material Using GP Resin (Sponsored By KSCST)	2020-21	ME
72.	Solar vehicle for Agriculture aspects	2020-21	ME
73.	Mechanical sanitizer sprayer pump	2020-21	ME
74.	Automated household sewage treatment plant (Sponsored By VTU)	2020-21	ME
75.	Multipurpose agro machine (Sponsored By KSCST)	2020-21	ME
76.	Fabrication of wireless industrial waste sorting system based on magnetic and nonmagnetic, size and color. (Sponsored By KSCST)	2020-21	ME
77.	Design and Fabrication of IOT based river cleaning machine	2020-21	ME
78.	Effect of adding Nano grapheme oxide with N-butenol-Tallow oil methyl ester on diesel engine performance and emissions (Sponsored By KSCST)	2020-21	ME

79.	Advanced Mixed Mode Solar Cabinet Dryer (Sponsored By KSCST)	2021-22	ME
80.	Performance And Emission Characteristics Of CRDI Diesel Engine With EGR And JFSO Bio-Diesel (Sponsored By KSCST)	2021-22	ME
81.	Solar Powered Wireless Controlled Agriculture Spray Robot	2021-22	ME
82.	Self Driving Water Cleaning Machine (Sponsored By VTU)	2021-22	ME
83.	Fabrication of Prototype Model of Smart Car with Accident Detection and Prevention	2021-22	ME
84.	Automatic Hand Break Apply for Vehicles with Inteligence sence of park and Ignition on system	2021-22	ME
85.	Soyabean Harvesting Machine (Sponsored By KSCST)	2021-22	ME
86.	Animal fat (tallow) as fuel for stationary internal combustion engines	2021-22	ME
87.	A Comprehensive Study On Feasibility Of Algae Oil Methyl Ester (AOME) As A Biodiesel With Graphene Oxide As An Additive In Ci Engine Performance. (Sponsored By KSCST)	2021-22	ME
88.	Design, Analysis And Fabrication Of 360° Turning Vehicle	2021-22	ME
89.	Android Controlled Rover	2021-22	ME
90.	Production And Purification Of Liquid Fuel From Household Plastic Waste For CI Engine	2021-22	ME
91.	prototype of voice controlled smart hospital bed with patient health monitoring system (Sponsored By KSCST & VTU)	2021-22	ME
92.	Effortless Lifter And Mover For Paralysis Patients	2021-22	ME
93.	Smart Human Following Trolley	2021-22	ME
94.	Prototype of pneumatic zero emissions vehicle	2021-22	ME
95.	Eco Friendly Advanced Community Solar Dryer (Sponsored By KSCST)	2022-23	ME
96.	Influence of Injection Pressure & Animal Waste Used as a Substitute Fuel for Internal Combustion Engines	2022-23	ME
97.	Effect of Algae Biodiesel Blends with Nono fluid Additives on CRDI Engine	2022-23	ME
98.	Experimental Investigation on shot peening process on Aluminum Alloy (Sponsored By KSCST)	2022-23	ME
99.	Soyabean Harvesting Machine	2022-23	ME
100.	Fiber Extraction from Banana Stem (Sponsored By KSCST)	2022-23	ME
101.	Conventional Portable Bore-Well Lifter	2022-23	ME
102.	LAPE Control Robot	2020-21	ME
103.	Solar Mobile Charger	2020-21	ME
104.	Automatic Lighting Using Arduino And PIR Sensor	2020-21	ME
105.	Automatic Lighting Using Arduino And PIR Sensor	2020-21	ME
106.	LPG Leakage Detector Using Arduino	2020-21	ME
107.	Fire Detection System	2020-21	ME
108.	Water Level Indicator	2020-21	ME
109.	Hydraulic Robotic Arm	2020-21	ME
110.	Smart Dustbin	2020-21	ME
111.	Moisture Detection In Soil Using Arduino	2020-21	ME
112.	Motion Detection Sensor	2020-21	ME
113.	Android Control Rower	2020-21	ME

114.	Touchless Door Bell	2020-21	ME
115.	Clap Switch Based Light Control Pcb Circuit	2020-21	ME
116.	Power generation using rack & pinion	2021-22	ME
117.	Solar power bank with wireless charging	2021-22	ME
118.	Automated Drian cleaner	2021-22	ME
119.	Hand operated multi seeds sowing machine	2021-22	ME
120.	Automatic Foot cleaning Machine in public Places	2021-22	ME
121.	Automatic irrigation system using Arduino	2021-22	ME
122.	Solar rover	2021-22	ME
123.	Solar sprayer	2021-22	ME
124.	Archimedes Screw Generator	2022-23	ME
125.	Biomass Briquetting Machine	2022-23	ME
126.	Compressed Air Generator Using Vehicle Suspension	2022-23	ME
127.	Regenerative Braking System	2022-23	ME
128.	Power Generation from Seesaw Mechanism	2022-23	ME
129.	Manual Floor Cleaning Machine	2022-23	ME
130.	Mini Conveyor Using Geneva Mechanism	2022-23	ME
131.	Crash Detection using Data on VANETS	2022-23	ECE
132.	Smart Integrated wire/Wireless system for electric vehicles using IOT & Solar Energy.	2022-23	ECE
133.	Intelligent all Terrain IOT Robotic Vehicle for Disaster Management and Rescue.	2022-23	ECE
134.	An Artificial Intelligence based user friendly two way sign language translator for Deaf and Dump people of rural India.	2022-23	ECE
135.	JALARAKSHAK-IOT based solar powered remote controlled Aqua waste collector, Monitoring & Treatment System	2022-23	ECE
136.	Innovative approach to prevent illegal smuggling in forest areas using Machine Learning.	2022-23	ECE
137.	LORA based Frame work for smart Cities.	2022-23	ECE
138.	Advanced Military Warfield Robot with night vision and AI based automated target shooting.	2022-23	ECE
139.	JALARAKSHAK-IOT based solar powered remote controlled Aqua waste collector, Monitoring & Treatment System	2022-23	ECE
140.	Wireless Notice Board	2022-23	ECE
141.	Laser Security Alaram	2022-23	ECE
142.	Missile Defence System	2022-23	ECE
143.	Anti-sleep alarm for drivers	2022-23	ECE
144.	Chat GPT AI Brain	2022-23	ECE
145.	Detection of Decomposing of Commercial Vegetables	2022-23	ECE
146.	Solar Tracking System	2022-23	ECE
147.	IOT Based Water Level Monitoring System	2022-23	ECE

148.	Smart Shoes	2022-23	ECE
149.	Hermi Composte Process: Various Parameters Monitoring System	2022-23	ECE
150.	Automatic Water System in agriculture	2022-23	ECE
151.	Alcohol Sensor based Vehicle Ignition Control system	2021-22	ECE
152.	Smart Wearable Device for Women Safety using IOT	2021-22	ECE
153.	Accident Detection and Smart Ambulance Management System.	2021-22	ECE
154.	Deep Learning Based Approach for Automatic Enforcement of Traffic Rules	2021-22	ECE
155.	AI-Based Automated Extraction of Entities, Entity Categories & Sentiments on Covid-19 Situation.	2021-22	ECE
156.	IOT Based Virtual Doctor Robot for Non-Contact Treatment of Patients and Remote Medication.	2021-22	ECE
157.	Autonomous Solar Powered Multipurpose Robot for Beach Cleaning, Sweeping and Sanitization –A Swachaa Bharat Initiative	2021-22	ECE
158.	Environment Friendly Reverse Vending Machine for Rural India.	2021-22	ECE
159.	Saura Chula, Solar Powered GSM Based Multipurpose Wireless Smart Cooking Device.	2021-22	ECE
160.	Smart BUS Alert System for EASY Navigation for Blind People.	2021-22	ECE
161.	IOT Based Energy Meter with Ant-Tampering System and Theft Detection	2021-22	ECE
162.	Smart agriculture monitoring system	2021-22	ECE
163.	Smart appliance control using Arduino	2021-22	ECE
164.	Advanced footstep power generator using piezoelectric sensor	2021-22	ECE
165.	Automatic room temperature controller system using Arduino	2021-22	ECE
166.	Fire safety management system	2021-22	ECE
167.	Arduino based moving message display on LCD	2021-22	ECE
168.	Automated social distance gate with non-contact body temperature monitoring using Arduino UNO	2021-22	ECE
169.	IOT based air pollution monitoring system	2021-22	ECE
170.	Smart dustbin using Arduino	2021-22	ECE
171.	Digital Entrance monitoring system.	2020-21	ECE
172.	Efficient Industry Automation with safety security and monitoring the process through IOT	2020-21	ECE
173.	Smart waste segregation and clearance system using Integrated mobile robotic system.	2020-21	ECE
174.	IOT based humanoid robots to help doctors in COVID-19.	2020-21	ECE
175.	Design and development of internet enabled consumer energy meter for error free environment.	2020-21	ECE
176.	CORONASECURE The COVID -19 health band for rural India	2020-21	ECE
177.	Hydroponic crop cultivation with automatic controlling and monitoring through IOT	2020-21	ECE
178.	KRUSHAK MITRAM Smart solution for in farm complete tractor	2020-21	ECE

	activity tracking system over cloud		
179.	Early detection of COVID -19 from chest CT Images using deep learning networks	2020-21	ECE
180.	Design and development of voice actuated hospital bed for patient care	2020-21	ECE
181.	Village water Quality and air pollution Monitoring System.	2019-20	ECE
182.	Development of hybrid power generation model using rain water, solar and wind	2019-20	ECE
183.	Innovative wireless charging station for electric vehicles using hybrid power generated on highways	2019-20	ECE
184.	Smart Driver Distracted Alert System using Deep learning on Demand WHATAPP Notification	2019-20	ECE
185.	Smart floor cleaning robot using Android APP.	2019-20	ECE
186.	Gesture Recognition using sensors for physically disabled patients.	2019-20	ECE
187.	Solar power based multipurpose smart agricultural robot	2019-20	ECE
188.	Smart surveillance system for Automatic detection of motor cyclist's without helmet.	2019-20	ECE
189.	Smart and safe child rescue system from bore well	2019-20	ECE
190.	Wireless Black Box for Cars	2019-20	ECE
191.	Fire Fighting Robot Vehicle.	2019-20	ECE
192.	LDR based electronic eye security system	2019-20	ECE
193.	Transistor polarity checker	2019-20	ECE
194.	RF based wireless remote using Rx-Tx modules (434MHz)	2019-20	ECE
195.	Testing of 555 timer and 741 Op-Amp ICs	2019-20	ECE
196.	Automatic light sensor	2019-20	ECE
197.	Automatic plant irrigation using IC555	2019-20	ECE
198.	Smoke detector alarm circuit	2019-20	ECE
199.	Security alarm	2019-20	ECE
200.	IR proximity sensor	2019-20	ECE
201.	Clamp switch	2019-20	ECE
202.	Mini cell-phone detector	2019-20	ECE
203.	VLSI Implementation of 8 Bit Microprocessor	2018-19	ECE
204.	Bandwidth Enhancement Technique through Air Couple MSA	2018-19	ECE
205.	Agricultural Robot	2018-19	ECE
206.	Smart ration card implementation using ordino	2018-19	ECE
207.	Hi-Tech ATM security system	2018-19	ECE
208.	Solar operated smart recycling bin.	2018-19	ECE
209.	Self operated bus ticketing system for travelled range using smart card and GSM.	2018-19	ECE
210.	Implementation Of data encryption standard algorithm using very log.	2018-19	ECE
211.	Planar Inverted F Antenna for RF Communication	2018-19	ECE
212.	Design And Development of Square Fractal Antenna for Multiband	2018-19	ECE

	Wireless Application		
213.	IOT Based Healthcare Monitoring System	2018-19	ECE
214.	E-cane smart application to assist farmer's pre and post sugarcane cultivation.	2018-19	ECE
215.	Solar System Based Automatic Water Level Monitoring and Controlling for Multiple Tanks Using Arduino	2018-19	ECE
216.	A 4-Bit New Multiplexer Based Encoder for Flash ADC	2018-19	ECE
217.	Design of Pipe Lined RISC MIPS Processor Using VLSI Technology	2018-19	ECE
218.	Sensor Based Automatic Control of Railway Gates	2018-19	ECE
219.	Green house monitoring and automation system using GSM.	2018-19	ECE
220.	Optimum Energy Management System	2018-19	ECE
221.	Warfield Spying Robot with Night Vision Wireless Camera by Android Applications	2018-19	ECE
222.	Automatic Zone Detector for Accident Avoidance	2018-19	ECE
223.	Fire and Gas accident avoider system	2018-19	ECE
224.	Design and Construction of Low Speed PMAC Generator with Stationary Bike	2018-19	EEE
225.	Power-Electronics Based Energy Management System with Storage	2018-19	EEE
226.	Industrial Power Control by Integral Cycle Switching without Generating Harmonics	2018-19	EEE
227.	Diagnosis of Transformer Using Artificial Neural Network	2018-19	EEE
228.	The Solid-State on Load Tap-Changer for Transformer Using Microcontroller and Controlling by Internet of Things [IoT]	2018-19	EEE
229.	Automatic Synchronization of Alternator with Infinite Bus Bar Using Microcontroller	2018-19	EEE
230.	Design & Implementation of Programmable 64-2048 Point FFT/IFFT Processor for Wireless Communication	2018-19	EEE
231.	Advanced Hybrid Electric Vehicle	2018-19	EEE
232.	Prepaid Energy Meter using Arduino and GSM	2018-19	EEE
233.	Agricultural Pest Control by using Electronic Method	2018-19	EEE
234.	Wireless Electronic Notice Board	2018-19	EEE
235.	Solar Hybrid Inverter	2018-19	EEE
236.	Women's Safety Device with GPS Tracking and Alerts	2018-19	EEE
237.	Voice Controlled Home Appliances Using Bluetooth on Android Mobile	2018-19	EEE
238.	Power Generation using Multi Axis Multi Rotor Multi Generator Wind Mill	2018-19	EEE
239.	Design & Development of Lake Cleaning Machine Using Wireless Protocol & Sensors	2019-20	EEE
240.	Hybrid Battery Charging Station For Electrical Vehicles	2019-20	EEE
241.	Advanced Farming Technology by using Renewable Source	2019-20	EEE
242.	Chopper Fed Speed Control of DC Motor Using Pi Controller	2019-20	EEE
243.	Effective Underground Cable Fault Detection With Location	2019-20	EEE

244.	Design & Implementation of Single Phase to Three Phase Converter for Motor Control	2019-20	EEE
245.	Design and Implementation of Control Techniques for Battery Management System in PHEV	2019-20	EEE
246.	Voice Controlled Wheelchair	2019-20	EEE
247.	Protection of Three Phase Induction Motor using PIC Microcontroller	2019-20	EEE
248.	Smart Village using Arduino Uno	2019-20	EEE
249.	Design & Implementation of Intelligent Vehicle Safety System	2019-20	EEE
250.	Design and Implementation of Quasi Z Source Inverter for Electric Vehicle with Regenerative Braking	2019-20	EEE
251.	Design & Implementation of Automatic Power Factor Correction for Single Phase Domestic Loads by Aurduino	2019-20	EEE
252.	Simulation and Analysis of Faults in Power Distribution Systems	2019-20	EEE
253.	An Expert System Based Automatic Fault Detector & Protection System	2019-20	EEE
254.	Design and Implementation of Solar Powered Tricycle for Specially abled Person	2020-21	EEE
255.	Brain Cancer Detection using Artificial Intelligence	2020-21	EEE
256.	Solar Powered, Remote Controlled, Multifunctional Robot for Agricultural Applications	2020-21	EEE
257.	A Novel Efficient PMU data compression technique for early event detection	2020-21	EEE
258.	Modeling, Simulation and Analysis of BLDC Motor	2020-21	EEE
259.	MPPT Based Performance Improvement of Wind Turbine System	2020-21	EEE
260.	Modeling, Simulation and Analyzation of Hybrid Power System	2020-21	EEE
261.	Design and Implementation of Advanced Plant Leaf Disease Detection and Climatic Parameters Monitoring of Plants	2020-21	EEE
262.	Modeling, Simulation and Analyzation of Hybrid Power System	2020-21	EEE
263.	Real Time Protection of Three Phase Induction Motor	2021-22	EEE
264.	Simulation & Analysis of Distribution Network for Optimal Placement & Sizing of Distributed Generators	2021-22	EEE
265.	Implementation of Advanced Battery Charging System for Electric Vehicles	2021-22	EEE
266.	Design & Implementation of Controller using Fuzzy Logic for Grid Connected Solar PV System	2021-22	EEE
267.	Predicting Cascading Failures in Power Grids using Machine Learning Algorithms	2021-22	EEE
268.	A Bidirectional Power Converter for Electric Vehicles in V2G Systems	2021-22	EEE
269.	FARMINARM- IoT Enabled Smart Unique Solution in Vertical Farming with real time Monitoring	2021-22	EEE
270.	Solar Powered Automatic Lawn Cutting Machine	2021-22	EEE
271.	T-Box Wind Power Generator	2021-22	EEE
272.	Design and implementation of hybrid powered multifunction Bicycle	2022-23	EEE
273.	Smart self driving electrical vehicle using AI	2022-23	EEE
274.	Design of Arduino based battery operated vehicle for agriculture	2022-23	EEE

	applications		
275.	An intelligent lightning prediction and protection system using ANN	2022-23	EEE
276.	IOT based vehicle accident prevention and detection system	2022-23	EEE
277.	Network reconfiguration for loss reduction and improvement of voltage profile in electrical distribution system	2022-23	EEE
278.	Wireless AC Current detector.	2020-21	EEE
279.	Wireless Power Transmission.	2020-21	EEE
280.	Electric Hand Sanitizer Machine.	2020-21	EEE
281.	Water Flow Controller using IR Autoswitch.	2020-21	EEE
282.	Distance Measurement using Ultrasonic Sensor.	2020-21	EEE
283.	Automatic Street Light Control using LDR.	2020-21	EEE
284.	Police LED Flasher Light.	2020-21	EEE
285.	Over Current and short circuit protection using NE555 timer IC.	2020-21	EEE
286.	Antibag Snatching Alarm	2020-21	EEE
287.	Traffic Light Controller using 555timer & 4017 IC	2020-21	EEE
288.	Digital Voltmeter	2020-21	EEE
289.	DC Motor Speed Controller using MOSFET	2020-21	EEE
290.	Design & Implementation of Solar Powered Display	2021-22	EEE
291.	Buck-boost Converter	2021-22	EEE
292.	Design & Implementation of Voltage Multiplier	2021-22	EEE
293.	Automatic Solar Tracking System	2021-22	EEE
294.	Design of Inverter using 555 timer IC	2021-22	EEE
295.	Moving message display on LCD	2021-22	EEE
296.	Battery charging using SCR.	2022-23	EEE
297.	Design and implementation of Fuse cum Power failure Indicator.	2022-23	EEE
298.	Alcohol sensing and Engine control system for safe driving with Arduino Uno.	2022-23	EEE
299.	Design and implementation of automatic Voltage Stabilizer.	2022-23	EEE
300.	Implementation of Power Supply with Auto Switching.	2022-23	EEE
301.	Implementation of dual axis solar tracking system with weather sensor.	2022-23	EEE
302.	Intelligent Diabetes Disease Prediction using Data Mining-An Innovative Approach towards Health Monitoring System	2018-19	CSE
303.	IoT Based Health Monitoring System Using Android App	2018-19	CSE
304.	Blind Aid Stick	2018-19	CSE
305.	Online Banking Authentication System Using Mobile-OTP with QR-code	2018-19	CSE
306.	Home Automation Using IoT	2018-19	CSE
307.	Student Management System and College Android Application	2018-19	CSE
308.	Implementation of Child Tracking System Based on Android Terminals	2018-19	CSE
309.	Remote Sensing and Controlling of Greenhouse Agriculture Parameters on IoT	2018-19	CSE
310.	Event Management System	2018-19	CSE
311.	An Intelligent Voice-Based eMarket Place for Visually Impaired People	2018-19	CSE
312.	Smart LPG gas Leakage Detection Monitoring and Automatic Online	2018-19	CSE

	Booking		
313.	On-line Insurance Claim Management System	2018-19	CSE
314.	Smart Agriculture	2019-20	CSE
315.	Monitoring effect of Air Pollution on Agriculture Using IOT	2019-20	CSE
316.	Enhancing Security In Wireless Sensor Network Using Cryptography Techniques And To Increase The Network Life Time	2019-20	CSE
317.	Raspberry Pi On Vehicle Anti-Theft And Alarm System Using Face Recognition	2019-20	CSE
318.	Alcohol and Heart Attack Detection Sensor Monitoring in Smart Transportation System using Internet of Things	2019-20	CSE
319.	IOT Based System for Traffic Rule Enforcement	2019-20	CSE
320.	Early Flood Detection and Avoidance System	2019-20	CSE
321.	Health Alert and Medicine Remainder Using Internet of Things	2019-20	CSE
322.	Smart Wheelchair Using Raspberry-Pi	2019-20	CSE
323.	Home Security Based Door Monitoring System	2019-20	CSE
324.	Discovering Public Opinions by Performing Sentimental Analysis on Real Time Twitter Data	2019-20	CSE
325.	Water Level Monitoring System Using IOT	2019-20	CSE
326.	Emergency Alert And Women Safety Android App	2019-20	CSE
327.	Classification Of Cancerous Profiles Using Machine Learning.	2020-21	CSE
328.	Smart glasses for blind to assist in day-to-day life using computer Vision and MachineLearning	2020-21	CSE
329.	A Vehicle theft detection and alert system using Geofence	2020-21	CSE
330.	Deaf Sign Interpreter Service	2020-21	CSE
331.	Disease detection and pesticides suggestion of fruits.	2020-21	CSE
332.	Secure big data storage &sharing scheme for cloud tenants	2020-21	CSE
333.	Real-time prediction of the outbreak of pandemic events from social media data	2020-21	CSE
334.	Novel Approach to Plant Leaf Disease Detection based on Machine Learning	2020-21	CSE
335.	Traffic Finger printing Attacks on Internet of Things Using Machine Learning	2020-21	CSE
336.	Accurate Image Super-Resolution Using Deep Convolutional Networks.	2020-21	CSE
337.	Automatic speed control of vehicles at restricted areas using sensors, cameras, and over speed detection	2021-22	CSE
338.	Fake News detection using Machine Learning	2021-22	CSE
339.	Theft detection using Machine Learning	2021-22	CSE
340.	Drowsiness Detection of driver using Machine Learning	2021-22	CSE
341.	Twitter data analysis and visualizations	2021-22	CSE
342.	Applications for tracking Real time Bus Timings and Routes using IOT and Geo-fencing and Sensor fusion	2021-22	CSE
343.	Smart Shiksha – Deep Learning Based hand gesture recognition for on-screen writing and streaming for online classes	2021-22	CSE
344.	Depression Detection in social media using ML	2021-22	CSE
345.	Eye gesture-based wheelchair control for physically disabled using Raspberry Pi with critical monitoring alert	2021-22	CSE

346.	Heart Disease Prediction	2021-22	CSE
347.	Biometric attendance system	2021-22	CSE
348.	Chat-Bot python project for college information	2021-22	CSE
349.	Intelligent Multipurpose Bomb Detection And Disposal Robot for Defense Applications using AI and sensor fusion	2022-23	CSE
350.	Smart nose Detection of Food Decay using AIML	2022-23	CSE
351.	Smart Drip Irrigation System for Multicrop Irrigation using IOT and Solar Energy	2022-23	CSE
352.	Smart Eye Typing application using eye gaze and virtual keyboard	2022-23	CSE
353.	Smart AI based video surveillance for weapon detection and suspicious activity detection	2022-23	CSE
354.	Blood cell counting in smear images using machine learning	2022-23	CSE
355.	Body Movement and heart beat monitoring of coma patients using IOT	2022-23	CSE
356.	Smart face Recognition Based Attendance System Using Deep Learning With Automated Report Generation and SMS notification.	2022-23	CSE
357.	Chronic Kidney Disease prediction and Diet Plan recommendation using Machine Learning	2022-23	CSE
358.	Bone Fracture Detection And Classification In X-ray Images using Machine Learning	2022-23	CSE
359.	Smart Car with predictive maintenance and OTP Key Sharing System Using IOT	2022-23	CSE
360.	Wildfire Detection from Satellite Images Using Ensemble Deep Neural Networks.	2022-23	CSE
361.	Detection and Analysis of Stress using Machine Learning.	2022-23	CSE

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List of Internships (Industry/Social/Innovation/Entrepreneurship) undergone, Field works completed andIndustry Visits by the studentsduring the AYs:2018-19 to Till Date

Institute is permanently affiliated to the Visvesvaraya Technological University, Belgaum. In view of NEP-2020 based and industry driven revised curriculum of the affiliated university, the institute has facilitated to students to acquire practical experiences through the internships, field works and visits. The experience gained by the students are evaluated by the internal/external membersthrough proper rubrics and the skills acquired are mapped with POs and PSOs and attainments are calculated as per the university guidelines.The following are the internships undergone, field works and visits completed by the students during the last 5 years.

S.N.	Organization/Resource Person	Academic Year	Dept.	No. of students
1.	aMSa Embedded Solutions, Hubbali	2018-19	CSE	18
2.	Tech Fortune, Bengaluru	2018-19	CSE	22
3.	Stavyab Technologies, Bengaluru	2018-19	CSE	2
4.	Evolet Technologies, Bengaluru	2018-19	CSE	3
5.	Simplified Future System, Belagavi	2018-19	CSE	2
6.	Workflow Software, Sankeshwar	2018-19	CSE	1
7.	Electrosal Hi Tech Pvt. Ltd., Nipani	2018-19	ECE	10
8.	Technopilia, Sangli	2018-19	ECE	1
9.	Knowx Innovations (p) Ltd. Bangalore.	2018-19	ECE	10
10.	Sandbox Startups, Hubballi.	2018-19	ECE	12
11.	ATSSL Belagavi.	2018-19	ECE	5
12.	Drona Automation Pvt. Ltd., Bangalore.	2018-19	ECE	1
13.	AMSA Embedded Solutions Hubbali.	2018-19	ECE	2
14.	AEQUS (AeroStucturesManufcturing India Pvt. Ltd. Hattargi Belagavi.	2018-19	EEE	1
15.	ITI Bangalore.	2018-19	EEE	1
16.	KPTCL, Belagavi	2018-19	EEE	10
17.	PATCO Transformer Industries, Nipani	2018-19	EEE	18
18.	HESCOM, Vijaypura	2018-19	EEE	5
19.	Shantala Industrial Training & Research Centre, Hubli	2018-19	EEE	14
20.	Ugar Sugar Works Ltd,Ugar Khurd	2018-19	EEE	1
21.	Shreem Electrical, Maharashtra	2018-19	EEE	1
22.	Precimeasure controls, Dobaspete, Bangalore	2018-19	EEE	1
23.	Abhishek Alloys Pvt Ltd,Belagavi	2018-19	ME	8
24.	AccumechPrecision,Bhosari Pune	2018-19	ME	5
25.	Aditya Birla Hindalco,Belagavi	2018-19	ME	1
26.	AKP Foundries,Udyambag Belagavi	2018-19	ME	2
27.	A-TECH Engg,Shiroli Kolhapur	2018-19	ME	6

28.	Bengaluru Metroploitan Transport Corporation,Bengaluru	2018-19	ME	1
29.	E.I.D Parry(INDIA) Ltd,Ramdurg,Dist:Belagavi	2018-19	ME	2
30.	The GhataprabhaSahakariSakkareKarkaneNiyamit Gokak	2018-19	ME	2
31.	Hermes Distillery Pvt Ltd,Belagavi	2018-19	ME	2
32.	Indian Air Filters Company,Mulund(w)Mumbai	2018-19	ME	8
33.	ITW Global Automotive,Shirur Pune	2018-19	ME	2
34.	Jagadeesh Irons & Steels Pvt Ltd,Miraj	2018-19	ME	3
35.	JayhindEngineering,Udyambag Belagavi	2018-19	ME	3
36.	Jinabakul Forge Pvt Ltd,Unit-4,Belagavi	2018-19	ME	5
37.	Krishna SahakariSakkareKarkaneNiyamit,Athani	2018-19	ME	2
38.	M/S Vimal Enterprises,Belagavi	2018-19	ME	3
39.	NeolEngineers,JawaharNagar,Ichalkaranji	2018-19	ME	5
40.	Nirani Sugars Ltd,Mudhol,Dist:Bagalkot	2018-19	ME	4
41.	PARAS Enterprises,Belagavi	2018-19	ME	2
42.	PHOENIX Products,Udyambag Belagavi	2018-19	ME	2
43.	SavekarAutombiles,Kolhapur	2018-19	ME	1
44.	Shanthala Industrial Consultant,Training&Research Centre,Hubli	2018-19	ME	8
45.	Shree Datta Industries,ShiroliMIDC,Kolhapur	2018-19	ME	5
46.	Shri HiranyakeshiSahakariSakkareKarkaneNiyamit,Sankeshwar	2018-19	ME	22
47.	Sound Castings Pvt Ltd,MIDC,Shiroli Kolhapur	2018-19	ME	8
48.	Sunil Industries,MFG.AutoComponents,Kolhapur	2018-19	ME	8
49.	TATA Hitachi,Mummigatti, DHARWAD	2018-19	ME	2
50.	TATA Marcopolo, Mummigatti, DHARWAD	2018-19	ME	1
51.	Usha Enterprises, MIDC,Shiroli Kolhapur	2018-19	ME	1
52.	On Job-training Seminar on "Tips and Tricks to crack Campus Interview" Mr. Anil Kumar, Senior Software Engineer, Bengaluru	2018-19	CSE	76
53.	On Job-training Workshop on "Artificial Intelligence and Machine Learning" Mr. Murali Deshpande, Director, GRP Infokyam Ltd. Bengaluru	2018-19	CSE	72
54.	On Job-training Technical Talk on "Awareness on Latest Tools" Mr. Sagar K. and Mr. Sagar D., Android Developer, aSMa Embedded Solutions, Hubli	2018-19	CSE	50
55.	On Job-training Workshop on "Practical Hands on Internet of Things using Arduino" Mr. Vinayak D. Co-Founder, aSMa Embedded Solutions, Hubli	2018-19	CSE	47
56.	Rajeev and company, Belagavi	2019-20	ME	36
57.	Supa Dam, Ganeshanagudi	2019-20	ME	51
58.	Abhishek ALLoys, Belagavi	2019-20	ME	32
59.	AEQUS, Belagavi	2019-20	ME	23
60.	Abhishek Alloys, Belagavi	2019-20	ME	6
61.	HSSKN Sankeshwar	2019-20	ME	37
62.	Krishna sugars ltd, Sunkanakatti	2019-20	ME	1

63.	Krishna SahakariNiyamith, Athani	2019-20	ME	5
64.	Viswaraj Sugars	2019-20	ME	5
65.	MRN Cane power and Bio engineers, Mandya	2019-20	ME	2
66.	Abhishek ALLoys, Belagavi	2019-20	ME	1
67.	Someshwar SahakariSakkareKarkane, Siddasamudra	2019-20	ME	2
68.	Belmark Industries	2019-20	ME	2
69.	Venkateswar Power Project Ltd	2019-20	ME	1
70.	Someshwar SahakariSakkareKarkane, Siddasamudra	2019-20	ME	2
71.	NOEL Engineers, Ichalakaranji	2019-20	ECE	1
72.	Shivashakti Sugars, Soudatti	2019-20	ECE	1
73.	K-Tech innovation,belagavi	2019-20	ECE	10
74.	Appsluent software Pvt Ltd,bengaluru	2019-20	ECE	9
75.	Technologics global pvtltd,Bangaluru	2019-20	ECE	5
76.	Sandbox startup,hubbali	2019-20	ECE	3
77.	Technophilia,sangli	2019-20	ECE	1
78.	Cubic Code Digital Media LLP,Belagavi	2019-20	ECE	17
79.	SV Mind Logic,Nippani	2019-20	ECE	3
80.	Workflow Software, Sankeshwar	2019-20	ECE	1
81.	Mr Gopalkrishna K-Tech innovation Belagavi	2019-20	ECE	68
82.	Cisco Networking academy	2019-20	ECE	31
83.	CDAC Bengaluru	2019-20	ECE	39
84.	BSNL Belagavi	2019-20	ECE	40
85.	Tevatron technologies and private limited	2019-20	ECE	6
86.	National Power Training Institute (Ministry of power, Govt of India)	2019-20	ECE	9
87.	Decibels	2019-20	ECE	1
88.	Cleverbert Solutions, Bangalore	2019-20	ECE	35
89.	aMSa Embedded Solutions, Hubbali	2019-20		32
90.	ABHISHEK ALLOYS PVT. LTD. Mache Belgaum-590014. off -0831-2411041	2020-21	ME	11
91.	Vishwaraj Sugar Industries Ltd. Bellad Bagewadi-591305. off 08333251251	2020-21	ME	03
92.	Shree Someshwar SahakariSakkareKarkhane Ni. Bailhongal	2020-21	ME	01
93.	Venkateshwara Power Project Ltd. Bedkhal -591214 Off. 08338-257001	2020-21	ME	01
94.	Shivashakti Sugars Limited Soundatti-591213. Off. 08331-227607	2020-21	ME	01
95.	Bellmark Industries Belagavi-590008. Ph. 8970774847	2020-21	ME	06
96.	MRN Canepower and Biorefineries Pvt. Ltd Pandavapura Mandya-571435	2020-21	ME	02
97.	Shri HiranyakeshiSahakariSakkareKarkhaneNiyamit Sankeshwar-591313 Off. 08333-273001	2020-21	ME	25
98.	The Krishna SahakariSakkareKarkhaneNiyamit Athani-591304. Off. 08289-255000	2020-21	ME	06

99.	Trimurti Ferro Cast. Belgaum-590014. Ph. 0831-2440604	2020-21	ME	01
100.	Qualytech Belgaum-590014. Ph. 0831-2411270	2020-21	ME	01
101.	Chidanand Basaprabhu Kore SahakariSakkareKarakhaneNiyamit, Chikodi-591201	2020-21	ME	01
102.	Ashok Iron Works (P) Ltd. Belagavi-590014. Ph. 9742260736	2020-21	ME	02
103.	GTTC Arabhavi-591307. Ph. 9141630309	2020-21	ME	17
104.	Nelson Industries Ichalakaranji, Maharastra	2020-21	ME	02
105.	MVJ College of Engineering, Bengaluru	2020-21	CSE	01
106.	Innovative creation solutions Bangalore	2020-21	CSE	02
107.	Microsoft Knowledge solution, Pune	2020-21	CSE	06
108.	Tech-Fortune, Bangalore	2020-21	CSE	24
109.	Cleverbert Solutions, Bangalore	2020-21	ECE	35
110.	Patco Transformer Industry, Plot No.48-51, Industrial Area, Jatrat	2020-21	EEE	17
111.	Shiruguppi Sugar Works Ltd	2020-21	EEE	01
112.	PCB Designing at Tevatron Technologies Pvt. Ltd	2020-21	EEE	01
113.	NPTI (National Power Training Institute), PO Box,8201, Banashankari stage II, Bangalore-560070	2020-21	EEE	07
114.	Decibels lab Pvt ltd.	2020-21	EEE	01
115.	Government Tool Room and Training Centre (GTTC), Industrial Estate, Udyambag, Belagavi,	2020-21	EEE	30
116.	Chidanand Basaprabhu Kore SahakariSakkareKarakhaneNiyamit, Chikodi-591201	2021-22	ME	01
117.	GTTC Arabhavi-591307. Ph. 9141630309	2021-22	ME	05
118.	Millennium Starch India Pvt. Ltd. Athani-591304, Ph.-08289-294062	2021-22	ME	02
119.	Abhishek Alloys Pvt. Ltd. Mache Belgaum-590014. off - 0831-2411041	2021-22	ME	03
120.	Datta Krupa Engg Works. Jaysingpur	2021-22	ME	01
121.	Mahalaxmi Engg. Belagavi	2021-22	ME	01
122.	Big Castings Pvt. Ltd. Belagavi-591156 Tel.-0831-2415880	2021-22	ME	04
123.	Sagar Engg Works, MIDC-416234 Kolhapur	2021-22	ME	02
124.	Grihalaxmi Metal Industries Udyambag Belagavi-590008	2021-22	ME	04
125.	Contriver Bangalore-7829540019	2021-22	ME	03
126.	AEQUS Hattargi Private Limited, HR Interaction with students	2021-22	ME	03
127.	Tech Fortune Pvt. Ltd, Bangalore	2021-22	CSE	31
128.	Synkentrono Software Solutions Pvt. Ltd Bangalore	2021-22	CSE	04
129.	Microsoft Knowledge Solutions, Bangalore	2021-22	CSE	05
130.	Compsoft Technologies, Bangalore	2021-22	CSE	05
131.	Bionic Engineer, Bangalore	2021-22	CSE	01
132.	Patco Transformer Industry, Nipani	2021-22	EEE	19
133.	Shree Narasimha Transformer Industries, Chikodi	2021-22	EEE	12

134.	GTTC, Belagavi	2021-22	EEE	01
135.	Field Visit to Solar Power Plant, Itnal	2021-22	EEE	34
136.	Industrial visit to Hidakal Dam	2021-22	EEE	07
137.	Government Tool Room & Training Centre	2021-22	ECE	13
138.	Electrosal Hi Tech Pvt. Ltd., Nipani	2021-22	ECE	08
139.	AMSA Embedded Solutions Hubbali	2021-22	ECE	10
140.	Creintors Automation Solutions Pvt. Ltd	2021-22	ECE	03
141.	GrayMatter Software Services Pvt. Ltd. 4th floor, West Wing, RMZ Ecoworld SEZ, Outer Ring Road, Bangalore, 560103	2021-22	ECE	01
142.	Maxgen Technology Pvt. Ltd.Near Columbia AsiaHospital	2021-22	ECE	01
143.	BSNL, Belagavi	2021-22	ECE	01
144.	Caption Micro Solutions and Pvt. Ltd.	2021-22	ECE	01
145.	Industry Visit to Kayne's Technologies, Mysore and oddabetta Tea Factory	2021-22	ECE	87
146.	Jay HindEngineering, Majagoan Road,Udyambag,Belagavi , 192	2022-23	ME	04
147.	Kirloskar Pneumatic Company Limited Hadapsar Industrial Estate, Pune -411013 India	2022-23	ME	04
148.	Venus HydraulicsPlot No. 1203, KIADB, Auto Nagar, Belagavi-590016 Karnataka	2022-23	ME	07
149.	Pheonix Computer Educations Kore Nagar R.D.Plaza Second Floor Near Canara Bank Chikodi	2022-23	ME	04
150.	R P Industrial Products Sy No. 329/330 GIT College Road Rajaram Nagar Belagavi590008	2022-23	ME	02
151.	Knowx Innovations PVT. LTD. Bangalore	2018-19	ECE	10
152.	Electrosal Hi Tech Pvt. Ltd. Nipani	2018-19	ECE	10
153.	Technophilia, Sangali	2018-19	ECE	1
154.	Sand Box Startups, Huballi	2018-19	ECE	12
155.	ATSSL Belagavi	2018-19	ECE	5
156.	Drona Automation Pvt. Ltd. Bangalore	2018-19	ECE	1
157.	Amsa embedded solutions Hubbali	2018-19	ECE	2
158.	AEQUS India Pvt. Ltd. HattaragiBelgavi	2018-19	ECE	1
159.	ITI Bangalore	2018-19	ECE	1
160.	Cleverbit Solutions, Bangalore	2019-20	ECE	34
161.	GTTC, Udyambag,Belgavi	2020-21	ECE	13
162.	Electrosal Hi Tech Pvt. Ltd. Nipani	2020-21	ECE	8
163.	Amsa embedded solutions, Hubbali	2020-21	ECE	9
164.	Creintors automation solutions Pvt. Ltd. Wagawade, Belagavi	2020-21	ECE	5
165.	Gray Matter Software Pvt.Ltd. Bangalore	2020-21	ECE	1
166.	Maxagon Technology Pvt. Ltd, Kharadi, Pune	2020-21	ECE	1

167.	BSNL Belagavi	2020-21	ECE	1
168.	FUEL Future Skill Institite, Hubali	2021-22	ECE	20
169.	Amsa embedded solutions Hubbali	2021-22	ECE	5
170.	Technophilia, Sangali	2021-22	ECE	2
171.	Seventh Sense Talent Solutions, Bangalore	2021-22	ECE	1
172.	Tech Fortune Technologies, Bangalore	2021-22	ECE	1
173.	eTech Prowess private limited Bangalore	2022-23	ECE	6
174.	Amsa embedded solutions Hubbali	2022-23	ECE	7
175.	GTTC, Udyambag,Belgavi	2022-23	ECE	3
176.	Robosap Innovations Pvt. Ltd. NIPPANI	2022-23	ECE	7
177.	Technologics Global Pvt. Ltd. Bangalore	2022-23	ECE	10
178.	Technofist Bangalore	2022-23	ECE	13
179.	KPTCL, Belagavi	2019-20	EEE	10
180.	HESCOM, Vijaypura	2019-20	EEE	05
181.	PATCO Transformer Industries, Nipani	2019-20	EEE	19
182.	Shantala Industrial Training & Research Centre, Hubli	2019-20	EEE	13
183.	Precimeasure controls, Dobaspete, Bangalore	2019-20	EEE	08
184.	Ugar Sugar Works Ltd,Ugar Khurd	2019-20	EEE	01
185.	Shreem Electrical, Maharashtra	2019-20	EEE	01
186.	Patco Transformer Industry, Nipani	2020-21	EEE	17
187.	Shiruguppi Sugar Works Ltd	2020-21	EEE	01
188.	PCB Designing at Tevatron	2020-21	EEE	01
189.	NTPC(Ministry of power, Govt of Industry)	2020-21	EEE	07
190.	Decibels lab	2020-21	EEE	01
191.	PATCO Transformer Industry, Nipani	2021-22	EEE	20
192.	Shree Narasimha Transformer Industries Chikodi.	2021-22	EEE	12
193.	GTTC, Belagavi	2021-22	EEE	01
194.	Mithril Belagavi	2021-22	EEE	01
195.	Shree. Narasimha Industries, Chikodi.	2022-23	EEE	09
196.	GTTC, Chikodi	2022-23	EEE	05
197.	HESCOM, Hubballi	2022-23	EEE	04
198.	Venkateshwara Power Project Ltd. Bedakihal	2022-23	EEE	03
199.	Siddhi Vinayak Transformer Industries, Belagavi	2022-23	EEE	01
200.	GTTC College, Belagavi	2023-24	EEE	02
201.	Hukkeri Rural Electricity Cooperative Society, Ltd Hukkeri	2023-24	EEE	06
202.	Ai ROBOSOFT Products & Services, Bangalore	2023-24	EEE	04
203.	Shivashakti Sugars Ltd, Soundatti.	2023-24	EEE	04
204.	Shree. Narasimha Industries, Chikodi	2023-24	EEE	01
205.	AMSA Embedded Solutions, Hubballi	2023-24	EEE	01
206.	Govt. Primary School, Nandikurali	2023-24	CSE	02
207.	PDO Gram Panchayat ,Nandikurali	2023-24	CSE	02
208.	PDO Gram Panchayat ,Nerli	2023-24	CSE	10
209.	PDO Gram Panchyat, Nidasoshi	2023-24	CSE	48

210.	President Gram Panchyat, Siddewadi	2023-24	CSE	01
211.	Govt.Primary School, Kudachi	2023-24	CSE	01
212.	PDO Gram Panchyat, Kudachi	2023-24	CSE	01
213.	Chief Officer TMC, Sankeshwar	2023-24	CSE	05
214.	HR Manager,WILO Mather & Platt Pumps Pvt Ltd, Kolhapur	2023-24	CSE	01
215.	Dlithe Consultancy Service Pvt LDt Bangalore	2023-24	CSE	11
216.	Airobosoft Pvt Ldt , Bangalore	2023-24	CSE	26
217.	Zeel Code Labs, Bangalore	2023-24	CSE	13
218.	Agile Tech , Hubli	2023-24	CSE	06
219.	Fuel Technologies, Hubli	2023-24	CSE	02
220.	Infdata Technologies	2023-24	CSE	01
221.	Fule Technologies, Hubli	2022-23	CSE	23
222.	Infy Sky Pvt Ltd,Belagavi	2022-23	CSE	05
223.	Plesset Technologies, Mysore	2022-23	CSE	08
224.	TechnophilliaAcademy,Sangli	2022-23	CSE	02
225.	AMSA Embedded Solutions,Hubli	2022-23	CSE	01
226.	Aftabahmed Qazi	2022-23	CSE	02
227.	Tech Fortune Pvt Ltd,Bangalore	2021-22	CSE	21
228.	Microsoft Knowledge Solutions ,Bangalore	2021-22	CSE	05
229.	Synkentrono Software Solutions Pvt Ltd Bangalore	2021-22	CSE	04
230.	Bionic Engineer, Bangalore	2021-22	CSE	01
231.	CompsoftTechnologies,Bangalore	2021-22	CSE	05
232.	Tech Fortune Pvt Ltd,Bangalore	2020-21	CSE	26
233.	Microsoft Knowledge Solutions ,Bangalore	2020-21	CSE	09
234.	Innovative Creation Solutions	2020-21	CSE	01
235.	WorkFlowSoftwares ,Sankeshwar	2019-20	CSE	01
236.	K-Tech Solutions	2019-20	CSE	10
237.	Appslucent Software Pvt Ltd ,Bangalore	2019-20	CSE	08
238.	Cubic Code Digital Media LLp , Belagavi	2019-20	CSE	17
239.	Sandbox Startup Hubli	2019-20	CSE	09
240.	Technophilia ,Sangli	2019-20	CSE	01
241.	SV Mind Logic ,Nippani	2019-20	CSE	03
242.	Technologies Global Pvt Ltd, Bangalore	2019-20	CSE	02
243.	Amsa Embedded Solutions ,Hubli	2018-19	CSE	10
244.	Tech Forutne	2018-19	CSE	15
245.	WorkFlowSoftware,Sankeshwar	2018-19	CSE	07
246.	Evalet Technologies	2018-19	CSE	08
247.	StavyLab Technologies Pvt Ltd Bangalore	2018-19	CSE	05
248.	Simplified Future System	2018-19	CSE	02

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List of Training & Placement Cell and Entrepreneurship Development Cell Activities conducted to promote Participative Learning during the AYs: 2018-19 to Till Date

The institute has exclusive and well-established Training and Placement Cell (TP Cell) and Entrepreneurship Development Cell (EDC) to support students for their employment and career guidance. Students are participated in the following TP Cell and ED Cell activities, which are facilitated by the institute. By participating in these activities, student will learn aptitude, group discussion, coding and interview skills.

S.N.	Type of Activity Seminars, Workshops, Trainings, Technical Talks, placement drives etc.	Academic Year	Dept.	No. of students participated
1.	Tessolve semiconductor Pvt. Ltd., Bengaluru Pool Drive Training Classes	2018-19	TP Cell	13
2.	ICT Academy Organized " Career Counseling Workshop for students towards building a great Future	2018-19	TP Cell	69
3.	Orientation Program on Training & Placement Activities By Mrs. Ragini, Director Innovation Unlimited Training Services, Bengaluru	2019-20	TP Cell	220
4.	CREA (Coaching for Recruitment and Empowerment of Actions) Training Program Innovation Unlimited Training Services, Bengaluru	2019-20	TP Cell	114
5.	C- Programming Training Program Innovation Unlimited Training Services, Bengaluru	2019-20	TP Cell	94
6.	Motivational Speech Mr. Arjun Koli Retired Indian Army Officer (From: Shirol, Kolhapur)	2019-20	TP Cell	58
7.	Cadence Pre-placement Training By Prof. Pramod V Patil- (NA) Prof. Pramod Murari-(ECA) Prof.Sachin S Patil-(DE) Prof.Sachin S Patil-(CMOS) Prof. Sagar S Birade-(AEC) Prof. K B Negalur-(CS)	2019-20	TP Cell	23
8.	Guest Lecturer on "Placement Preparation" By Dr. S N Kurbet Professor & TPO, BEC Bagalkot	2019-20	TP Cell	46
9.	Talk on "How to Prepare IAS, KAS & IBPS Banking Exams" By Mr. Santosh R (Asst. Commissioner, state Audit & Account Department) Mr. Akkilakumar Halagatti, Director, Gurudev IAS & KAS Academy, Dharwad	2019-20	TP Cell	88
10.	CREA (Coaching for Recruitment and Empowerment of Actions) Training Program By Innovation Unlimited Training Services, Bengaluru	2019-20	TP Cell	55
11.	Talk on " Career Guidance and Preparation"	2019-20	TP Cell	75

	By Mr. Rajesh, Excellent Academy, Bengaluru			
12.	CSR Training By Mrs. Priya Kulkarni, Global Talent Track, Bengaluru	2019-20	TP Cell	112
13.	Online training in Atos Syntel Program conducted by Global Talent Track. By Mr. Nawnit Kumar, Corporate Alliance Manager Global Talent Track	2019-20	TP Cell	213
14.	FUEL(Friends Union for Engineering Lives, India By Future Skills Program	2020-21	TP Cell	80
15.	A National Level Webinar on Job Opportunities for Mechanical & Civil Engineering Students after Covid-19 in FEM. By Mr. Vijayavitttthal Illal Director, CADVISION R&D, Bengaluru By Mr. Vijayavitttthal Illal Director, CADVISION R&D, Bengaluru	2020-21	TP Cell	60
16.	Placement Assistance Training (18 Days) By Seventh Sense Talent Solution, Bengaluru	2020-21	TP Cell	116
17.	Microsoft Ai, Machine Learning & Data Science in association with NASSCOM through VTU CPC By NASSCOM	2020-21	TP Cell	116
18.	Global Talent Track By Mr. Nawnit Kumar University Alliance Manager, Global Talent Track	2020-21	TP Cell	160
19.	Fly Weight (Product Building with Python Course) Every day, 6 AM - 8 AM By Mr.Shrijith, Software Engineering Researcher at University of California, Irvine as a Masters Degree Pursuant	2020-21	TP Cell	121
20.	KodNest Dream Factory Project By Aptitude, Technical Programming, PD & Resume Building	2020-21	TP Cell	77
21.	Face Prep Lounchpad By A Free Placement Preparation Course	2020-21	TP Cell	37
22.	Career Labs by "BYJUS" A Talk on "Placement Opportunities in Various Domens"	2020-21	TP Cell	50
23.	Great Learning Job Eligibility Test	2020-21	TP Cell	78
24.	VTUSupports Destination Technologies VTU CPC Supports the 'Career and Placement Program' 120+ Hours of Free Employability Training with Placement Assistance In Association with Destination Technologies	2020-21	TP Cell	116
25.	Orientation Program on "Pre-placement Activities" By Mr. Manjunath Aradhya Founder & CEO, ABC, Bengaluru	2021-22	TP Cell	237
26.	Seminar on "Cloud Technology" By Miss. Priyanka H,	2021-22	TP Cell	107

	Senior Team Lead at HP, Bengaluru			
27.	CREA (Coaching for Recruitment and Empowerment of Actions) Training Program By Innovation Unlimited Training Services, Bengaluru	2021-22	TP Cell	77
28.	A Talk on "Robotics & Automation" By Mr. Neelesh B. Chougule, Chairman & MD, Creintors Group of Companies & Mrs. Disha N. Chougule, Director, Creintors Automation Solution Pvt. Ltd	2021-22	TP Cell	195
29.	Interactive Session on " "Awareness & Career Opportunities in Full Stack" By Mr.Rohit Ravinder Founder & CEO, TAP Academy, Bengaluru	2021-22	TP Cell	89
30.	Techno-Functional Talk Event for 30 Minute on Latest Industrial Revolution & Career Guidance By Ms.Divya Shree S Business Development Executive Technologics Global Pvt Ltd.	2021-22	TP Cell	23
31.	Inaugural Function of"JAVA Full Stack Course" Sponsored by Karntaka State Skill Development Corporation Govt. of Karnataka By CADMAXX Solution Pvt. Ltd, Bengaluru	2021-22	TP Cell	49
32.	45 Days Online Free Foudation Certificate Course on Spoken English, Basic Computer Skills, Resume Preparation & Interview Skills.with Placement Supports By Magic Bus India Foundation	2021-22	TP Cell	124
33.	Interdisciplanery Approach to Excel in your Career By Mr. Pramod Parid Sr. HR at Creintors Group of Companie, Belagavi	2021-22	TP Cell	146
34.	Free Online Certificate Courses in Machine Learning and Artificial Intelligence for computer and IT Engineering Students (4 Weeks Duration) By YBI Foundation Company	2022-23	TP Cell	59
35.	Session on SAP By Mr. Sanjay Arali, Tecno Connect Hub, Pune	2022-23	TP Cell	44
36.	"A Free Webinar on How to get a Placement in Multinational Companies " (3 Days) IIT Mumbai Present's	2022-23	TP Cell	81
37.	Virtual Workshop - (Solving Real – World Industry Problems with Ai Computer Vision) By AI Computer Vision	2022-23	TP Cell	127
38.	Free- TCS Specific Training for 2023 batch Students (15 Days) By Seventh Sense Talent Solution	2022-23	TP Cell	127
39.	Free Online Company Specific Training for all Mass Recruiters through Place Sense **(Hexaware Specific Training) By** Seventh Sense Talent Solution	2022-23	TP Cell	46
40.	Free Software Training Courses for Freshers in Manual Testing, Automation Testing, JAVA, DotNet & Python with	2022-23	TP Cell	73

	10+ Live Industry Projects. (Course Duration 2 Months online mode per day 1 hour) By Besant Technologies, Bengaluru			
41.	Pre-Placement Training (90 hrs of CRT along with details of the "Minutes Mentor" program) By Mr. Nikhil Vyas Genesis Trainers, Bengaluru	2022-23	TP Cell	61
42.	Orientation Programme Training & Placement Activities for 2023 Batch Students By Dr. S C Kamate- Principal Prof. N M Patel- Dean Placements Dr. B V Madigond – Dean Academics & HOD EEE Dr. S N Topannavar – HOD ME Prof. S V Manjaragi – HOD CSE	2022-23	TP Cell	119
43.	A Talk on "Career Prospects" By Mr. Madhav Gitte, IAS Working as Assistant Commissioner, Chikodi	2022-23	TP Cell	132
44.	Pre-Placement Training (30 Hours) (Training & Capaity Building Programme-Aptitude) By Mr. Anand Kanthi, Aptitude Trainer	2022-23	TP Cell	105
45.	Training on Python & IOT (Soft Skills) for Girls Students only By Online Python & IOT Training in Association with NASSCOM foundation & Birlasoft. PS by Seventh Sense Talent Solution, Bengaluru	2022-23	TP Cell	31
46.	Friends Union for Engineering Lives (FUEL) By David George Project Manager, Friends Union For Energising Lives (FUEL)	2022-23	TP Cell	113
47.	Orientation Programme on "Training & Placement Activities" By Rajesh Manjunath, Business Head, Skill Fact, Bengaluru	2022-23	TP Cell	97
48.	Orientation Programme on "Training & Placement Activities" By Rajesh Manjunath, Business Head, Skill Fact, Bengaluru	2023-24	TP Cell	97
49.	Awareness Program on EYE Donation & EYE Care By Dr. Poorva MBBS, MS, DNB M M Joshi EYE Institute, Sankeshwar	2023-24	TP Cell	108
50.	CRT (Campus Recruitment Training) By Skill Fact, Bengaluru	2023-24	TP Cell	82

S.N.	Type of Activity (Placement Drives)	Academic Year	Dept.	No. of students participated
1.	ABC, Bengaluru	2018-19	TP Cell	140
2.	Tech-Fortune Technologies, Bengaluru	2018-19	TP Cell	180
3.	Tessolve Semiconductor	2018-19	TP Cell	27
4.	Printers Zone, Bengaluru	2018-19	TP Cell	59
5.	Maventech Technologies, Bengaluru	2018-19	TP Cell	137
6.	HCL Through Maintec Pool drive in HSIT by Tech Fortune, Bengaluru	2018-19	TP Cell	128
7.	Cubiccode, Marketing LLP, Bengaluru	2018-19	TP Cell	38
8.	Codilar Technologies Bengaluru	2018-19	TP Cell	28
9.	PalC Networks, Bengaluru	2018-19	TP Cell	60
10.	Cadence,Bengaluru	2018-19	TP Cell	28
11.	SLV Technologies Pvt Ltd & Powaha Infotech Pvt Ltd Hubli	2018-19	TP Cell	22
12.	Sankalp Semiconductor, Hubli	2018-19	TP Cell	06
13.	Infosys through VTU CPC	2018-19	TP Cell	79
14.	ELEATION, Pune	2018-19	TP Cell	50
15.	Kalyani Forge, Pune	2018-19	TP Cell	04
16.	Anora Semiconductors Pvt. Ltd. Bengaluru	2018-19	TP Cell	35
17.	KodNest, Bengaluru	2018-19	TP Cell	103
18.	Qspiders, Bengaluru	2018-19	TP Cell	80
19.	Cadence Design Systems Inc, Bengaluru	2019-20	TP Cell	19
20.	Juspay Technologies	2019-20	TP Cell	64
21.	Cognizant (VTU CPC)	2019-20	TP Cell	91
22.	Wipro Limited (VTU CPC)	2019-20	TP Cell	63
23.	ELEATION, Pune	2019-20	TP Cell	51
24.	Mind Tree (VTU CPC)	2019-20	TP Cell	26
25.	Infosys (VTU CPC)	2019-20	TP Cell	86
26.	Tech Fortune Technologies, Bengaluru	2019-20	TP Cell	200
27.	IBM (Only for Women) (VTU CPC)	2019-20	TP Cell	53
28.	Sankey Solutions Pvt Ltd, Thane	2019-20	TP Cell	82
29.	SLK Softwares, Bengaluru	2019-20	TP Cell	53
30.	Extramarks Pvt Ltd, Bengaluru	2019-20	TP Cell	50
31.	Chola MS General Insurance, Bengaluru	2019-20	TP Cell	97
32.	Creators Technology Solution, Nagpur, Maharashtra	2019-20	TP Cell	69
33.	Technologics Global Pvt. Ltd, Bengaluru	2019-20	TP Cell	163
34.	Qspiders, Bengaluru	2019-20	TP Cell	129
35.	Sasken Technologies Ltd, Bengaluru	2019-20	TP Cell	54
36.	Qualitas Technologies Pvt Ltd, Bengaluru	2019-20	TP Cell	33

37.	Anora Semiconductor Labs, Bengaluru	2019-20	TP Cell	73
38.	ETHNUS CODEMITHRA, Bengaluru	2019-20	TP Cell	110
39.	ABC, Bengaluru	2019-20	TP Cell	04
40.	KodNest, Bengaluru	2019-20	TP Cell	75
41.	Pentagon Space Pvt Ltd, Bengaluru	2019-20	TP Cell	06
42.	UTTARA INFOSOLUTION, Bengaluru	2019-20	TP Cell	25
43.	Chegg India Pvt Ltd, Delhi	2020-21	TP Cell	116
44.	Cloud Thing India Pvt. Ltd. by KodNest	2020-21	TP Cell	33
45.	Infosys Limited	2020-21	TP Cell	55
46.	Technologics Global Pvt Ltd, Bengaluru	2020-21	TP Cell	116
47.	M/s. Smart Brains Engineers & Technologist Pvt. Through Ltd Path Creators Solutions Pvt. Ltd. |Bangalore	2020-21	TP Cell	26
48.	Rai Jnan Pvt Ltd, Bengaluru	2020-21	TP Cell	43
49.	Qspiders, Bengaluru	2020-21	TP Cell	116
50.	Prodapt by KodNest	2020-21	TP Cell	116
51.	Pentagon Space, Bengaluru	2020-21	TP Cell	116
52.	Seventh Sense Talent Solution, Bengaluru	2020-21	TP Cell	116
53.	Elcamino Software Solutions Pvt. Ltd, Bengaluru	2020-21	TP Cell	116
54.	Verzeo Through Seventh Sence	2020-21	TP Cell	116
55.	Tata Consultancy Services(TCS)	2020-21	TP Cell	116
56.	Skolar	2020-21	TP Cell	116
57.	Capgemini	2020-21	TP Cell	80
58.	Tata Consultancy Services (TCS)	2021-22	TP Cell	95
59.	NTT Data	2021-22	TP Cell	38
60.	IBM (Vtu Cpc)	2021-22	TP Cell	90
61.	Emertxe Information Technologies	2021-22	TP Cell	38
62.	Spurtree Technologies	2021-22	TP Cell	39
63.	Hexaware Technologies	2021-22	TP Cell	39
64.	HCL Technologies Ltd. (VTU CPC)	2021-22	TP Cell	86
65.	Hitachi Vantara	2021-22	TP Cell	43
66.	One Advanced Through Ethnus, Bengaluru	2021-22	TP Cell	121
67.	Kodnest, Bengaluru (Kodnest Dream Factory-2022)	2021-22	TP Cell	90
68.	JK Technosoft	2021-22	TP Cell	85
69.	L&T Technology Services Limited (LTTS)	2021-22	TP Cell	36
70.	Infosys Limited	2021-22	TP Cell	87
71.	Quest Global Engineering Services Pvt. Ltd.	2021-22	TP Cell	94
72.	Job Fair By Karnataka Govt.	2021-22	TP Cell	62
73.	Capgemini Technology Services India Limited	2021-22	TP Cell	125
74.	Target (VTU CPC) Only Women Engineers	2021-22	TP Cell	55
75.	Lemonvb Techsolu Private Limited	2021-22	TP Cell	73
76.	Worksbot Applications Pvt Ltd,Sipcot IT Park, Siruseri, Chennai	2021-22	TP Cell	76
77.	Uptycs India Private Limited (Vtu Cpc)	2021-22	TP Cell	36

78.	Propel Technology Solutions	2021-22	TP Cell	11
79.	Karmic Design Private Limited	2021-22	TP Cell	28
80.	Wipro Limited	2021-22	TP Cell	96
81.	Tech Mahindra Limited	2021-22	TP Cell	40
82.	Revature	2021-22	TP Cell	28
83.	Sankey Business Solutions Pvt. Ltd	2021-22	TP Cell	42
84.	BYJU'S (VTU CPC)	2021-22	TP Cell	124
85.	Mind Tree	2021-22	TP Cell	50
86.	Explore & Enolve Pvt. Ltd.	2021-22	TP Cell	128
87.	Sasken Technologies	2021-22	TP Cell	31
88.	Anora Semiconductor	2021-22	TP Cell	54
89.	Palle Technologies, Bengaluru	2021-22	TP Cell	48
90.	Renault Nissan Technology & Business Centre India Pvt. Ltd.	2021-22	TP Cell	87
91.	Tech Pundits Info. Systems	2021-22	TP Cell	13
92.	BOSCH Global Software Technologies Pvt. Ltd by Destination Technologies	2021-22	TP Cell	40
93.	ATOS Syntel	2021-22	TP Cell	12
94.	Tarento Technologies Private Limited	2021-22	TP Cell	12
95.	Qspiders, Bengaluru	2021-22	TP Cell	71
96.	KodNest, Bengaluru	2021-22	TP Cell	34
		2021-22	TP Cell	26
97.	Cadence Design Systems	2021-22	TP Cell	36
98.	Aequs Private Limited	2021-22	TP Cell	87
99.	Profound Edutech, Pune	2021-22	TP Cell	84
100.	Pentagon Space Pvt Ltd	2021-22	TP Cell	85
101.	Elcamino Software Pvt Ltd	2021-22	TP Cell	03
102.	Fourfront Pvt. Ltd., Pune	2021-22	TP Cell	82
103.	Upskilling EduTech Private Limited ("Skillvertex")	2021-22	TP Cell	15
104.	Bluebenz Digitizations Pvt. Ltd	2021-22	TP Cell	32
105.	TAP Academy	2021-22	TP Cell	85
106.	ABC , Bengaluru (CSR Drive & IT Job Readiness Workshop)	2021-22	TP Cell	99
107.	Inmovidu Technologies	2021-22	TP Cell	05
108.	Exam Room AI	2021-22	TP Cell	01
109.	Medini Technologies & Vinsys, Bengaluru	2021-22	TP Cell	48
110.	V3iT Consulting Pvt Ltd, Belagavi	2021-22	TP Cell	12
111.	Cognizant	2022-23	TP Cell	79
112.	Faurecia	2022-23	TP Cell	01
113.	Cadence	2022-23	TP Cell	22
114.	Juego Studio	2022-23	TP Cell	76
115.	Prudentia Group	2022-23	TP Cell	45
116.	Pacewisdom	2022-23	TP Cell	70
117.	Campalin Innovations Pvt. Ltd.	2022-23	TP Cell	82
118.	Codecraft Technologies, Bengaluru	2022-23	TP Cell	42

119.	Hexaware Technologies, Bengaluru	2022-23	TP Cell	76
120.	Accolite Digital by Destination Technologies	2022-23	TP Cell	82
121.	IBM India Pvt. Ltd	2022-23	TP Cell	19
122.	Palle Technologies	2022-23	TP Cell	74
123.	Tech Mahindra	2022-23	TP Cell	30
124.	Placement Week Survey Sparrow	2022-23	TP Cell	41
125.	Intellipaat, Bengaluru	2022-23	TP Cell	38
126.	Aloha Technology Pvt. Ltd, Pune	2022-23	TP Cell	29
127.	TAP Academy	2022-23	TP Cell	58
128.	Aficionado Technologies Pvt. Ltd	2022-23	TP Cell	27
129.	EthnusCodemithra, Bengaluru	2022-23	TP Cell	70
130.	Vtech Integrated Solutions, Bengaluru	2022-23	TP Cell	33
131.	Fedaral Bank	2022-23	TP Cell	23
132.	KodNest Technologies, Bengaluru	2022-23	TP Cell	61
133.	V3iT Consulting Pvt Ltd, Belagavi	2022-23	TP Cell	36
134.	TCS National Qualifiifier Test (TCS NQT) -2023	2022-23	TP Cell	49
135.	Qspiders, Bengaluru	2022-23	TP Cell	16
136.	Aarbee Structures Pvt Ltd	2023-24	TP Cell	08
137.	Cadence	2023-24	TP Cell	22
138.	Palle Technologies, Bengaluru	2023-24	TP Cell	56
139.	Technologics Global Pvt Ltd.	2023-24	TP Cell	25

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List of TechnicalActivities conducted to promoteParticipative Learning during the AYs:2018-19 to Till Date

Institute is permanently affiliated to the Visvesvaraya Technological University, Belgaum. In view of NEP-2020 based revised curriculum of the affiliated university, the institute is facilitated all resources to conduct technical activities to promote activity-based learning (ABL) by the participation of students.The students are participating in the below activities to inculcate organizing & managing skills and emerging & ability enhancement skills and knowledge, to help society, and to maintain good physical and mental health.

S.N.	Type of Activity	Academic Year	Dept.	No. of students participated
1.	Technical Talk on "Entrepreneurship"	2018-19	ME	81
2.	Welcome function for 3rd Semester Students and Inauguration of AIMSS Activities 2018-19	2018-19	ME	151
3.	Industrial Visit at Rajeev and company manufacturers of ball valve, Devarwadi ,Maharashtra	2018-19	ME	40
4.	Talk on Geometric Dimensioning and Tolerances	2018-19	ME	42
5.	Training Program on CATIA and GD & T software Tools	2018-19	ME	27
6.	Talk on Robotics & Automation	2018-19	ME	90
7.	Industrial Visit at JSW PalntToarangallu, Bellary	2018-19	ME	48
8.	HIT Quest-2019	2018-19	ME	27
9.	Hobby / Mini Project Exhibition Competition	2018-19	ME	27
10.	Talk on Carreer in Design	2018-19	ME	47
11.	Project Exhbition 2018-19	2018-19	ME	115
12.	Industrial Visit at Shivashakti Sugars Limited Yadravi, Raibag, Karnataka	2018-19	ME	24
13.	Welcome Function for 3rd Semester Students and Inauguration of AIMSS activities 2019-20	2019-20	ME	133
14.	Awareness Programme on Nirnal Filter	2019-20	ME	50
15.	Mini Anveshana Project Exhibition	2019-20	ME	73
16.	Industrial visit at Supa Dam, Ganeshgudi Hydel Power Plant, Dandeli, Uttara Kannada district, Karnataka	2019-20	ME	50
17.	One Day Workshop on QA& QC Non Destructive Testing (QA/QC-NDT)	2019-20	ME	41
18.	Gau Shala Visit at Haragapur, Taluk: Hukkeri, District: Belagavi	2019-20	ME	40
19.	Career Guidance on Competitive Exam Preparation	2019-20	ME	25
20.	Industrial visit at Rajeev and Company, Belagavi	2019-20	ME	36
21.	CATIA and GD&T Training Programme	2019-20	ME	23
22.	Industrial Visit at AEQUS Special Economic Zone,	2019-20	ME	29

	437/A, Hattargi Village, Hukkeri Taluk, Belagavi, Karnataka.			
23.	Industrial Visit at Abhishek Alloys Private Limited, Belagavi	2019-20	ME	55
24.	One Day Webinar on Exposure of CAD/CAM/CAE for Better Product Design	2019-20	ME	80
25.	National Level E-Quiz on Kinematics of Machines	2019-20	ME	87
26.	National Level E-Quiz on Engineering Thermodynamics	2019-20	ME	85
27.	National Level E-Quiz on Machine Tools and Operations	2019-20	ME	74
28.	National Level E-Quiz on CAD/CAM/CIM	2019-20	ME	34
29.	3D Printing Technology	2020-21	ME	25
30.	Gate-2021 Coaching	2020-21	ME	28
31.	One Week Training Programme on Arduino ,IOT &Robotics Programming	2020-21	ME	26
32.	Career Opportunities in Mechanical Engineering	2020-21	ME	25
33.	Career Opportunities in Indian Air force	2020-21	ME	73
34.	Profile Building and career Guiding	2020-21	ME	73
35.	Project Exhibition	2020-21	ME	35
36.	Exhibition and Poster Presentation of Mini Project	2020-21	ME	52
37.	Unnat Bharat Abhiyan	2020-21	ME	126
38.	The 3rd Semester Branch Entry and AIMSS Inauguration Function	2021-22	ME	64
39.	AEQUS Hattargi Private Limited, HR Interaction with students	2021-22	ME	64
40.	Appu Amar	2021-22	ME	88
41.	Technical Talk on Recent Trends in Thermal Engineering	2021-22	ME	59
42.	Technical Talk on Nano Fluids for Radiator Coolant & Engine Application	2021-22	ME	59
43.	Technical Talk on Robotics and Automation	2021-22	ME	30
44.	Awareness Session on Importance of Personality Diagnostic Test and its Outcomes	2021-22	ME	64
45.	Modernization of Belagavi Airport & Career Opportunities	2021-22	ME	48
46.	Virtual Training Programme on Nation Building Attitudes & Behaviors Under CSR for Students	2021-22	ME	29
47.	One day workshop on Entrepreneurship	2021-22	ME	38
48.	Technical Talk on Fuel Injection System & Engine Basic	2021-22	ME	34
49.	Poster presentation on Theme: Energy & Its economics	2021-22	ME	15
50.	Awareness Programme on "Creintor's Driven Course on Multidisciplinary Skilled Live Projects"	2021-22	ME	39
51.	Intellectual Rights Awareness Programme	2021-22	ME	15

	For 3rd Semester students			
52.	Industry Visit at Hidkal dam power plant, Hidkal	2021-22	ME	10
53.	Industry Visit at Sangam Sugar Factory, Hidkal	2021-22	ME	10
54.	Technical Talk on Robot application in Automotive Industry	2021-22	ME	15
55.	Technical Talk on Design Thinking	2021-22	ME	20
56.	Tips to Excel in VTU – Semester End Examination (SEE) and Related Grievances	2021-22	ME	20
57.	Intellectual Rights Awareness Programme For 8th Semester students	2021-22	ME	47
58.	Industry Visit at Rajeev & Rao Company, Belagavi	2021-22	ME	43
59.	Industry Visit at Divgi Industries Private Limited, Sirsi	2021-22	ME	43
60.	Workshop on Complete Entrepreneurship Optimization	2021-22	ME	11
61.	A Guidance Program on Career opportunities after B.Tech	2021-22	ME	18
62.	Mini-Project Exhibition-2022	2021-22	ME	24
63.	Workshop on "Higher Education in Foreign Universities: Scope, preparation, and scholarships"	2021-22	ME	16
64.	Project Exhibition-2022	2021-22	ME	33
65.	ALOHA Farewell Function -2K22	2021-22	ME	81
66.	Future Tech -2022, A Technical Competitions for Polytechnic Students	2021-22	ME	80
67.	Carrier Guidance Awareness program on SAP	2021-22	ME	31
68.	Extension Activity on Free D-CET Coaching on Applied Maths and Science	2022-23	ME	22
69.	A Collaborative hands on STTP on Design and Analysis using MSC Apex Software & Multi body Dynamics (Motion Simulation)	2022-23	ME	28
70.	SHUBHARAMBHA-22 A welcome function and AIMSS Inauguration	2022-23	ME	48
71.	A Technical Talk on Professionalism & Engineering	2022-23	ME	48
72.	A Invited Talk on Career Prospects	2022-23	ME	15
73.	Training on Placement Aptitude Programme& Career Counseling	2022-23	ME	18
74.	Technical Talk on CFD Applications in Hemodymanics	2022-23	ME	27
75.	A UHV Programme Amar Jnanayogi on Shri Siddeshwar Swamiji	2022-23	ME	39
76.	A Technical Talk on Sustainable Development Goals in Engineering Prospective	2022-23	ME	39
77.	Professional Body's (IEEE) A Technical Talk on Multidisciplinary Engineering Knowledge through	2022-23	ME	39

	Professional Organization			
78.	One Day Workshop on Design Thinking	2022-23	ME	18
79.	Project Exhibition-2023	2022-23	ME	26
80.	HSIT Quest -2023	2022-23	ME	18
81.	Mini-Project Exhibition-2023	2022-23	ME	21
82.	Awareness Programme on Electrical Safety Measures	2022-23	ME	44
83.	Invited Talk on How Indians Won the Silicon Valley	2022-23	ME	41
84.	Workshop on PCB Designing	2018-19	ECE	41
85.	IoT Workshop using NodeMCU	2018-19	ECE	44
86.	PLC Programming and Industrial Automation	2018-19	ECE	28
87.	IoT Wokshop using NodeMCU	2018-19	ECE	44
88.	Technical Talk on" Neural Network and Fuzzy logic"	2019-20	ECE	102
89.	Workshop on "Design and Simulation of Microstrip Antenna using HFSS simulation tool"	2019-20	ECE	78
90.	Guest Lecture on "Power Management in Embedded systems"	2019-20	ECE	50
91.	Guest Lecture on "LORA Technology"	2019-20	ECE	53
92.	Technical Talk on"Engineering Future"	2019-20	ECE	39
93.	Exploring Pointers in C	2019-20	ECE	57
94.	Workshop on Python Programming	2019-20	ECE	41
95.	Workshop on PCB Design and Testing	2019-20	ECE	36
96.	Seminar on""common Interview mistakes and job opportunities in IT"	2019-20	ECE	29
97.	Webinar on "Role of CISCO network Engineer in IT Industry"	2019-20	ECE	148
98.	Webinar on "Career after covid-19"	2019-20	ECE	1648
99.	Webinar on "You should know about it,To begin your career as software Engineer"	2019-20	ECE	37
100	Webinar on "Education in Abroad"	2019-20	ECE	327
101	Webinar on "Art of Success for Civil Services"	2019-20	ECE	234
102	Webinar on "H1B,covid your American Education Dream"	2019-20	ECE	286
103	Webinar on "CAT Exam and Career in Management"	2020-21	ECE	136
104	Webinar on "Professional Communication skills"	2020-21	ECE	200
105	Webinar on "Mastering Virtual Interviews & Getting First Job"	2020-21	ECE	161
106	Webinar on Career as officer in Indian Armed Forces"	2020-21	ECE	234
107	Technical Talk on " Deep Learning & Its Applications"	2021-22	ECE	55
108	Webinar on "project Management and Accounting"	2021-22	ECE	59
109	Webinar of "Psychological Impact of COVID-19 and Ways to Overcome"	2021-22	ECE	33
110	Expert talk on "Robotics and Automation	2021-22	ECE	57

111	Workshop on "PCB Design and Testing,	2021-22	ECE	45
112	Workshop on " IOT & Arduino IDE"	2021-22	ECE	29
113	Hands on training on "lntroduction to Arduino Programming &Tinkercad"	2021-22	ECE	21
114	Hands on "Python Tool and Python Programming for Machine Learning"	2021-22	ECE	12
115	Wokshop on PCB Design and Testing	2022-23	ECE	60
116	Introduction to Artificial Intelligence	2022-23	ECE	26
117	Basic Arduino Programming	2022-23	ECE	46
118	Recent Trends & Opportunities in VLSI	2022-23	ECE	
119	Management concepts and B-Plan	2022-23	ECE	28
120	STTP on Full Stack Development	2022-23	ECE	45
121	Inauguration of EESSA Activities for the AY 2019-20, Welcome function to 3rd Sem students and signing MoU with Infysky, Belagavi	2018-19	EEE	82
122	Four days workshop on "Basics of MATLAB and Simulink"	2018-19	EEE	40
123	Guest Lecture on "Role of Youth in Nation Building"	2018-19	EEE	35
124	Group Discussion	2018-19	EEE	45
125	Industrial Visit to 3MW Solar Power Plant at Itnal.	2018-19	EEE	
126	Industrial Visit to PATCO Transformer Industries, Nippani.	2018-19	EEE	
127	Seminar on "Recent Developments in Smart Grid"	2018-19	EEE	79
128	Rally for Awareness Program on "Energy Conservation" on the occasion of National Energy Conservation Week.	2018-19	EEE	300
129	Awareness Program on "Energy Conservation" on the occasion of National Energy Conservation Week.	2018-19	EEE	47
130	Cooking Without Fire	2018-19	EEE	20
131	Clay Modeling	2018-19	EEE	18
132	6-aside Futsal Tournament	2018-19	EEE	52
133	Poster Presentation	2018-19	EEE	26
134	National Level E-Quiz on "Power System Engineering"	2018-19	EEE	775
135	National Level E-Quiz on "Power Electronics & Applications"	2018-19	EEE	779
136	National Level E-Quiz on "Control Systems"	2018-19	EEE	654
137	National Level E-Quiz on "Accreditation Process"	2018-19	EEE	341
138	National Level E-Quiz on "Electrical Measurement"	2018-19	EEE	465
139	Webinar on "Energy and Environment Problems Facing the Third World and their Probable Solutions for Sustainable Development and Poverty Alleviation"	2018-19	EEE	247
140	Seminar on "Intellectual Property Rights and Patent Filing"	2020-21	EEE	26
141	"AICTE Sponsored STTP-1 on Battery Management and Control Techniques in EVs"	2020-21	EEE	67

142	"AICTE Sponsored STTP-2 on Battery Management and Control Techniques in EVs"	2020-21	EEE	66
143	"AICTE Sponsored STTP-3 on Battery Management and Control Techniques in EVs"	2020-21	EEE	73
144	Rally for Awareness Program on "Energy Conservation" on the occasion of National Energy Conservation Week-2020-21	2020-21	EEE	280
145	Awareness Program on "Energy Conservation" on the occasion of National Energy Conservation Week.	2020-21	EEE	250
146	Poster Presentation	2020-21	EEE	29
147	Yoga for mental Peace	2020-21	EEE	50
148	Webinar on Solar Power Inverter	2020-21	EEE	150
149	Inauguration of EESSA activities for AY: 2021-22 and Welcome function to 3rdsem students	2021-22	EEE	70
150	Expert talk on "National Education Policy-2020"	2021-22	EEE	30
151	MoU with GTTC, Belagavi	2021-22	EEE	30
152	Field visit to Government Tool Room and Training Centre (GTTC)	2021-22	EEE	30
153	Four Days workshop on "MATLAB & Simulink"	2021-22	EEE	25
154	Hands on Session on Motor Rewinding	2021-22	EEE	35
155	Seminar on "Fuel Injection System & Engine Basics"	2021-22	EEE	52
156	Box Cricket	2021-22	EEE	64
157	Cooking without fire	2021-22	EEE	10
158	Webinar on "Intellectual Property Rights Awareness Program"	2021-22	EEE	315
159	Indoor Sports Events "Carrom, Chess and Table Tennis"	2021-22	EEE	16
160	Industrial Visit to Itnal 3MW Solar Power Plant, Itnal.	2021-22	EEE	37
161	Alumni Interaction	2021-22	EEE	35
162	Cheerio 2K22 Farewell to final year students	2021-22	EEE	71
163	Awareness Program on "Final Year Project & its Components"	2022-23	EEE	18
164	A FDP on "Pedagogical Initiatives for Effective implementation of VTU-21 Scheme of syllabus for BE Program as per the aspirations of NEP-2020"	2022-23	EEE	40
165	Soft Skill Training Program	2022-23	EEE	25
166	Awareness program on "Energy Conservation"	2022-23	EEE	25
167	Pick and Speak	2022-23	EEE	06
168	Inauguration of EESSA activities for AY: 2022-23 and Welcome function to 3rd Sem students	2022-23	EEE	61
169	Technical talk on "Analog & Digital IC Design Flow"	2022-23	EEE	61
170	Seminar on "Technological Updates on Renewable Energy Sources"	2022-23	EEE	61
171	Clay Modeling	2022-23	EEE	07
172	Poster Presentation	2022-23	EEE	19

173	Parents –Teacher Meeting	2022-23	EEE	18
174	Group Discussion	2022-23	EEE	10
175	Box Cricket	2022-23	EEE	63
176	Quiz Competition	2022-23	EEE	36
177	An Awareness Program on "Electrical Safety Measures"	2022-23	EEE	92
178	Webinar on "PCB Design"	2022-23	EEE	66
179	Parent-Teacher Meeting	2022-23	EEE	09
180	Express Yourself	2022-23	EEE	20
181	Orientation Program by Dr. ParashuramBaraki	2018-19	CSE	28
182	A Technical Talk on "Artificial Intelligence and Machine Learning" by Mr. MuralidharDeshpande, Director, GRP, Infokyam, Bengaluru	2018-19	CSE	86
183	A Talk on "Tips and Tricks to Crack Campus" Interview by Mr. Anilkumar Senior Software Engineer, Bosch, Bengaluru.	2018-19	CSE	76
184	A Technical Talk on "Industry Automation and 10T" by Mr. SheetalkumarBorganve, Senior Technical Lead, HCL Technologies, Ltd., Bengaluru	2018-19	CSE	86
185	A 30Hrs.Workshop on "Artificial Intelligence and Machine Learning" by Mr. MuralidharDeshpande, Director, GRP, Infokyam, Bengaluru and Mr. Ashok Wathore, Director, Avirat Knowledge Systems, Pune.	2018-19	CSE	72
186	'Technical Quiz" Activity Incharge Prof. S B Hosagoudar	2018-19	CSE	78
187	"Advertisement Show Competition" Activity Incharge Prof. C R Belavi and Prof. S B Hosagoudar	2018-19	CSE	74
188	"Pick and Speech and Essay Writing Competition" Activity Incharge Prof. S B Hosagoudar.	2018-19	CSE	92
189	A Technical Talk on " Awareness on Latest Tools" by Mr. Sagar K. Co-Founder, AMSA Embedded Solutions, Hubbali	2018-19	CSE	45
190	A Two Days workshop on "Practical Hands on Internet of Things" by Mr.Sagar D, Full Stack Developer, AMSA Embedded Solutions, Hubbali&Mr.Vinayak D, Co-Founder, AMSA Embedded Solutions, Hubbali.	2018-19	CSE	48
191	Organized "Eco Friendly Ganesh Making" competition.	2019-20	CSE	37
192	Welcome function for 3rd semester students.	2019-20	CSE	
193	Technical Talk on "Introduction to Al and ML".	2019-20	CSE	68
194	"Go GREEN Program" by Making bags with papers.	2019-20	CSE	47
195	Essay Writing Competition.	2019-20	CSE	35

196	Organized AayudhaPooja	2019-20	CSE	
197	Conducted Indoor Games Activity.	2019-20	CSE	80
198	Organized Industrial Visit to CDAC, Bengaluru	2019-20	CSE	39
199	Organized"COOKING WITHOUT FIRE" competition.	2019-20	CSE	41
200	Organized Industrial Visit to BSNL, Belagavi	2019-20	CSE	43
201	Conducted Outdoor Games Activity.	2019-20	CSE	80
202	Organized National Level Online Quiz on "Python Application Programming".	2019-20	CSE	692
203	Completed 15 hour free online Course on "Introduction to Cyber security" offered by Cisco Networking Academy.	2019-20	CSE	
204	National level online" on "Object Oriented Concepts with JAVA"	2019-20	CSE	333
205	National level online Quiz on " Automata Theory"	2019-20	CSE	261
206	National level online Quiz on "Data structures and Algorithm"	2019-20	CSE	368
207	National level online Quiz on "Web Technologies"	2019-20	CSE	255
208	Organized National Level Webinar on "Introduction to Web Application Development".	2020-21	CSE	428
209	OrganizedNational Level Webinar on "DevOps and Cloud Technology"	2020-21	CSE	213
210	Organized a webinar on " Deep Learning"	2020-21	CSE	101
211	Webinar on " Skill Requirements & Opportunity for Fresh Software Developer"	2020-21	CSE	100
212	Webinar on " Career Goals after Engineering"	2020-21	CSE	31
213	National Level Webinar on "Block Chain Technology" in association with Tech Fortune Technologies Bengalore.	2020-21	CSE	250
214	Webinar on "Campus Placement Preparation" by Mr. Vinayak, Technical Specialist, Shipco IT Pvt. Ltd. Pune	2020-21	CSE	57
215	Completed 20 hours free online Course on "An Intro to the Internet of Things" offered by Cisco Networking Academy.	2020-21	CSE	37
216	Technical Webinar on "DevOps and Career Opportunities in DevOps" by Mr.NiteshBhat,SR Software Engineer DevOps Practitioner Intrado, Di tital Media.	2020-21	CSE	87
217	Career opportunities in Cyber Security	2021-22	CSE	48
218	A Workshop on Machine Learning & Automation Testing	2021-22	CSE	120
219	Webinar: An overview of Agile ways of working for software Development	2021-22	CSE	75
220	Importance of Computer Science	2021-22	CSE	29

221	Training on Python under Skill India	2021-22	CSE	30
222	Elocution Competition	2021-22	CSE	35
223	Industrial Visit	2021-22	CSE	45
224	Indoor Sports Day	2021-22	CSE	70
225	Face Painting &Rangoli Competition	2021-22	CSE	50
226	A guidance program on CareerOpportunities After B.E.	2021-22	CSE	92
227	On Spot Poster Making Competition	2021-22	CSE	50
228	International Yoga Day Celebration	2021-22	CSE	51
229	Industrial Visit to IISC Bangalore	2022-23	CSE	44
230	32Hours Workshop on "IOT"	2022-23	CSE	50
231	Project Exhibition cum Competition	2022-23	CSE	51
232	Indoor sports	2022-23	CSE	43
233	Mini Project Exhibition cum Competition	2022-23	CSE	59
234	Business Ideas/Business Plans Competition	2022-23	CSE	15
235	Technical Talk on User Interface Software Testing in IT Industries	2022-23	CSE	86
236	Cooking Without Fire Competition	2022-23	CSE	70
237	Inauguration of STAC Activities for the 3rd Sem Students	2022-23	CSE	
238	Webinar on Wireless Sensor Networks and As Application	2022-23	CSE	105
239	Box Cricket	2022-23	CSE	77
240	Technical Essay Writing Competition	2022-23	CSE	13
241	"Computer Awareness Program" to the students of Government PU College, Majalatti.	2022-23	CSE	43
242	Awareness Program on "IT Industry" to the students of Government High School, Majalatti	2022-23	CSE	27
243	Coding Competition-"Codeathon- 2022"	2022-23	CSE	36
244	Git&GitHub Workshop	2022-23	CSE	26
245	One Day Short-Term training on Web Designing using WordPress	2022-23	CSE	45
246	DBMS Mini Project Exhibition cum Competition	2022-23	CSE	59
247	Box Cricket	2023-24	CSE	181
248	Technical Talk by Industry Experts on Latest Technology	2023-24	CSE	77
249	Cooking Without Fire Competition	2023-24	CSE	13
250	Inauguration of STAC Activities for the AY2023-24 &Welcome function to 3rd Sem Students	2023-24	CSE	43
251	5 Days Workshop on Angular JS and Node JS	2023-24	CSE	27
252	Webinar on Latest Technology	2023-24	CSE	36
253	Coding Competition- "Codeathon-2023"	2023-24	CSE	26
254	Industrial Visit to III & V Sem Students	2023-24	CSE	45
255	Technical Essay Writing Competition	2023-24	CSE	43
256	Infosys Spring Board Certification Course	2023-24	CSE	27

257	Mini Project Exhibition and Competition	2023-24	CSE	36
258	Talk on Introduction to Engineering and Hands on session by Prof S.M. Chandrakant, HOD, Civil Engg. Department on 2nd December 2022.	2022-23	First Year	182
259	Orientation on "State and National Scholarship" by Dr. Mahesh Huddar, Dean Student Welfare, on 05th December 2022.	2022-23	First Year	170
260	Talk on Awareness on "National Innovation and Startup policy" by Dr. M. S. Hanagadakar on 6th December 2022.	2022-23	First Year	165
261	Introduction to computer Science Engineering and Familiarization of department by Prof. S.V. Manjaragi, HOD CSE, on 6th December 2022.	2022-23	First Year	168
262	Presentation on " HIT TP Cell and Its Activities by Prof. N.M. Patel, Dean TP Cell & III Coordinator on 7th December 2022.	2022-23	First Year	185
263	Introduction to Electronics and Communication Engg. and Familiarization of department by Dr. R.R. Maggavi, HOD ECE on 7th December 2022.	2022-23	First Year	178
264	Talk on "Employability opportunities and industrial scenario" by Dr.S.N. Topannavar, HOD, ME i on 9th December 2022.	2022-23	First Year	185
265	Talk on "Dynamics of Engineering Education by Dr. S.C. Kamate, Principal, HIT Nidasoshi on 8th December 2022.	2022-23	First Year	185
266	Presentation on "Our Proud Alumni"	2022-23	First Year	160
267	Awareness on "Education loan facility"	2022-23	First Year	150
268	Campus Visit on 1st Dec 2022.	2022-23	First Year	140
269	Industrial visit to " HiranyakeshiSahakariSakkareKarkhaneNiyamit" Sankeshwar on 3rd December 2022.	2022-23	First Year	160
270	Visit to Patrivan: Environmental Awareness on 4th December 2022.	2022-23	First Year	180
271	Visit to Goshala on 4th December 2022.	2022-23	First Year	180
272	Visit to Shri. Durdundeshwar Math, Nidasoshi on 4th December 2022.	2022-23	First Year	180
273	Talk on "Stress Management" by Dr. Sameer. S. Chate, Professor & Head of Psychiatry,KAHER's J. N. Medical College Belagavi on 2nd December 2022.	2022-23	First Year	140
274	Talk on "Health Awareness" by Dr. Archana Kulkarni, PHC Ammanagi on 5th December 2022.	2022-23	First Year	120
275	Talk on Awareness on "Social Activities of NSS by Prof. S.S. Patil on 5th December 2022.	2022-23	First Year	1600
276	Talk on " Success through Contribution by Swami Mahamdhananda, Sri Ramakrishna Math Chennai on 6th December 2022.	2022-23	First Year	172

277	Talk on "Universal Human Values" by Prof. B. G. Patil , S.S. Arts & TP Science College on 8th December 2022.	2022-23	First Year	165
278	Talk on "How to be successful in life" by Prof. G.M. Zulapi. ME Department on 8th December 2022.	2022-23	First Year	175
279	Talk on "Applications of Mathematics in Engineering" by Dr. S. L. Patil Asst. Prof. First Year Department on 25-05- 2023 from 3:45 pm to 5:15 pm.	2022-23	First Year	180
280	Talk on "Resume Writing" by Dr. Mahesh Huddar, Dean Student Welfare on 26-05-2023 from 2:00 pm to 3:30 pm and 3:45 pm to 5:15 pm	2022-23	First Year	185
281	Talk on "GITHub" by Prof. Prasanna Patil, Asst. Prof. CSE Department, on 27-05-2023 at 2:00 pm to 3:30 pm and 3:45 pm to 5:15 pm	2022-23	First Year	165
282	Talk on "Data Science for Engineers" Dr. K. B. Manwade, First Year Coordinator on 29-05-2023 from 2:00 pm to 3:30 pm.	2022-23	First Year	185
283	Talk on "Importance of renewable energy" Dr. K. M. Akkoli, Dean Research on 29-05-2023 at 3:45 pm to 5:15 pm	2022-23	First Year	170
284	Talk on "Benefits of soft skills in placements" by Prof. P. V. Patil, Training & Placement Officer, on 30-05-2023 at 2:00 pm to 3:30 pm	2022-23	First Year	200
285	Talk on "Evaluation of programming languages" by Prof. S. V. Manjaragi, HOD, Computer Science & Engineering on 31-05-2023 at 2:00 pm to 3:30 pm	2022-23	First Year	172
286	Talk on "Recent trends in civil engineering" by Prof. S. M. Chandrakanth, HOD, Civil Engineering Department on 31-05-2023 from 3:45 pm to 5:15 pm	2022-23	First Year	165
287	Talk on "Arduino programming simulation using tinkercad" by Dr. R. R. Maggavi, Dean Academics & HOD, ECE Department on 01-06-2023 3:45 pm to 5:15 pm	2022-23	First Year	185
288	Talk on "Health awareness among students" by Dr. Soumya Sajjan, CHC Ammanagi, on 02-06-2023 , from 2 pm to 3:30 pm	2022-23	First Year	190
289	Talk on "Millstones for engineering students", by Dr. S. C. Kamate, Principal on 02-06-2023, and 3:45 pm to 5:15 pm.	2022-23	First Year	185
290	Awareness on "Plantation and tree adaptation by Prof. S. S. Patil, NSS-Programm Officer, ECE Department on 30/5/2023 from 3:45 pm to 5:15 pm	2022-23	First Year	195
291	Talk on "Universal Human Values" by Prof. G. B. Sangoti, Senior lecturer, SJPN Polytechnic, Nidasoshi," on 01-06-2023 from 2 pm to 3:30 pm.	2022-23	First Year	205
292	International Yoga Day celebration	2022-23	First Year	107

293	Talk on "Nation building attitudes and behaviors" Dr. S. N. Topannavar, HOD, ME Department on 03-06-2023 from 3:45 pm to 5:15 pm.	2022-23	First Year	185
294	Poster presentation competition on "World Environment Day" by the activity coordinator Dr. M. S. Hangadakar, Associate Professor, First Year Department on 05-06-2023 from 2 pm to 5:15 pm	2022-23	First Year	75
295	Talk on "How Indians Won the Silicon Valley by Dr. Shivanand Kanavi on 30thjune 2023	2022-23	First Year	175
296	Orientation on "Academic & Non Academic Matters" by Dr.K.M.Akkoli, I year Coordinator, on 14th December 2021.	2021 - 22	First Year	75
297	Talk on "Applications of Science in Engineering" by Prof. Vishwanath V. Koladur, Govt. P.U. College, Majalatti on 14th December 2021.	2021 - 22	First Year	87
298	Talk on "NEP implementation to Engineering Education by Dr. S.N. Topannavar, HOD, Mech. Department on 14th December 2021.	2021 - 22	First Year	84
299	"Awareness on Education loan facility" by Shri Balawant Kulkarni, DGM , Canara Bank Chikodi on 14th December 2021.	2021 - 22	First Year	81
300	Presentation on "Our Proud Alumni" by Prof. O. B.Heddurshetti , Chairman Alumni Association on 15th December 2021.	2021 - 22	First Year	83
301	Talk on "Awareness on NEP -2020" by Dr. S.C. Kamate, Principal,HSIT, Nidasoshi, on 16th December 2021.	2021 - 22	First Year	96
302	Talk on "Language Proficiency" by Prof. Sneha B. Nagaonkar, on 17th December 2021.	2021 - 22	First Year	87
303	Orientation on "State and National Scholarship" by Dr. Mahesh Huddar, Dean Student Welfare, on 22nd December 2021.	2021 - 22	First Year	68
304	Presentation on "HSIT TP Cell & its Activities" by Prof. N.M.Patel, Dean TP Cell , Placement Officer, on 23rdDecember 2021.	2021 - 22	First Year	88
305	Talk on Importance of Accreditation in Engineering Education" by Prof. D.N. Inamdar, on 24th December 2021.	2021 - 22	First Year	81
306	Talk on "Health Awareness and COVID-19 precautions"by Dr. Soumya Sajjan, , CHC Ammanagi on 15th December 2021.	2021 - 22	First Year	79
307	Talk on "Universal Human Values" by Prof. B. G. Patil , S.S. Arts & TP Science College on 16th December 2021.	2021 - 22	First Year	79
308	Talk on "Current Environmental Problems and Remedies" by M. S. Hanagadakar on 18th December	2021 - 22	First Year	85

	2021.			
309	Talk on "Universal Human Values -Art of Living & Meditation" by Dr. Shital V. Bhide, Dental Surgeon, Counselor, Sankeshwar on 23rd December 2021.	2021 - 22	First Year	83
310	Campus Visit & Visit to Shri. Durdundeshwar Math on 13th December 2021.	2021 - 22	First Year	90
311	"Awareness on "Social activities of NSS" by Prof. R.R. Patil , NSS Programme Officer on 17th December 2021 .	2021 - 22	First Year	91
312	Industry visit to " HiranyakeshiSahakariSakkareKarkhaneNiyamit" Samkeshwar on 18th December 2021 .	2021 - 22	First Year	90
313	Talk on "Health and COVID-19 Awareness, SOP to be followed" by Vijay Hattargi, PHC Ammanagi on 16th December 2020.	2020 - 21	First Year	80
314	Talk on "Inter- Personal Skills" by Prof. Sneha A. Nagaonkar, on 16th December 2020.	2020 - 21	First Year	85
315	Talk on "Art of Living & Healthy Life Styles" by Dr. Sheetal V. Bhide. Dentist, Sankeshwar on 17th December 2020.	2020 - 21	First Year	85
316	Presentation on "Human Relations & Moral Values" by Prof. B. G. Patil , S.S. Arts & TP Science College on 17th December 2020.	2020 - 21	First Year	85
317	"Awareness Programme on "Red-Cross & Its Activities" by Prof. Vinay Kumar Hittalamani, Nodal Officer, VTU, Belagavi on 18th December 2020.	2020 - 21	First Year	68
318	Talk on "Skills for success " by Shri Veeresh Patil, National Award Winner, Govt. P.U. College, Sadalaga on 18th December 2020.	2020 - 21	First Year	88
319	"Waste Management & Environment Protection". By Dr. M. S. Hanagadakar on 19th December 2020.	2020 - 21	First Year	85
320	Talk on "Engineering Education" by Dr.K.M.Akkoli, I year Coordinator, on 16th December 2020.	2020 - 21	First Year	87
321	Tips on "Resume & Report Writing" by Prof. N.M.Patel, Placement Officer, on 17th December 2020.	2020 - 21	First Year	83
322	Presentation on "Our Proud Alumni" by Prof. O. B.Heddurshetti , Chairman Alumni Association & Team on 17th December 2020.	2020 - 21	First Year	73
323	Campus View & Visit to Shri. Durdundeshar Math Nidasoshi&Ashirvachana by Shri ShivalingeshwarMahaswaji on 13th August 2019.	2019 - 2020	First Year	46
324	"Swacch Bharat" NSS activity and campaign organized by Institute NSS wing on 14th August 2019 and 16th August 2019.	2019 - 2020	First Year	78
325	Independence Day Celebration & Visit to flood	2019 - 2020	First Year	81

	affected areas & involving in relief operations on 15th August 2019.			
326	Creative Arts Programme: Poster Presentation & Pottery" on UHV theme on 22th August 2019.	2019 - 2020	First Year	85
327	"Group Discussion" on UHV themes on 23rd August 2019.	2019 - 2020	First Year	75
328	Activity "Pick & Speech" & "Essay Writing on UHV on 23rd August 2019.	2019 - 2020	First Year	56
329	Short film show on "Farmers & their Problems", Directed, Edited, Acted & Produced by HSIT Staff on 24th August 2019.	2019 - 2020	First Year	87
330	"Waste Management & Environment Protection". By Dr. M. S. Hanagadakar on 17th August 2019.	2019 - 2020	First Year	53
331	"Art of Living & Healthy Life Styles" by Dr. Sheetal B. Bhide. Dentist, Sankeshwar on 19th August 2019.	2019 - 2020	First Year	85
332	Awareness Programme on "Red-Cross & Its Activities" by Prof. Vinay Kumar Hittalamani, Nodal Officer, VTU, Belagavi on 20th August 2019.	2019 - 2020	First Year	77
333	"Youth Role through Red-Cross Society" by Shri Ashok Badami, Patron Red-Cross &Dr.S.B.Kulkarni, Chairman, Red-Cross on 20th August 2019.	2019 - 2020	First Year	79
334	Presentation on "Human Relations & Moral Values" by Prof.B.G.Patil , S.S. Arts & TP Science College on 20th August 2019.	2019 - 2020	First Year	89
335	Short Cinema Show on "Ethical Values & Patriotism" by Prof. Mahesh Huddar& Prof. Mahesh Hipparagi on 22th August 2019.	2019 - 2020	First Year	85
336	Awareness Programme on "Waste Plastic & Its Effects" by Prof. Kushal Ambli on 24th August 2019	2019 - 2020	First Year	85
337	"Watering the Plants & Campus Cleaning" on 12th February 2020.	2019 - 2020	First Year	66
338	"Yoga Practice" on 12th February 2020.	2019 - 2020	First Year	85
339	"Mini / Hobby Project Exhibition" on 20th February 2020.	2019 - 2020	First Year	53
340	Presentation on "Preamble of Indian Constitution" by Shri. M. B. Zirali on 11th February 2020	2019 - 2020	First Year	48
341	Talk on "Success Ladder" by Prof. S. A. Nagaonkar on 13th February 2020.	2019 - 2020	First Year	68
342	Talk on "Road to Success" by Dr. B. V. Madiggonda on 17th February 2020.	2019 - 2020	First Year	48
343	Talk on "SWOT" Analysis by Dr. S. N. Topannavar by 14th February 2020.	2019 - 2020	First Year	70
344	Talk on "Interview Skills" by Prof. N. M. Patel 17th February 2020.	2019 - 2020	First Year	85
345	National Science day celebration cum valedictory of Induction programme phase-II-Motivation talk by	2019 - 2020	First Year	65

	Shri. A.P. Kulkarni on 28th February 2020.			
346	Importance of studying in Accredited institutions by Dr. S.C. Kamate on 28th February 2020.	2019 - 2020	First Year	65
347	World without Engineers by Prof. D. N. Inamdar	2019 - 2020	First Year	55
348	Introduction to College, Vision & Mission, Objectives	2018 - 2019	First Year	160
349	Proficiency Module-I Lecture on oral Communications	2018 - 2019	First Year	160
350	Yoga & Meditation	2018 - 2019	First Year	160
351	Freshers Welcome Function-Inauguration	2018 - 2019	First Year	160
352	Flag Hosting, Patriotic Speech and Songs	2018 - 2019	First Year	160
353	Universal Human Values - II	2018 - 2019	First Year	160
354	A visit to a Three-Century-Old Temple (Shri Durudundeeshwar Math , Nidasoshi)	2018 - 2019	First Year	160
355	A visit to shri Mallikarjuna Temple, Ammanagi	2018 - 2019	First Year	160
356	Visit to Patri Bana	2018 - 2019	First Year	160
357	A visit to a Cowpen (Gaushala)	2018 - 2019	First Year	160
358	Library Activity	2018 - 2019	First Year	160
359	Universal Human Values - III	2018 - 2019	First Year	160
360	ABCD of Life	2018 - 2019	First Year	160
361	Universal Human Values - IV	2018 - 2019	First Year	160
362	Awareness of Bad Habits by Dr. Soumya Naikwadi	2018 - 2019	First Year	160
363	Lead Activities	2018 - 2019	First Year	160
364	Spiritual values by Dr. Sheetal Bhide	2018 - 2019	First Year	160
365	Universal Human Values - V by S.S. Mangavi	2018 - 2019	First Year	160
366	Ethics Human values and Social responsibilities by Shri. Devaraj Aras and Shri. Vijayakumar Hiremath	2018 - 2019	First Year	160
367	Become an Engineer not an Engineering Graduate by Prof. B.R. Umarani	2018 - 2019	First Year	160
368	Valedictory Function of Induction program	2018 - 2019	First Year	160

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List of Social, Sensitizing, Sports, Spiritual and Yoga Activities conducted to promote Participative Learning during the AYs: 2018-19 to Till Date

Institute is permanently affiliated to the Visvesvaraya Technological University, Belgaum. In view of NEP-2020 based revised curriculum of the affiliated university, the institute has facilitated all resources to conduct social, sensitizing, sports, spiritual and yoga activities to promote activity-based learning (ABL) by the participation of students. The students are participating in the below activities to inculcate organizing & managing skills and emerging & ability enhancement skills and knowledge, to help society, and to maintain good physical and mental health.

S.N.	Activity	Academic Year	Dept.	No. of students participated
1.	Juice for Perfect Health on 06/06/2019	2018-19	Red Cross	65
2.	International Yoga Day on 21/06/2019	2018-19	Red Cross	54
3.	Diabetes Awareness Program on 24/09/2019	2018-19	Red Cross	87
4.	Blood Donation Camp on 24/10/2019	2018-19	Red Cross	45
5.	Plantation of Tree on22/11/2019	2018-19	Red Cross	27
6.	AIDS Awareness Program on 05/12/2019	2018-19	Red Cross	104
7.	Celebration of Dr. B.R Ambedkar Jayanti and Shramadhana on 14/04/2018	2018-19	NSS	50
8.	Watering the Plants on 15/04/2018	2018-19	NSS	60
9.	Shramadhana Work at HSIT New Boys Hostel on 05/05/2018	2018-19	NSS	67
10.	"Ready to Vote" campaigning on pre election voting awareness to the public of Nidasoshi village on 09/05/2018	2018-19	NSS	64
11.	Shramadhana Work at HSIT Girls Hostel and Admin Building on 13/05/2018	2018-19	NSS	54
12.	Yoga Day Celebration on 21/06/2018	2018-19	NSS	68
13.	Celebration of World Environment Day on 14/07/2018	2018-19	NSS	64
14.	Awareness Programme on "Information Technology Act and Usage of Social Media" on 08/08/2018	2018-19	NSS	74
15.	Shramadhana Work at BCA College Campus on 12/08/2018	2018-19	NSS	85
16.	Independence Day Celebration on 15/08/2018	2018-19	NSS	78
17.	Sadbhavana Divas on 20/08/2018	2018-19	NSS	80
18.	Kodagu Flood Relief Fund Collection on 20/08/2018	2018-19	NSS	80
19.	Shramadhana Work at Patribana near campus on 25/08/2018	2018-19	NSS	88
20.	Teachers Day Celebration on 05/09/2018	2018-19	NSS	95
21.	Engineers Day is celebrated in the honour of Sir	2018-19	NSS	92

	Mokshagondam Visveswaria on 15/09/2018			
22.	Celebration of NSS Day on 24/09/2018	2018-19	NSS	65
23.	Shramadhana Work at the campus of Mallikarjuna Temple of Ammanagi village on 30/09/2018	2018-19	NSS	87
24.	Celebration of Gandhi Jayanti and Swacch Barat Abhiyana on 02/10/2018	2018-19	NSS	87
25.	Blood Donation Camp on 11/10/2018	2018-19	NSS	90
26.	Shramadhana Work at HSIT campus on 20/10/2018	2018-19	NSS	92
27.	Karnataka Rajyotsava Celebration and Shramadhana Work on 01/11/2018	2018-19	NSS	86
28.	Shramadhana Work at BCA college campus on 06/11/2018	2018-19	NSS	78
29.	Shramadhana Work at Nidasoshi Gate on 13/11/2018	2018-19	NSS	82
30.	Bicycle Rally for Awareness of Girl Child Education on 03/12/2018	2018-19	NSS	73
31.	Awareness on Rain Water Harvesting on 13/12/2018	2018-19	NSS	30
32.	Celebration of Republic Day on 26/01/2019	2018-19	NSS	56
33.	Candle Light March to tribute to departed sole of our soldier who died in the terror attack at Pulwama on 18/02/2019	2018-19	NSS	64
34.	Voters Day Celebration on 19/02/2019	2018-19	NSS	82
35.	Shramadhana Work in Hukkeri Taluka's 9th Kannada Sahitya Sammelana on 24/02/2019	2018-19	NSS	76
36.	VVPAT voting machine demo for parliament election 2019 on 26/02/2019	2018-19	NSS	85
37.	Lecture on Dr.DVG's Mankutimmana Kagga by Shri G.S.Natesh on 02/03/2019	2018-19	NSS	73
38.	Celebration of Science Day on 13/03/2019	2018-19	NSS	55
39.	Shramadhana Work at HSIT main gate on 16/03/2019	2018-19	NSS	68
40.	NSS activity closing for the academic year 2018-19 on 18/03/2019	2018-19	NSS	89
41.	Celebration of Dr. B.R. Ambedkar Jayanti on 14-04-2019	2019-20	NSS	35
42.	Fire Safety awareness program on 16-04-2019	2019-20	NSS	74
43.	Shramadhana work Watering to plants on 21-04-2019	2019-20	NSS	75
44.	Shramadhana work on 05-05-2019	2019-20	NSS	75
45.	Celebration of Basava Jayanthi on 07-05-2019	2019-20	NSS	75
46.	Shramadhana work on 19-05-2019	2019-20	NSS	67
47.	Celebration of World Environment Day on 5-6-2019	2019-20	NSS	25
48.	Awareness lecture on "Juice for the perfect health" on 06-06-2019	2019-20	NSS	24
49.	Celebration of International Yoga Day on 21-06-2019	2019-20	NSS	54
50.	Food Distribution at Flood Relief Camp on 09-08-2019	2019-20	NSS	63
51.	Shramadhana work During Induction Program on 13-08-2019	2019-20	NSS	77
52.	Celebration of 73rd Independence Day on 15-08-2019	2019-20	NSS	85

53.	Shramadhana work on 16-08-2019	2019-20	NSS	54
54.	Distribution of daily household items at flood victim area on 17-08-2019	2019-20	NSS	80
55.	Celebration of Sadbhavana Diwas on 20-08-2019	2019-20	NSS	75
56.	Teachers Day Celebration on 06-09-2019	2019-20	NSS	35
57.	Engineer's day Celebration with tree plantation on 15-09-2019	2019-20	NSS	86
58.	Awareness program to PUC Students on "Academic Guidance and Usage of Social Media" on eve of NSS Day Celebration on 24-09-2019	2019-20	NSS	24
59.	Shramadhan Work on 29-09-2019 at BCA college campus	2019-20	NSS	84
60.	Plastic Free Campus Program on eve of 150th Gandhi Jayanti and 115th Lal Bahadur Shastri Jayantiya celebration on 02-10-2019	2019-20	NSS	50
61.	Shramadhan Work on 12-10-2019 at Community Health Centre,Nidasoshi/Ammanagi campus	2019-20	NSS	92
62.	Shramadhan Work on 20-10-2019 at Canteen campus	2019-20	NSS	86
63.	Voluntary Blood Donation Camp on 23-10-2019	2019-20	NSS	65
64.	Celebration of 63rd Karnataka Rajyotsava on 01-11-2019	2019-20	NSS	86
65.	Shramadhan Work on 10-11-2019 nearby Govt. Hospital	2019-20	NSS	76
66.	Sharamadhan Work on 17-11-2019 , Nidasoshi Village	2019-20	NSS	74
67.	Celebration of 70th Constitution Day on 26-11-2019	2019-20	NSS	65
68.	Awareness rally on Energy Conservation on 20-12-2019 at Nidasoshi village	2019-20	NSS	73
69.	Celebration of Voters Day on 25-01-2020	2019-20	NSS	78
70.	Celebration of 71st Republic Day on 26-01-2020	2019-20	NSS	45
71.	Shramadhan Work on 15-02-2020	2019-20	NSS	70
72.	Shramadhan Work watering to plants on 16-02-2020	2019-20	NSS	84
73.	Shramadhan Work on 07-03-2020	2019-20	NSS	65
74.	Last Shramadhan Work for the Academic Year 2019-20 on 08-03-2020	2019-20	NSS	65
75.	National Deworming Day on 10-02-2020	2019-20	Red Cross	75
76.	Womens Day on 7-3-2020	2019-20	Red Cross	93
77.	Plantation of Trees on 11-9-2020	2019-20	Red Cross	58
78.	Plastic Free Campus on 19-11-20220	2019-20	Red Cross	62
79.	Celebration of "World Environment Day" on 05/06/2020	2020-21	NSS	75
80.	Celebration of "International Yoga Day" on 21/06/2020	2020-21	NSS	60
81.	Shramadhana work at HSIT College on 08/08/2020	2020-21	NSS	70
82.	Celebration of Independence Day on 15/08/2020	2020-21	NSS	109
83.	Campus Cleaning Shramadhana work During Induction Program on 16/08/2020	2020-21	NSS	60
84.	Sadbhavana Diwas on 29/08/2020	2020-21	NSS	72

85.	Shramadhana work at Govt. Hospital near HSIT Gate on 30/08/2020	2020-21	NSS	65
86.	Celebration of "Teachers Day" on 05/09/2020	2020-21	NSS	115
87.	Felicitation to Ku.Priyanka Kambale for Securing 670th Rank in UPSC Exam on 05/09/2020	2020-21	NSS	80
88.	Shramadhana work at College Campus on 06/09/2020	2020-21	NSS	70
89.	Plantation of Trees on 11/09/2020	2020-21	Red Cross	50
90.	Shramadhana work at Girls Hostel on 12/09/2020	2020-21	NSS	65
91.	Celebration of "Engineer's day" on 15/09/2020	2020-21	NSS	85
92.	Shramadhana work at garden area on 20/09/2020	2020-21	NSS	60
93.	Celebration of "NSS Day" on 24/09/2020	2020-21	NSS	75
94.	Shramadhana work at Diploma College on 27/09/2020	2020-21	NSS	50
95.	Swachha Bharat Abhiyan on eve of 151st Gandhi Jayanti and 116th Lal Bahadur Shastri Jayanti celebration on 02/10/2020	2020-21	NSS	120
96.	Shramadhana work ground side on 10/10/2020	2020-21	NSS	78
97.	Shramadhana work at Govt. Hospital Nidasoshi gate on 11/10/2020	2020-21	NSS	60
98.	Visit to Goshala at Hargapurgad on 17/10/2020	2020-21	NSS	65
99.	Celebration of 64th Karnataka Rajyotshava & Shramadhana work on 01/11/2020	2020-21	NSS	150
100.	Voluntary Blood Donation Camp on 04/11/2020	2020-21	NSS	90
101.	Shramadhana work at Diploma College on 07/11/2020	2020-21	NSS	55
102.	Awareness on "COVID-19 RTPCR Test" on 17/11/2020	2020-21	NSS	80
103.	Plastic Free Campus on 19/11/2020	2020-21	Red Cross	60
104.	Organized Covid-19 Checkup Camp on 20/11/2020 & 21/11/2020	2020-21	Red Cross	110
105.	Shramadhan Work at Nidasoshi Village on 22/11/2020	2020-21	NSS	70
106.	Celebration of 71st Constitution Day on 26/11/2020	2020-21	NSS	145
107.	Shramadhana work at College Campus on 28/11/2020	2020-21	NSS	70
108.	Awareness rally on Energy Conservation at Nidasoshi Village on 14/12/2020	2020-21	NSS	60
109.	Talk on Healthy Life Style on 23/01/2021	2020-21	Red Cross	75
110.	Celebration of "Voters Day" on 25/01/2021	2020-21	NSS	90
111.	Celebration of 72st Republic Day on 26/01/2021	2020-21	NSS	155
112.	Celebration of "World Cancer Day" on 04/02/2021	2020-21	NSS	85
113.	Shramadhana work Removing waste and dry grass at HSIT College on 06/02/2021	2020-21	NSS	60
114.	Plantation of Trees on 05/02/2021	2020-21	Red Cross	80
115.	Talk on Youth Red Cross Activity on 06/02/2021	2020-21	Red Cross	110
116.	Shramadhana work watering Plants at HSIT College on 21/02/2021	2020-21	NSS	85
117.	Shramadhana work on 07/03/2021	2020-21	NSS	60
118.	NSS 2019-20 Activities Closing on 14/03/2021	2020-21	NSS	75

119.	Village and Household Survey in the adopted villages and SEG project proposal submission for holistic development through technological interventions	2020-21	NSS & UBA Volunteers	126
120.	COVID-19 Vaccination camp for Staff and students at College	2021-22	Red cross	250
121.	Swachha Bharat Abhiyan at Jaynagar Sankeshwar	2021-22	NSS	100
122.	Celebration of 75th Independence Day as Azadi Ka Amrit Mahotsav	2021-22	NSS	100
123.	Celebration og Sadbhavana Diwas at college	2021-22	NSS	86
124.	Celebration of "Teachers Day"	2021-22	NSS	93
125.	Survey of facilities in the Ammanagi village under Unnat Bharat Abhiyan	2021-22	NSS	100
126.	Engineer's Day Celebration	2021-22	NSS	74
127.	151st Gandhi Jayanti and 116th Lal Bahadur Shastri Jayanti Celebration.	2021-22	NSS	86
128.	Organised Shramadan work	2021-22	NSS	99
129.	Celebration of 65th Karnataka Rajyotsava	2021-22	NSS	79
130.	Organised Shramadan work	2021-22	NSS	92
131.	Organised Shramadan work	2021-22	NSS	52
132.	Voluntary Blood Donation Drive	2021-22	NSS	54
133.	Organised Shramadan work	2021-22	NSS	52
134.	159th Swami Vivekananda Jayanti	2021-22	NSS	92
135.	Road Safety Awarness rally	2021-22	NSS	53
136.	Celebration of 72st Republic Day.	2021-22	NSS	52
137.	Organised Shramadan work	2021-22	NSS	55
138.	Organised Shramadan work and Closing of NSS regular activities for the year 2021-22	2021-22	NSS	78
139.	Red Cross Day Celebration	2021-22	Red Cross	70
140.	The 3rd Semester Branch Entry and AIMSS Inauguration Function on 28/10/2021	2021-22	AIMSS	73
141.	Appu Amar on 13/11/ 2021	2021-22	AIMSS	102
142.	Virtual Training Programme on Nation Building Attitudes & Behaviors Under CSR for Staff from 13/12/2021 To 17/12/2021	2021-22	AIMSS	11
143.	Virtual Training Programme on Nation Building Attitudes & Behaviors Under CSR for Students from 20/12/2021 To 24/12/2021	2021-22	AIMSS	29
144.	Poster presentation on Theme: Energy & Its economics on 20/01/2022	2021-22	AIMSS	23
145.	ALOHA Farewell Function -2K22 on 22/07/2022	2021-22	AIMSS	92
146.	Book Distribution to Bright Students on 22/07/2022	2021-22	AIMSS	92
147.	Future Tech -2022, A Technical Competitions for Polytechnic Students on 29/07/2022	2021-22	AIMSS	80
148.	Career Guidance Awareness program on SAP on26/08/2022	2021-22	AIMSS	42

149.	Online session on Women health and Hygiene by Mrs. Nitya Chaudhary CSR Executive, Unicharm India Chief Guest: Dr. (Smt.) Laximbai Ainapure, Artist Salhalli Dist.: Ramdurga Guest of honor: Smt. Sangeeta Bagewadi, Artist Salahalli Dist. : Ramdurga on 11/03/2022	2021-22	Women Empowerment Cell	100
150.	Helping local schools to achieve good results and enhancing their enrollment in Higher/Technical/ Vocational Education and enhancing their communication skills	2021-22	HM, D. L. Khot Highschool Hebbal	11
151.	Creating awareness and facilitating digital money transactions	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	2
152.	Creating awareness and facilitating digital money transactions	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	3
153.	Prepare and implement a plan to improve health parameters of villagers	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	3
154.	Creating awareness on waste management	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	1
155.	Helping local schools to achieve good result and enhance their enrollment in Higher/Technical/ Vocational Education	2021-22	HM, Appanagouda Education Society KHPS Sankeshwar	1
156.	Helping local schools to achieve good result and enhance their enrollment in Higher/Technical/ Vocational Education	2021-22	HM.Hukkerimath Shivabasaveshwar Highschool, Haveri	1
157.	Helping local schools to achieve good result and enhance their enrollment in Higher/Technical/ Vocational Education	2021-22	HM Govt. Urdu Girls School Sankeshwar	1
158.	Creating awareness on waste management	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	1
159.	COVID-19 Vaccination Awerness Programme	2021-22	Gram Panchayat Karyalaya,	4

			Nidasoshi	
160.	Creating awareness and facilitating digital money transactions	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	6
161.	Creating awareness and facilitating digital money transactions	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	7
162.	Creating awareness on rain water harvesting	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	6
163.	Creating awareness on rain water harvesting	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	3
164.	Creating awareness on solid waste management	2021-22	PDO, Gram Panchayat Karyalaya, Nidasoshi	2
165.	Digital Money Transaction	2021-22	Gram Panchayat Karyalaya, Nidasoshi	5
166.	Digital Money Transaction	2021-22	Gram Panchayat Karyalaya, Kakamari	1
167.	Digital Money Transaction	2021-22	Gram Panchayat Karyalaya, Nagnur	2
168.	Digital Money Transaction	2021-22	Gram Panchayat Karyalaya, Adi	1
169.	How to Achieve Good Results in Board Exams	2021-22	SJD High School, Nidasoshi	17
170.	Rain Water Harvesting	2021-22	Primary School, Nidasoshi	4
171.	Rain Water Harvesting	2021-22	Primary School, Sankeshwar	2
172.	Awareness activity for Rural Entrepreneurship	2021-22	Gram Panchayat Karyalaya, Nidasoshi	12
173.	Swachh Bharat Abhiyan	2021-22	Bus Stand, Market Sankeshwar	7
174.	Swachh Bharat Abhiyan	2021-22	Gram Panchayat, Nidasoshi	7

175.	Waste Management	2021-22	Gram Panchayat, Nidasoshi	2
176.	COVID-19 Vaccination Awerness Programme	2021-22	Gram Panchayat Karyalaya, Nidasoshi	62
177.	Facilitating 100% digitiesed money transactions	2021-22	Gram Panchayat Karyalaya, Nidasoshi	56
178.	Awareness on Rain water harvesting	2021-22	Gram Panchayat Karyalaya, Nidasoshi	62
179.	Helping local Highschool students	2021-22	Govt, Higher Primary Kannada Girls School Nidasoshi	4
180.	Swachh Bharat Abhiyan	2021-22	Gram Panchayat Karyalaya, Nidasoshi	24
181.	Awareness on waste management	2021-22	Gram Panchayat Karyalaya, Nidasoshi	25
182.	Rain Water Harvesting	2021-22	Gram Panchayat Karyalaya, Nidasoshi & Akkol	30
183.	Digital Money transaction	2021-22	Gram Panchayat Karyalaya, Yelimunnoli	33
184.	Helping Local School	2021-22	Local Schools	24
185.	Health Parameters	2021-22	Gram Panchayat Karyalaya, Ammanagi	13
186.	Swachha Bharat Abhiyan	2021-22	Gram Panchayat Karyalaya, Nidasoshi & Akkol	16
187.	Waste Management	2021-22	Govt. Hospital Benivad	6
188.	Promotion of Technology	2021-22	Gram Panchayat Karyalaya, Nidasoshi	1
189.	Webinar on "Intellectual Property Rights" A Awareness Program by Mr. Nikhil Ranjan, Examiner of Patents & Design Officer, NIPAM, Patent Office Kolkatta	2022-23	IPR Cell	315
190.	Intellectual Rights Awareness Programme for 3rd semester students and staff	2022-23	IPR Cell	26

191.	Intellectual Rights Awareness Programme for 8th semester students and staff	2022-23	IPR Cell	58
192.	Workshop on "Entrepreneurship"	2021-22	ED Cell	150
193.	Seminar on "Complete Entrepreneurship Optimization"	2021-22	ED Cell	110
194.	One day Workshop on "Entrepreneurship"	2021-22	ED Cell	119
195.	One day Seminar on "Intellectual Property and patent Filing"	2020-22	IPR Cell	107
196.	An invited talk on "IPR Practices in industries & its Benefits"	2019-20	IPR Cell	140
197.	Entrepreneurship Awareness Camp	2019-20	ED Cell	75
198.	An invited talk on "Intellectual Property Rights-IPR"	2019-20	IPR Cell	125
199.	Celebration of Dr. B.R. Ambedkar Jayanti	2022-23	NSS	84
200.	Celebration of Basava Jayanthi	2022-23	NSS	84
201.	Celebration of Budha Poornima & Red Cross Day (08May)	2022-23	NSS	87
202.	Shramdaan	2022-23	NSS	85
203.	Celebration of World Environment Day	2022-23	NSS	83
204.	Celebration of International Yoga Day	2022-23	NSS	85
205.	Shramdaan	2022-23	NSS	89
206.	Motivational talk on ""Mind Magic" Power of the subconscious mind	2022-23	NSS	85
207.	Shramdaan	2022-23	NSS	87
208.	Inspirational talk on "Professionalism in Education"	2022-23	NSS	87
209.	Shramdaan	2022-23	NSS	84
210.	Celebration of 77th Independence Day "Azadi Ka Amrut Mahotsav"	2022-23	NSS	89
211.	Teachers Day Celebration	2022-23	NSS	87
212.	Engineer's day Celebration.	2022-23	NSS	87
213.	Shramdaan	2022-23	NSS	85
214.	153sd Gandhi Jayanti and 118th Lal Bahadur Shastri Jayanti celebration	2022-23	NSS	80
215.	Shramdaan	2022-23	NSS	83
216.	Ayudha Pooja	2022-23	NSS	85
217.	Valmiki Jayanti.	2022-23	NSS	82
218.	Celebration of 68th Karnataka Rajyotsava	2022-23	NSS	85
219.	Celebration of 74th Constitution Day	2022-23	NSS	83
220.	Voter ID (EPIC) registration drive.	2022-23	NSS	83
221.	Shramdaan	2022-23	NSS	80
222.	Blood Donation Camp & Awareness Program on 'Blood Donation' on eve of World Health Day .	2022-23	NSS	78
223.	AIDS Awareness Program	2022-23	Red-Cross	75
224.	Dengue Awareness Program	2022-23	Red-Cross	93
225.	Eye Checkup camp	2022-23	Red-Cross	58
226.	Eye Donation and Eye Health Care	2022-23	Red-Cross	62
227.	International Women's Day Celebration	2022-23	Red-Cross	75

228.	Mental Health A must for All	2022-23	Red-Cross	60
229.	National De-worming Day	2022-23	Red-Cross	70
230.	Red Cross Day Celebration	2022-23	Red-Cross	58

List of Women Empowerment Cell activities conducted to promote Participative Learning during the AYs: 2018-19 to Till Date

The institute has Women Empowerment Cell and following sensitizing and extension activities are conducted to promote activity-based learning (ABL). The students are participating in the below Women Empowerment Cell activities to empower women to help society.

S.N.	Activity	Academic Year	No. of students participated
1	Talk on " Role of Women in Nation Building by Dr. Vijayalaxmi I. Balekundri on the occasion of Women's Day-2023	2022-23	240
2.	Legal Awareness program in association with District Legal Aid Cell, Bar council of Sankeshwar, Senior Municipal Magistrate	2022-23	196
3.	Awareness talk on HIV	2022-23	95
4	Awareness talk on health issues	2022-23	158
5	Rangoli Competition on "Azadi ka Amrut Mahostav"	2022-23	22
6	Essay competition on "Role of Women in Freedom Struggle"	2022-23	29
7	Elocution Competition on "Our History our Pride"	2022-23	10
8	Cooking without Fire	2022-23	28
9	Online session on"Women Menstrual and Hygiene Mangement"	2021-22	100
10	Dandiya for all girls and ladies staff	2021-22	75
11	Talk on Health & Hygiene by Dr. Soumya Sajjan, MBBS, DGO, CMO of CHC Ammanagi.	2020-21	135
12	Talk on "Role of Women in Modern Technology" by Dr. Maitreyini G. Gadigeppagoudar, RCU, Belagavi	2019-20	158
13	Talk on "Women in Modern Agriculture" by Smt. Kavita Umashankar Mishra, Agriculturalist, Raichur	2018-19	178
14	Awareness talk on human values by Dr. Prasannakshi, Sanskrit Professor, Mysuru	2018-19	114
15	Awareness on "Legitimate Provisions for Women" by Prof. D.B. Solapure, Principal, law college Chikodi.	2018-19	131
16	Awareness on "Women safety and sexual harassment" through Flash -mob by Final year girls	2018-19	250

List of Sports and Yoga Activities conducted to promote Participative Learning during the AYs:2018-19 to Till Date

The institute is facilitated all resources to conduct sports and yoga activities to promote activity-based learning (ABL) the participation of students. The students are participating in the below activities to maintain good physical and mental health.

S.N.	Activity	Academic Year	Dept.	No. of students participated
1.	100 Mtr Running	2018-19	Sports & Yoga	12
2.	200 Mtr Runn0ng	2018-19	Sports & Yoga	20
3.	400 Mtr. Running	2018-19	Sports & Yoga	27
4.	800 Mtr Running	2018-19	Sports & Yoga	26
5.	1500 Mtr Running	2018-19	Sports & Yoga	15
6.	5000 Mtr. Running	2018-19	Sports & Yoga	14
7.	Shot-Put Throw	2018-19	Sports & Yoga	35
8.	Javelin Throw	2018-19	Sports & Yoga	36
9.	Discuss throw	2018-19	Sports & Yoga	31
10.	Long Jump	2018-19	Sports & Yoga	22
11.	Chess	2018-19	Sports & Yoga	35
12.	Corram Single	2018-19	Sports & Yoga	35
13.	Carom Doubles	2018-19	Sports & Yoga	35
14.	Table Tennis Single	2018-19	Sports & Yoga	35
15.	Table Tennis Doubles	2018-19	Sports & Yoga	35
16.	Foot Ball	2018-19	Sports & Yoga	90
17.	Volley Ball	2018-19	Sports & Yoga	60
18.	Hand Ball	2018-19	Sports & Yoga	15
19.	Cross country	2018-19	Sports & Yoga	02
20.	swimming	2018-19	Sports & Yoga	01
21.	Yoga	2018-19	Sports & Yoga	10
22.	Youth Festival	2018-19	Sports & Yoga	15
23.	cricket	2018-19	Sports & Yoga	16
24.	Badminton	2018-19	Sports & Yoga	5
25.	Table Tennis	2018-19	Sports & Yoga	05
26.	100 Mtr Running	2019-20	Sports & Yoga	25
27.	200 Mtr Runn0ng	2019-20	Sports & Yoga	25
28.	400 Mtr. Running	2019-20	Sports & Yoga	25

29.	800 Mtr Running	2019-20	Sports & Yoga	20
30.	1500 Mtr Running	2019-20	Sports & Yoga	25
31.	5000 Mtr. Running	2019-20	Sports & Yoga	20
32.	Shot-Put Throw	2019-20	Sports & Yoga	45
33.	Javelin Throw	2019-20	Sports & Yoga	40
34.	Discuss throw	2019-20	Sports & Yoga	40
35.	Long Jump	2019-20	Sports & Yoga	35
36.	Chess	2019-20	Sports & Yoga	35
37.	Corram Single	2019-20	Sports & Yoga	35
38.	Carom Doubles	2019-20	Sports & Yoga	35
39.	Table Tennis Single	2019-20	Sports & Yoga	35
40.	Table Tennis Doubles	2019-20	Sports & Yoga	35
41.	Foot Ball	2019-20	Sports & Yoga	90
42.	Volley Ball	2019-20	Sports & Yoga	60
43.	100 Mtr Running	2021-22	Sports & Yoga	28
44.	200 Mtr Runn0ng	2021-22	Sports & Yoga	28
45.	400 Mtr. Running	2021-22	Sports & Yoga	35
46.	800 Mtr Running	2021-22	Sports & Yoga	25
47.	1500 Mtr Running	2021-22	Sports & Yoga	20
48.	5000 Mtr. Running	2021-22	Sports & Yoga	20
49.	Shot-Put Throw	2021-22	Sports & Yoga	45
50.	Javelin Throw	2021-22	Sports & Yoga	47
51.	Discuss throw	2021-22	Sports & Yoga	40
52.	Long Jump	2021-22	Sports & Yoga	43
53.	Chess	2021-22	Sports & Yoga	16
54.	Corram Single	2021-22	Sports & Yoga	38
55.	Carom Doubles	2021-22	Sports & Yoga	20
56.	Table Tennis Single	2021-22	Sports & Yoga	23
57.	Table Tennis Doubles	2021-22	Sports & Yoga	17
58.	Foot Ball	2021-22	Sports & Yoga	90
59.	Volley Ball	2021-22	Sports & Yoga	60
60.	Cricket	2021-22	Sports & Yoga	16
61.	Cross -counary	2021-22	Sports & Yoga	02
62.	Kabaddi	2021-22	Sports & Yoga	12
63.	wrestling	2021-22	Sports & Yoga	01
64.	Yoga	2021-22	Sports & Yoga	8
65.	Youth Festival	2021-22	Sports & Yoga	10
66.	100 Mtr Running	2022-23	Sports & Yoga	18
67.	200 Mtr Runn0ng	2022-33	Sports & Yoga	19
68.	400 Mtr. Running	2022-23	Sports & Yoga	18
69.	800 Mtr Running	2022-33	Sports & Yoga	15
70.	1500 Mtr Running	2022-23	Sports & Yoga	15

66.	100 Mtr Running	2022-23	Sports & Yoga	18
67.	200 Mtr Runn0ng	2022-33	Sports& Yoga	19
68.	400 Mtr. Running	2022-23	Sports & Yoga	18
69.	800 Mtr Running	2022-33	Sports& Yoga	15
70.	1500 Mtr Running	2022-23	Sports & Yoga	15
71.	5000 Mtr. Running	2022-33	Sports& Yoga	16
72.	Shot-Put Throw	2022-23	Sports & Yoga	30
73.	Javelin Throw	2022-33	Sports& Yoga	18
74.	Discuss throw	2022-23	Sports & Yoga	18
75.	Long Jump	2022-33	Sports& Yoga	16
76.	Chess	2022-23	Sports & Yoga	23
77.	Corram Single	2022-33	Sports& Yoga	29
78.	Carom Doubles	2022-23	Sports & Yoga	20
79.	Table Tennis Single	2022-23	Sports& Yoga	23
80.	Table Tennis Doubles	2022-33	Sports & Yoga	10
81.	Foot Ball	2022-23	Sports& Yoga	90
82.	Volley Ball	2022-33	Sports & Yoga	60
83.	Wrestling	2022-23	Sports& Yoga	01
84.	Best Physic	2022-23	Sports & Yoga	01
85.	Athletic	2022-23	Sports& Yoga	08
86.	Kabadi	2022-23	Sports & Yoga	12
87.	KHO-KHO	2022-23	Sports& Yoga	12
88.	Yoga	2022-23	Sports & Yoga	8
89.	Youth Festival	2022-23	Sports& Yoga	10

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List of Technical Seminars presented by the students during last 5 years

Institute is permanently affiliated to the Visvesvaraya Technological University, Belgaum. In view of NEP-2020 based revised curriculum of the affiliated university, the institute has facilitated to organize technical seminars of the students in the departments as per the university guidelines. The students' team members individually select the seminar topic in relevant and emerging under the guidance of the faculty members. Each student has prepared a report and power point presentation as per the departmental policy and guide suggestions. Each student has presented the information related to the selected topic before the internal evaluation committee. The presentations of the students are evaluated through proper rubrics. By this activity student will learn report writing and presentation skills on emerging/relevant areas. The following are the list of technical seminar topics on which students have presented their report before the evaluation committee.

S.N.	Seminar Title/Topic	Academic Year	Dept.
1.	Laser Ignition for Internal Combustion Engine	2018-19	ME
2.	Reverse Engineering	2018-19	ME
3.	Digital Twin Spark Plug ignition Engine	2018-19	ME
4.	Waste Heat Recovery from Industrial Baking Ovens	2018-19	ME
5.	Fuel Cell	2018-19	ME
6.	Cryogenic Grinding	2018-19	ME
7.	Tweel Airless Tyre Technology	2018-19	ME
8.	Under water Communication Technology	2018-19	ME
9.	Thermo-Mechanical Heat Pipe	2018-19	ME
10.	Eye ball Sensor Based Wheel Chair	2018-19	ME
11.	Sugarcane Harvesting	2018-19	ME
12.	Electricity from Waste Water	2018-19	ME
13.	Robotic Surgery	2018-19	ME
14.	Desalination of Sea/ Hard Water in Portable Water	2018-19	ME
15.	Sensotronic Braking System	2018-19	ME
16.	Air Bag Gear Bike	2018-19	ME
17.	Artificial Heart	2018-19	ME
18.	Foldable Helmet	2018-19	ME
19.	Leaf Motion Design in Mechanical Field	2018-19	ME
20.	Design of Low Cost Roofing Tiles Using Agriculture Waste	2018-19	ME
21.	Camless Engine	2018-19	ME
22.	3D Printing	2018-19	ME
23.	Graphine	2018-19	ME
24.	Waste Plastic Into Fuel	2018-19	ME
25.	Cryogenics	2018-19	ME
26.	Modern Electrical Cars of Tesla Modern Company	2018-19	ME
27.	Low Cost Roofing Tiles Using Agricultural Waste	2018-19	ME
28.	Microcontroller Based Drip Irrigation System	2018-19	ME
29.	Rail Gun	2018-19	ME
30.	Carbon Ceramic Braker	2018-19	ME

31.	Lean Manufacturing	2018-19	ME
32.	Magnetic Refrigeration	2018-19	ME
33.	Under Water Welding	2018-19	ME
34.	Oil Shale	2018-19	ME
35.	Cryocar Runs with water and Salt	2018-19	ME
36.	Magneto Rheological Fluid	2018-19	ME
37.	Fiber Composite Strengthening of Thin Walled Steel Vehicle Crush Tubes for Frontal Collision Energy Absorption	2018-19	ME
38.	Paper Battery	2018-19	ME
39.	Floating Windmill	2018-19	ME
40.	Carbon Credit	2018-19	ME
41.	Cruise Missile Technology	2018-19	ME
42.	Scramjet Engine	2018-19	ME
43.	Metal Forming: Super Plastic Forming	2018-19	ME
44.	Piezoelectric Model	2018-19	ME
45.	Pulse Detonation Engine	2018-19	ME
46.	CO2 Capturing and Storage	2018-19	ME
47.	Laser Shot Processing	2018-19	ME
48.	Haptic Technology	2018-19	ME
49.	Kinetic Energy Recovery System	2018-19	ME
50.	Solar Collector	2018-19	ME
51.	Maglev Train	2018-19	ME
52.	Hyperloop High Speed Transportation	2018-19	ME
53.	Technological Advancement in Process/ Product Industry form Plastic Waste	2018-19	ME
54.	Plasma Assisted Milling	2018-19	ME
55.	Composite Material for Innovations Wind Turbine Blade	2018-19	ME
56.	Bio Diesel	2018-19	ME
57.	Hemi Engine	2018-19	ME
58.	Mechanical Energy Storage System	2018-19	ME
59.	Bladeless Wind Turbine	2018-19	ME
60.	Stealth Technology	2018-19	ME
61.	Automated Highway System	2018-19	ME
62.	Solar Road Ways	2018-19	ME
63.	Six Stroke Engine	2018-19	ME
64.	Vacuum Braker	2018-19	ME
65.	Under Water Robots	2018-19	ME
66.	Plastic Welding	2018-19	ME
67.	Methanol Fuel For IC Engines	2018-19	ME
68.	Compressed Air car	2018-19	ME
69.	Friction Stir Welding	2018-19	ME
70.	Space X (Reusable Satellite Launcher)	2018-19	ME
71.	Pollution less Engine	2018-19	ME
72.	Feasibility Study on Power Generation Using Treated Waste Water	2018-19	ME

73.	Hyperloop Technology	2018-19	ME
74.	Self Inflating Tyre	2018-19	ME
75.	Electric Diwheel With Active Resistance Damping (WDWARD) Cycle	2018-19	ME
76.	Phase Change Material for Cooling of PV Cell	2018-19	ME
77.	Night Vision Technology in Automobile	2018-19	ME
78.	Four Wheel Steering Control	2018-19	ME
79.	Biofuel & Food Security	2018-19	ME
80.	Mobile Duct Cleaner	2018-19	ME
81.	Zero Energy Homes	2018-19	ME
82.	Hydraulic Hybrid Vehicle	2018-19	ME
83.	Cruise Control System	2018-19	ME
84.	Aerospace Trends and New Technology Development	2018-19	ME
85.	Additive Manufacturing	2018-19	ME
86.	Wobble Turbine (Vortex Bladeless Turbine)	2018-19	ME
87.	Borewell Baby Rescue by Using Robot Mechanism	2018-19	ME
88.	MPFI System	2018-19	ME
89.	Automatic Solar Panels	2018-19	ME
90.	Coordinate Measuring Machine	2018-19	ME
91.	Heat Transfer Enhancement by Nanofluids	2018-19	ME
92.	Solid Waste management	2018-19	ME
93.	Active Suspension System	2018-19	ME
94.	ABS System Fox Bike	2018-19	ME
95.	Future Flying Cars	2018-19	ME
96.	Agriculture Drone	2018-19	ME
97.	Maggenn Air Rotor System	2018-19	ME
98.	Space Robotics	2018-19	ME
99.	Super Cavitation	2018-19	ME
100.	Drones & UAVs for Military Applications	2018-19	ME
101.	Utilization of Waste Heat Recovery	2018-19	ME
102.	Aqua silencer	2018-19	ME
103.	MEMS Technology	2018-19	ME
104.	Railway Sludge Management	2018-19	ME
105.	Micro Turbine	2018-19	ME
106.	4D printing	2018-19	ME
107.	Powder Metallurgy	2018-19	ME
108.	Hybrid Chassis	2018-19	ME
109.	Biometric Car Access	2018-19	ME
110.	Artificial Intelligence	2018-19	ME
111.	Hyperloop	2019-20	ME
112.	Industry 4.0	2019-20	ME
113.	The role of mechanical engineers in Agricultural sectors	2019-20	ME
114.	Magnetic repulsion piston engine	2019-20	ME
115.	Hydrographic Water Transfer Printing Technology	2019-20	ME
116.	Smart Farming (IOT in Agriculture)	2019-20	ME

117.	Celluveyor	2019-20	ME
118.	Recent Trends in Solar Energy	2019-20	ME
119.	Speech Recognizing Robotic Arm For Writing Process	2019-20	ME
120.	Total Productive Maintenance	2019-20	ME
121.	Electricity Generating Shock Absorber	2019-20	ME
122.	Air Bags in Automobiles	2019-20	ME
123.	An automated fruit harvesting robot by using deep learning	2019-20	ME
124.	Nuclear fusion -The way to new energy	2019-20	ME
125.	Under water wireless communication technology	2019-20	ME
126.	Cloud based smart dustbin system for metro station	2019-20	ME
127.	Cryogenic Grinding	2019-20	ME
128.	Carbon Nanotubes	2019-20	ME
129.	Piezoelectric Energy Generation	2019-20	ME
130.	Air suspension System	2019-20	ME
131.	Hydrogen Generation and Storage	2019-20	ME
132.	Tethered Undersea Kite system	2019-20	ME
133.	Jet Engines	2019-20	ME
134.	Generation of Electricity from Waste Heat	2019-20	ME
135.	Aqua Silencer	2019-20	ME
136.	Automobile Safety system	2019-20	ME
137.	Antiterroy robotic vehicle for land mine detector	2019-20	ME
138.	Solar Power Satellite	2019-20	ME
139.	Nuclear Battery	2019-20	ME
140.	Ultrasonic Motor	2019-20	ME
141.	Magnetic Refrigeration	2019-20	ME
142.	Space Robotics	2019-20	ME
143.	Shape memory alloy	2019-20	ME
144.	DTSi Technology	2019-20	ME
145.	Paper Battery	2019-20	ME
146.	Synthetic polymer	2019-20	ME
147.	Common Rail Direct Injection System	2019-20	ME
148.	Bioinspired materials using Ultrasonic freeze casting	2019-20	ME
149.	Solar Cooker	2019-20	ME
150.	Stratified Charge Engine	2019-20	ME
151.	Infrared Thermography	2019-20	ME
152.	Solar Window	2019-20	ME
153.	Smart Materials	2019-20	ME
154.	Dual Axis Solar Tracker	2019-20	ME
155.	Independent Wheel vehicle suspension	2019-20	ME
156.	Scramjet engine	2019-20	ME
157.	Micromachining	2019-20	ME
158.	Self inflating tyres	2019-20	ME
159.	Pulse detonation engine	2019-20	ME
160.	HEMI Engine	2019-20	ME
161.	Designing human centered automotive automation system	2019-20	ME

162.	Tech vs Corona	2019-20	ME
163.	Towed Array Sonar	2019-20	ME
164.	Regenerative braking system	2019-20	ME
165.	Air Bearing	2019-20	ME
166.	Swarn Robotics	2019-20	ME
167.	Nano fluids Thermal applications	2019-20	ME
168.	Cryocars	2019-20	ME
169.	Nano robots in Human body	2019-20	ME
170.	Floating wind mills	2019-20	ME
171.	Scuderi split cycle engine	2019-20	ME
172.	Fuel Energizer	2019-20	ME
173.	Space exploration Technologies Corporation(SpaceX)	2019-20	ME
174.	Stealth Technology	2019-20	ME
175.	Printed organic solar cell	2019-20	ME
176.	Multi port fuel injection system	2019-20	ME
177.	Wave Power	2019-20	ME
178.	Robotic Surgery	2019-20	ME
179.	Haptic Technology	2019-20	ME
180.	Under Water Soldering	2019-20	ME
181.	Ceramic Disc Brakes	2019-20	ME
182.	W16 super engine	2019-20	ME
183.	A Forward collision warning system using driving intention recognition of the front vehicle and V2V communication	2019-20	ME
184.	Osmotic power generation	2019-20	ME
185.	Poka yoke techniques to prevent error	2019-20	ME
186.	Floating wind mill	2019-20	ME
187.	Influence of kenaf on mechanical properties of glass epoxy composites	2019-20	ME
188.	NOx reduction in IC engines	2019-20	ME
189.	Scope of Non Conventional Plant In India	2019-20	ME
190.	Friction Stir Welding For Aluminum	2019-20	ME
191.	3D Printing.	2019-20	ME
192.	Radar System	2019-20	ME
193.	laser ignition	2019-20	ME
194.	Hydraulic suspension system	2019-20	ME
195.	Tesla turbine	2019-20	ME
196.	Anti lock braking system	2019-20	ME
197.	Non Pneumatic tyre	2019-20	ME
198.	microcontroller drip system	2019-20	ME
199.	IC engines	2019-20	ME
200.	Sixth Sense Technology	2019-20	ME
201.	Smokeless chhula	2019-20	ME
202.	Under water welding	2019-20	ME
203.	Electric vehicle	2019-20	ME
204.	Night vision for automobiles	2019-20	ME

205.	Google driverless car	2019-20	ME
206.	Precision agriculture	2019-20	ME
207.	Catalytic converter	2019-20	ME
208.	Recent development of solar energy in India	2019-20	ME
209.	Hyper loop transportation system	2019-20	ME
210.	Underwater Welding	2019-20	ME
211.	Automatic pneumatic bumper and breaking system	2019-20	ME
212.	Conversion of Plastic Waste to Liquid	2019-20	ME
213.	Microwave Hybrid Iron cast Joining	2019-20	ME
214.	Intelligent cooling system	2019-20	ME
215.	Micromachining	2019-20	ME
216.	Smart materials	2019-20	ME
217.	The application of nanotechnology in mechanical engineering	2019-20	ME
218.	Micro controller based on drip irrigation system	2019-20	ME
219.	Microscopy (Optical and Electron Microscopy)	2019-20	ME
220.	Incineration of solid waste management	2019-20	ME
221.	Bioplastic	2019-20	ME
222.	Solar Tracking	2019-20	ME
223.	Solar Collectors	2019-20	ME
224.	Bladeless Turbine	2019-20	ME
225.	Active Magnetic Bearings	2019-20	ME
226.	Ceramic Disc Brakes	2019-20	ME
227.	Heat Transfer Through Nano Fluids	2019-20	ME
228.	Application of Additive Manufacturing Technology In Medical Science	2019-20	ME
229.	Hydro Loop Technology	2019-20	ME
230.	BS 6	2019-20	ME
231.	Open bionics	2019-20	ME
232.	Zero energy building	2019-20	ME
233.	Vehicle emission and their effect on natural environment	2019-20	ME
234.	Air pollution and its control measures	2019-20	ME
235.	Research of the external aerodynamics of the vehicle model	2019-20	ME
236.	Fabrication of compressed air	2019-20	ME
237.	Micro turbine Generator Systems	2020-21	ME
238.	Modern Solar Collectors	2020-21	ME
239.	Military Radar system	2020-21	ME
240.	Electric vehicles Technology and its future	2020-21	ME
241.	Solid Waste Management	2020-21	ME
242.	Safety Features in car	2020-21	ME
243.	Unmanned Aerial vehicles for agricultural application	2020-21	ME
244.	Ultrasonic motor	2020-21	ME
245.	Methanol as a marine fuel	2020-21	ME
246.	Common Rail Direct Injection	2020-21	ME
247.	Regenerative braking system	2020-21	ME
248.	Rotor Sail	2020-21	ME

249.	Camless Engine	2020-21	ME
250.	Non-pneumatic tyre (Airless tyre)	2020-21	ME
251.	Solar Sail	2020-21	ME
252.	Paper Battery	2020-21	ME
253.	Supercavitation	2020-21	ME
254.	Mechanical energy storage	2020-21	ME
255.	Automation In Agriculture(Agricultural Drone)	2020-21	ME
256.	Disease detection using bio robotics	2020-21	ME
257.	Printed Organic Solar Cell	2020-21	ME
258.	Electric paddy cutting machine	2020-21	ME
259.	Plastic Welding	2020-21	ME
260.	Vacuum Breaking System	2020-21	ME
261.	Fuel Energizer	2020-21	ME
262.	Underwater Welding	2020-21	ME
263.	Non-pneumatic tyre (Airless tyre)	2020-21	ME
264.	Google driverless car	2020-21	ME
265.	Six Stroke Engine	2020-21	ME
266.	Ultrasonic motor	2020-21	ME
267.	Vehicle control with regenerative braking	2020-21	ME
268.	Biometrics	2020-21	ME
269.	Osmotic power generation	2020-21	ME
270.	"Embedded System in Automobiles"	2020-21	ME
271.	Geothermal Energy	2020-21	ME
272.	Coconut skin peeling machine	2020-21	ME
273.	Under water Wind Mill	2020-21	ME
274.	Biomechatronic Hand	2020-21	ME
275.	Floating solar plant	2020-21	ME
276.	Cruise missile technology	2020-21	ME
277.	Gujarat Hybrid Renewable Energy Park	2020-21	ME
278.	Extraction of Bio-diesel from waste cooking oil	2020-21	ME
279.	Solar Refrigeration	2020-21	ME
280.	Light weight material-carbon fiber	2020-21	ME
281.	Autonomous Cars	2020-21	ME
282.	Micromachining	2020-21	ME
283.	Application of CIM in food industry.	2020-21	ME
284.	Submerged Floating Tunnel	2020-21	ME
285.	Green Supply Chain Management	2020-21	ME
286.	crumple zone	2020-21	ME
287.	Nan Robotics	2020-21	ME
288.	Artificial Intelligence in Mechanical Engineering	2020-21	ME
289.	Intelligent speed adaptation and accident avoidance system	2020-21	ME
290.	Space Robotics	2020-21	ME
291.	Cryogenics and its Space Applications	2020-21	ME
292.	Automated irrigation system	2020-21	ME
293.	Continuous Variable Transmission	2020-21	ME

294.	Google Driverless Car	2020-21	ME
295.	Nuclear Battery	2020-21	ME
296.	AI Based Humanoid Robots	2020-21	ME
297.	Extraction of Bio-diesel from waste cooking oil	2020-21	ME
298.	SIMPUTER	2020-21	ME
299.	Non-Pneumatic Tyres	2021-22	ME
300.	Robotic Surgery	2021-22	ME
301.	Autonomous Car	2021-22	ME
302.	Solar Still	2021-22	ME
303.	Fuels From Plastic Wastes	2021-22	ME
304.	Camless Engine	2021-22	ME
305.	Plastic Solar Cell Technology	2021-22	ME
306.	Application Of Additive Manufacturing In Medical	2021-22	ME
307.	Rectification Of Difficulties In Electrical Vehicles	2021-22	ME
308.	Advance Iot In Ai	2021-22	ME
309.	Auto Pilot Mode Technology In Vehicles	2021-22	ME
310.	Automatic Car Parking System Using Arduino	2021-22	ME
311.	Maglev Train	2021-22	ME
312.	Explosive Welding	2021-22	ME
313.	Sensotronic Break Control System	2021-22	ME
314.	Six Stroke Engine	2021-22	ME
315.	Magnetic Nano Composites	2021-22	ME
316.	Underwater Welding	2021-22	ME
317.	Micro Machining	2021-22	ME
318.	Fuel Cell Power Plant	2021-22	ME
319.	Deep Learning	2021-22	ME
320.	Automatic Transmission System	2021-22	ME
321.	Advance Battery And Fuel Cell Development In Electric Vehicle	2021-22	ME
322.	Valvetronic Engine Technology	2021-22	ME
323.	Laser Weeding System	2021-22	ME
324.	Recent Developments In Biofuel	2021-22	ME
325.	Solid Waste Management	2021-22	ME
326.	Wireless Power Transmission	2021-22	ME
327.	Metaverse	2021-22	ME
328.	Starlink Project	2021-22	ME
329.	Ocean Thermal Energy Conversion	2021-22	ME
330.	Biomimetic Robots	2021-22	ME
331.	Hyperloop Technology	2021-22	ME
332.	Orbital Welding	2021-22	ME
333.	Advanced Rapid Prototyping And 3d Printing	2021-22	ME
334.	Night Vision Technology In Automobile	2021-22	ME
335.	Embedded System In Automobile	2021-22	ME
336.	Advanced Hybrid Electrical Vehicles	2021-22	ME
337.	Smart Home Technology	2021-22	ME

338.	Hydroelectric Power Plant	2021-22	ME
339.	James Webb Space Telescope	2021-22	ME
340.	Stir Friction Welding	2021-22	ME
341.	Development Of An Advanced Solar Tracking Energy System	2021-22	ME
342.	High Speed Machining	2021-22	ME
343.	Electricity Generating Shock Absorber	2021-22	ME
344.	Micro Electromechanical System	2021-22	ME
345.	Autonomous Underwater Vehicle	2021-22	ME
346.	Ocean Electricity	2021-22	ME
347.	Stealth Technology	2021-22	ME
348.	Under Water Windmill	2021-22	ME
349.	Hybrid Electric Vehicles	2021-22	ME
350.	Laser Cutting System	2021-22	ME
351.	Sensors Technologies For Intelligent Transportation Systems	2021-22	ME
352.	Bioreactor	2021-22	ME
353.	Welding Robots	2021-22	ME
354.	Night Vision Technology	2021-22	ME
355.	Direct Rapid Tooling For Polymer Processing Using Sheet Metal Tools	2021-22	ME
356.	Fire Fighting Robot	2021-22	ME
357.	Water Jet Cutting	2021-22	ME
358.	Bio Battery Technology	2022-23	ME
359.	Electronic Skin	2022-23	ME
360.	Automated Guided Vehicle System	2022-23	ME
361.	Electrical Vehicle	2022-23	ME
362.	Sensotronic Braking System	2022-23	ME
363.	Osmotic Power Generation	2022-23	ME
364.	Biomimetic Robots	2022-23	ME
365.	AI/ML and RPA Technology	2022-23	ME
366.	Hyperloop Transportation System	2022-23	ME
367.	AIML In Automobile Industry	2022-23	ME
368.	Six Stroke Engine	2022-23	ME
369.	Wireless charging of EV	2022-23	ME
370.	Internet of Things	2022-23	ME
371.	Under Water Wind Mill	2022-23	ME
372.	Floating Solar Pv Plants	2022-23	ME
373.	Intelligent Car Parking System	2022-23	ME
374.	F1 Track Design & Safety	2022-23	ME
375.	Recent Developments In Micro Plasma Arc Welding	2022-23	ME
376.	Composite Materials For Aerospace Applications	2022-23	ME
377.	Adaptive Cruise Control	2022-23	ME
378.	Car Speed Control Using Bluetooth	2022-23	ME
379.	Inertial Control Unit for Electric Vehicles to Boost Battery Backup	2022-23	ME

380.	Anti Collision Train System	2022-23	ME
381.	Airless Tires	2022-23	ME
382.	Vacuum Braking System	2022-23	ME
383.	Automobile Safety System	2022-23	ME
384.	Biomechatronic Hand	2022-23	ME
385.	Real-Time Detection of Apple Leaf Diseases using convolution Neural Network.	2022-23	CSE
386.	Touch Sensing for a Projected Screen Using Slope Disparity Gating	2022-23	CSE
387.	Designing Hand Pose Aware Virtual Keyboard With Hand Drift Tolerance	2022-23	CSE
388.	Making of Night Vision: Object Detection Under Low-Illumination	2022-23	CSE
389.	5 Pen PC Technology	2022-23	CSE
390.	Application of AIML for Accurate Detection of Code Plagiarism	2022-23	CSE
391.	Guided Image Deblurring by Deep Multi-Modal Image Fusion	2022-23	CSE
392.	Three-Dimensional Password for More Secure Authentication	2022-23	CSE
393.	Predicting Household Electric Power Consumption Using Multi-step Time Series with Convolutional LSTM	2022-23	CSE
394.	Google glass based real-time scene analysis for visual impaired	2022-23	CSE
395.	Traffic sign recognation based deep learning	2022-23	CSE
396.	IoT for wastewater management	2022-23	CSE
397.	Face Recognition Using Convolutional Neural Networks	2022-23	CSE
398.	Development of an Automated Multidirectional Pest Sampling Detection System using Motorized Sticky Traps	2022-23	CSE
399.	Multi-channel blockchain scheme for internet of vehicles	2022-23	CSE
400.	SPYWARE	2022-23	CSE
401.	Multifunctional Electronic Skin with a stack of Temperature and Pressure Sensor Arrays.	2022-23	CSE
402.	Multilayer Convolution Neural Network for the Classification of Mango Leaves Infected by Anthracnose Disease	2022-23	CSE
403.	Visual place recognition From Eye reflection	2022-23	CSE
404.	Real Time Chat Bots and Their Application	2022-23	CSE
405.	A Framework to make Voting system transparent using Blockchain Technology	2022-23	CSE
406.	Accessing Trustworthy AI in times of COVID-19	2022-23	CSE
407.	Credit Card Fraud Detection Using State-of-the-Art Machine Learning and Deep Learning Algorithms	2022-23	CSE
408.	Scalable Reliable Multicast Using Multiple Multicast Channels	2022-23	CSE
409.	Medical diagnosis using AI algorithms	2022-23	CSE
410.	Smart Assistive System for Visually Impaired People Obstruction Avoidance Through Object Detection and	2022-23	CSE

	Classification		
411.	Wi-vi technology	2022-23	CSE
412.	Webrtc role in real-time communication and conferencing	2022-23	CSE
413.	CAPTCHA in security	2022-23	CSE
414.	Real Time Android Application for Traffic Density Estimation	2022-23	CSE
415.	Framework for implementing air quality monitoring system using LPWA - based IOT technique	2022-23	CSE
416.	Biometric Recognition of Infants using Fingerprint, Iris, and Ear Biometrics	2022-23	CSE
417.	Google Glass-Based Classroom Feedback System to Improve Students to Teacher Communication	2022-23	CSE
418.	Multi-AUV Inspection for Process Monitoring of Underwater Oil Transportation.	2022-23	CSE
419.	Federated Deep Learning for Cyber Security in the Internet of Things	2022-23	CSE
420.	Chatgpt Technology	2022-23	CSE
421.	Lightweight Multilayer Random Forests for Monitoring Driver Emotional Status	2022-23	CSE
422.	Tackling imbalanced data in cybersecurity with transfer learning: a case with ROP payload detection	2022-23	CSE
423.	Multiclass Prediction Model for Student Grade Prediction Using Machine Learning	2022-23	CSE
424.	3D-Touchless Full-3D Fingerprint Recognition System Based on Laser Sensing	2022-23	CSE
425.	Optical Security System	2022-23	CSE
426.	Vein Biometric Recognition on a Smartphone	2022-23	CSE
427.	Convolution neural network based online teaching method using cloud -edge computing platform	2022-23	CSE
428.	Adversary-Aware Multimodal Neural Networks for Cancer Susceptibility Prediction From Multiomics Data	2022-23	CSE
429.	Visual place recognition from eye reflection	2022-23	CSE
430.	Pedestrian Detection	2022-23	CSE
431.	Real-time human action recognition using raw depth video-based recurrent neural networks .	2022-23	CSE
432.	Supporting Targeted Advertising in Integrated Broadcast-Broadband Systems With Automatic Media Content Preparation	2022-23	CSE
433.	Edge-Cloud Computing and Artificial Intelligence in Internet of Medical Things.	2022-23	CSE
434.	Federated Video Analytics With Edge Computing	2022-23	CSE
435.	Improving Security of Web-Based Application Using MoD Security and Revers Proxy in Web Application Firewall	2021-22	CSE
436.	DNA computing for RGB image encryption with Genetic Algorithm	2021-22	CSE
437.	The role of Iot during Covid-19	2021-22	CSE
438.	Stochastic Neural Networks for Cryptocurrency Price	2021-22	CSE

	Prediction		
439.	Detecting spam email with ML optimized with bio inspired metaheuristic algorithm	2021-22	CSE
440.	A method and system for program management of security chip protection	2021-22	CSE
441.	Monitoring and controlling industrial parameters- cloud computing	2021-22	CSE
442.	Advanced Machine Learning Methods for Brain Compute Interfacing	2021-22	CSE
443.	Face recognition using neural networking	2021-22	CSE
444.	Metaverse	2021-22	CSE
445.	Cloud storage	2021-22	CSE
446.	A Combined Object Detection Method with Application to Pedestrian Detection	2021-22	CSE
447.	Smart Note Takers	2021-22	CSE
448.	IoT Based Smart Shopping Cart Using Radio Frequency	2021-22	CSE
449.	An Electronic Voting System using Blockchain and Fingerprint Authentication	2021-22	CSE
450.	Text to image	2021-22	CSE
451.	EMS: An Energy Management Scheme for Green IoT Environment	2021-22	CSE
452.	CAPTCHA AI problem	2021-22	CSE
453.	The Practical Effectiveness of Advanced Driver Assistance Systems at Different Roadway Facilities: System Limitation, Adoption, and Using	2021-22	CSE
454.	Li-Fi Technology	2021-22	CSE
455.	Data Poison Detection Scheme for Distributed Machine Learning	2021-22	CSE
456.	Fabric-IOT: A Blockchain-Based Access Control System in IoT	2021-22	CSE
457.	Digital transaction	2021-22	CSE
458.	Apple Plant Leaf Disease Detection using Deep Learning and Convolutional Neural Network	2021-22	CSE
459.	Making of Night Vision: Object Detection Under Low Illumination	2021-22	CSE
460.	Breast Cancer classification using Deep Learning	2021-22	CSE
461.	Blockchain for COVID-19 Contact Tracing & Vaccine Support	2021-22	CSE
462.	Secure CAPTCHAs via Object Segment Collages	2021-22	CSE
463.	Automobile Driver Fingerprinting-A New Machine Learning Based Authentication Scheme	2021-22	CSE
464.	Development of control System for Fruit Classification Based on Convolution Neural Network	2021-22	CSE
465.	Improving the testing efficiency of selenium-based load tests	2021-22	CSE
466.	Detecting Spam Email with Machine Learning Optimized with Bio-Inspired	2021-22	CSE

	Metaheuristic Algorithms		
467.	Artificial intelligence for enhanced mobility and 5G connectivity in UAV based critical missions	2021-22	CSE
468.	Mind reading computer using machine learning	2021-22	CSE
469.	Voice-Activated Smart Home Controller Using Machine Learning.	2021-22	CSE
470.	RESS-IoT: A Scalable Energy- efficient MAC protocol for Direct- to -Satellite IoT	2021-22	CSE
471.	Machine Learning techniques for 5G and Beyond	2021-22	CSE
472.	Robust low-cost passive UHF RFID Based Smart Shopping Trolley	2021-22	CSE
473.	Automated software testing Tools.	2021-22	CSE
474.	Blockchain-based Dashcam Video Management Method.	2021-22	CSE
475.	Fluid Temperature Detection Based on its Sound with a Deep Learning Approach	2021-22	CSE
476.	Fruit Grading system using machine learning	2021-22	CSE
477.	Automated Inspection System in Manufacturing Field	2021-22	CSE
478.	Fog computing	2021-22	CSE
479.	Cross Border payment with Blockchain	2021-22	CSE
480.	Crypto currency	2021-22	CSE
481.	Brain computer interface system for epilepsy	2022-23	ECE
482.	Estimation of mean arterial pressure from ECG and BP using mathematical model	2022-23	ECE
483.	Study of sleep disorder types using ECG and EEG features	2022-23	ECE
484.	Automatic Number Plate Recognition	2022-23	ECE
485.	E Skin	2022-23	ECE
486.	A drone-based sensing system to support satellite image analysis for Rice farm mapping	2022-23	ECE
487.	Palm vein recognition through fusion of texture based and CNN based methods	2022-23	ECE
488.	Cloud computing: the emerging technology	2022-23	ECE
489.	Wireless communication technologies in internet of things	2022-23	ECE
490.	Real time embedded system for automobile automation	2022-23	ECE
491.	Fuzzy logic based control system	2022-23	ECE
492.	Automatic Solar Panel Cleaning System	2022-23	ECE
493.	Geriatric Care System Using Electronically Controlled Air Jacket	2022-23	ECE
494.	3D holographic projection	2022-23	ECE
495.	CHATGPT	2022-23	ECE
496.	Indian open source processor	2022-23	ECE
497.	SDLC	2022-23	ECE
498.	6G wireless communication networks	2022-23	ECE
499.	Ethical hacking	2022-23	ECE
500.	Spintronics Technology	2022-23	ECE
501.	Salesforce:The Future Of Crm Technology	2022-23	ECE

502.	Advances In Optical Fiber Sensors Based On Mmi	2022-23	ECE
503.	Chatbot For E-Commerce	2022-23	ECE
504.	Carbon Nano Field Effect Transistor	2022-23	ECE
505.	Telemedicine System	2022-23	ECE
506.	Wireless Charging of Mobile Phone Using Microwave	2022-23	ECE
507.	Extream Ultraviolet Lithography	2022-23	ECE
508.	Plastic Electronics	2022-23	ECE
509.	High Speed Non-violet optical memory	2022-23	ECE
510.	Night Vision Technology	2021-22	ECE
511.	An Ad hoc Network for Wireless Technology: DakNet	2021-22	ECE
512.	Metaverse - The Extended Reality	2021-22	ECE
513.	Wearable Devices for the Detection of COVID-19	2021-22	ECE
514.	Block Chain Technology	2021-22	ECE
515.	Blue Eyes Technology	2021-22	ECE
516.	IoT based Air Pollution Monitoring System	2021-22	ECE
517.	Electronic Bomb	2021-22	ECE
518.	Answer Evaluation System Using Language Process Algorithm	2021-22	ECE
519.	Human Computer Interface	2021-22	ECE
520.	Agricultural Model for Crop Prediction on the Region Belts of India	2021-22	ECE
521.	SKL Based Fake Reviews Detection	2021-22	ECE
522.	Smart Security Box	2021-22	ECE
523.	Skinput Technology	2021-22	ECE
524.	Android Based Home Automation System	2021-22	ECE
525.	Wireless Charging of Electric Vehicles	2021-22	ECE
526.	Airbone Internet	2021-22	ECE
527.	Electronic Toll Collection	2021-22	ECE
528.	Wireless Patient Health Monitoring System	2021-22	ECE
529.	Space Robotics	2021-22	ECE
530.	An Efficient Approach of Taking Quick AND Simple Notes in Air through Smart Note Taker	2021-22	ECE
531.	Automated Communication of Emails and Dynamic Attachments through RPA Blue Prism	2021-22	ECE
532.	Google Glass	2021-22	ECE
533.	Edge Computing	2021-22	ECE
534.	Solar Tree: An Epic Source of Energy.	2021-22	ECE
535.	Smart Quill	2021-22	ECE
536.	Recent Advances in Vehicle-Embedded Systems	2021-22	ECE
537.	Underwater Wireless Sensor Networks	2021-22	ECE
538.	Biometrically Secured ATM System	2021-22	ECE
539.	Multiple Laser Alarm System Using Arduino UNO	2021-22	ECE
540.	V2X, Vehicle to Everything	2021-22	ECE

541.	E-Ball Technology	2021-22	ECE
542.	Automatic Rain Sensing Wiper	2021-22	ECE
543.	Smart Medical Mirror.	2021-22	ECE
544.	Automated public Transport Ticketing System	2021-22	ECE
545.	Design for Testability in Timely Testing of VLSI Circuits	2021-22	ECE
546.	String Battery	2021-22	ECE
547.	LI-FI, Optical Wireless Technology	2021-22	ECE
548.	Poly Fuse	2021-22	ECE
549.	Infrared plastic solar cell technology	2020-21	ECE
550.	Atomic scale memory at a silicon surface	2020-21	ECE
551.	E-ink display technology	2020-21	ECE
552.	Solar tree	2020-21	ECE
553.	Battery less smart phones	2020-21	ECE
554.	Barcode technology	2020-21	ECE
555.	E-textile	2020-21	ECE
556.	Finfet Technology	2020-21	ECE
557.	Bio battery	2020-21	ECE
558.	Augmented reality in industry	2020-21	ECE
559.	Electronic nose	2020-21	ECE
560.	WIBREE TECHNOLOGY	2020-21	ECE
561.	Ecommerce-opportunities and challenges	2020-21	ECE
562.	Biochips	2020-21	ECE
563.	Nanotechnology	2020-21	ECE
564.	Surge current protection using superconductors	2020-21	ECE
565.	Hybrid Power Generation System Using Solar Energy and Wind Energy	2020-21	ECE
566.	Paper battery	2020-21	ECE
567.	Multilayer organic light emitting diode	2020-21	ECE
568.	Wireless power transmission technology	2020-21	ECE
569.	Plasmonics	2020-21	ECE
570.	Life detection system	2020-21	ECE
571.	Electronics bus ticketing system	2020-21	ECE
572.	BLUE BRAIN-Bringing A Virtual Brain To Life	2020-21	ECE
573.	Wireless communications and applications Above100ghz opportunities and challenges for and beyond	2020-21	ECE
574.	Navigation with Indian constellation Navie	2020-21	ECE
575.	E-waste management	2020-21	ECE
576.	White led	2020-21	ECE
577.	Gi-fi technology	2020-21	ECE
578.	Lean and Kanban Methodology	2020-21	ECE
579.	Polymer light emitting diode	2020-21	ECE
580.	Artificial intelligence for enhancing	2020-21	ECE

	Clinical medicine		
581.	Towards a Wireless and Low-Power Infrastructure for Representing Information Based on E-Paper Displays	2020-21	ECE
582.	Cruise control	2020-21	ECE
583.	Firewall: the cyber security	2020-21	ECE
584.	Organic Light Emitting Diode	2019-20	ECE
585.	Navigation with Indian constellation (NavIC)	2019-20	ECE
586.	Artificial Intelligence in Power Systems	2019-20	ECE
587.	HAWKEYE Technology	2019-20	ECE
588.	Adaptive Headlight System	2019-20	ECE
589.	Bionic Eye	2019-20	ECE
590.	A Scenario on Big Data	2019-20	ECE
591.	Protein based Memory	2019-20	ECE
592.	Paper Battery	2019-20	ECE
593.	Laser Communication	2019-20	ECE
594.	Face Recognition Technology	2019-20	ECE
595.	Smart Dust Technology	2019-20	ECE
596.	Underwater Wireless Communication	2019-20	ECE
597.	Wearable Biosensors Technology	2019-20	ECE
598.	Blue Brain Technology	2019-20	ECE
599.	Smart Antenna for Mobile Communication	2019-20	ECE
600.	Bio Battery	2019-20	ECE
601.	Brain Gate Technology	2019-20	ECE
602.	5g Wireless Technology	2019-20	ECE
603.	Rain Technology	2019-20	ECE
604.	Solar Tree	2019-20	ECE
605.	GIFI Next Generation Wireless Technology	2019-20	ECE
606.	Pill Camera	2019-20	ECE
607.	Space solar power	2019-20	ECE
608.	Solar mobile charger	2019-20	ECE
609.	Wireless Intelligent Network	2019-20	ECE
610.	Rfid Tag System	2019-20	ECE
611.	Microelectronic pill	2019-20	ECE
612.	Smart power generation from waste heat by Thermoelectric genetator	2019-20	ECE
613.	Silent Sound Technology	2019-20	ECE
614.	Haptic Technology	2019-20	ECE
615.	Google Glass	2019-20	ECE
616.	Mems Technology	2019-20	ECE
617.	Augmented Reality in industry 4.0	2019-20	ECE
618.	9G mobile Technology	2019-20	ECE
619.	Plasma antenna Technology	2019-20	ECE
620.	Automatic meter Reading	2019-20	ECE

621.	Ayla Networks ny Ayla	2018-19	ECE
622.	Watson IoT Platform	2018-19	ECE
623.	Virtual Reality	2018-19	ECE
624.	RIOT OS IOT Devices	2018-19	ECE
625.	Things Speak web Service for IoT	2018-19	ECE
626.	Optical Heterodyning in Microwave Photonic Receiver for Radar Applications	2018-19	ECE
627.	Attendance and Security Assurance using Image Processing	2018-19	ECE
628.	Wireless Power transfer Solution for Smart-Charger with RF Energy Harvesting in Public Area	2018-19	ECE
629.	Lite OS	2018-19	ECE
630.	TinyOS	2018-19	ECE
631.	Nano RK OS	2018-19	ECE
632.	Micro LED Displays	2018-19	ECE
633.	Polytronics	2018-19	ECE
634.	Free Space Optics	2018-19	ECE
635.	Infrared Plastic Solar Cell	2018-19	ECE
636.	Gi-Fi Technology	2018-19	ECE
637.	Smart Antennas for Satellite Communication on the Move	2018-19	ECE
638.	Multicore Processor Technology	2018-19	ECE
639.	Skin put Technology	2018-19	ECE
640.	Brain Computer Interface	2018-19	ECE
641.	Laser Guided Missile	2018-19	ECE
642.	Li-Fi Technology in Traffic Light	2018-19	ECE
643.	CONtiki OS	2018-19	ECE
644.	Touch less Touch screen technology	2018-19	ECE
645.	BOSCH IOT Suite	2018-19	ECE
646.	Seamless Access Networks using Radio-Over-Fiber Technology for High-Speed Trains	2018-19	ECE
647.	Wireless Power Transfer	2018-19	ECE
648.	Gigahertz Wireless Power Transmission for Solar Power Satellite	2018-19	ECE
649.	Vehicle management system	2018-19	ECE
650.	Landline Detection using Impulse Ground Penetrating Radar	2018-19	ECE
651.	Ultra Wide band technology Creating a Wireless World	2018-19	ECE
652.	SAMSUNG Artik IOT Platform	2018-19	ECE
653.	Mind sphere by Siemens IOT Platform	2018-19	ECE
654.	Microsoft Azure IOT Platform	2018-19	ECE
655.	LoRa WAN	2018-19	ECE
656.	Laser Frequiency Combs for Coherent optical Communications	2018-19	ECE
657.	Zetta:An API-First IOT Platform	2018-19	ECE
658.	Battery Les Phone	2018-19	ECE
659.	Agricultural Robotics	2018-19	ECE
660.	Underwater Wireless Communication	2018-19	ECE

661.	Internet Protocol Television network	2018-19	ECE
662.	Tsunami Warning System	2018-19	ECE
663.	Sales force IOT Cloud	2018-19	ECE
664.	Real sense OS foe X	2018-19	ECE
665.	Mocana IOT Platform	2018-19	ECE
666.	Battery less phone	2018-19	EEE
667.	Tesla coil wireless power transmission	2018-19	EEE
668.	Increasing transfer capability of the transmission system using the methodological data	2018-19	EEE
669.	Cloud based automated irrigation and plant leaf disease detection system using an android application	2018-19	EEE
670.	Community energy storage	2018-19	EEE
671.	Artificial intelligence and robotics	2018-19	EEE
672.	Prevention of distribution transformer premature failures	2018-19	EEE
673.	Laser guided missiles	2018-19	EEE
674.	Vortex bladeless wind power generator	2018-19	EEE
675.	Plastic Electronics based conformable electronic circuits	2018-19	EEE
676.	High temperature conductors	2018-19	EEE
677.	Vertically mounted bifacial photovoltaic modules	2018-19	EEE
678.	Protection challenges under bulk penetration of renewable energy resources in power systems	2018-19	EEE
679.	Fault location on mixed overhead line and cable transmission networks	2018-19	EEE
680.	Cloud based automatic street light monitoring system	2018-19	EEE
681.	A review of recent trends in wireless power transfer technology and its application in electric vehicle wireless charging	2018-19	EEE
682.	Brain computer interface	2018-19	EEE
683.	Generation of electricity from ocean waves	2018-19	EEE
684.	Electric grid disaster response management	2018-19	EEE
685.	Infrared plastic solar cell	2018-19	EEE
686.	Design and modeling of dc/dc boost converter for mobile device application	2018-19	EEE
687.	Modern Electrical Machine Design Optimization: Techniques, Trends and Best Practices	2018-19	EEE
688.	Power quality enhancement of variable frequency drive by PWM bridgeless dual boost converter	2018-19	EEE
689.	Utilization of energy storages to secure electricity supply in electricity distribution network	2018-19	EEE

690.	Tsunami warning system	2018-19	EEE
691.	Artificial intelligence in solar energy application	2018-19	EEE
692.	Electric vehicle charging station technologies based on smart grid	2018-19	EEE
693.	Fire fighting robotic vehicle	2018-19	EEE
694.	Artificial intelligence in power system	2018-19	EEE
695.	Night vision technology	2018-19	EEE
696.	Electricity production coupled with waste water treatment using microbial fuel cell	2018-19	EEE
697.	Blue brain	2018-19	EEE
698.	Advancement in inverter technology for industrial applications	2018-19	EEE
699.	Hybrid battery technology with battery management system	2018-19	EEE
700.	Advanced communication through flesh redtaction	2018-19	EEE
701.	Overview of Adaptive Protection System for modern power system	2018-19	EEE
702.	Utilities investments into residential properties: PV solar system	2018-19	EEE
703.	Smart grid challenges, issues and solutions	2018-19	EEE
704.	Recent advances in industrial wireless sensor networks towards efficient management in IOT	2018-19	EEE
705.	Solid waste management	2018-19	EEE
706.	Gas insulated substation	2018-19	EEE
707.	Automatic charging lane for electric vehicle	2018-19	EEE
708.	Nano generators	2018-19	EEE
709.	Plasma Antenna	2018-19	EEE
710.	Eddy current brake- An advanced braking system	2018-19	EEE
711.	Wireless smart grid design for monitoring and optimization electric transmission	2018-19	EEE
712.	G2V and V2G Electric vehicle charger for smart grids	2018-19	EEE
713.	Development of high efficiency photovoltaic solar cell	2019-20	EEE
714.	Smart solutions for smart city : Digital Solutions for a more livable future	2019-20	EEE
715.	Optimization of Electric drives for traction applications	2019-20	EEE
716.	Wireless Power Transmission Via Solar Power Satellite	2019-20	EEE
717.	Magenn Power Air Rotor System	2019-20	EEE
718.	A greener approach to harvest energy using piezo speed breaker	2019-20	EEE

719.	Touchless touch screen technology	2019-20	EEE
720.	AUGEMTED Reality	2019-20	EEE
721.	Artificial Eye	2019-20	EEE
722.	Vortex Induced Vibration Resonant Wind Generators	2019-20	EEE
723.	Air Powered Car – Future of Transportation	2019-20	EEE
724.	Automatic changeover switch (with step loading) for renewable energy systems	2019-20	EEE
725.	Recent development in HVDC	2019-20	EEE
726.	RedTacton- A Human Area Networking Technology	2019-20	EEE
727.	Wireless power sharing	2019-20	EEE
728.	Graphene Battery	2019-20	EEE
729.	Microgrid energy management system	2019-20	EEE
730.	Recent Advancements is design of Amorphous core transformer	2019-20	EEE
731.	Optical Computer- A Future of Technology	2019-20	EEE
732.	Infrared Thermography: A versatile technology for condition monitoring and energy conservation	2019-20	EEE
733.	IONTOPHORESIS	2019-20	EEE
734.	Robotic monitoring of power systems	2019-20	EEE
735.	Electricity and Industry 4.0	2019-20	EEE
736.	SUNBOT: Solar cells that track the sun like sunflower	2019-20	EEE
737.	Google Glass	2019-20	EEE
738.	HVDC Light	2019-20	EEE
739.	A uW Backscatter-Morse-Leaf Sensor for Low-Power Agricultural Wireless Sensor Networks	2019-20	EEE
740.	Electrical Machines in Electric Aircraft and their impact on the environment	2019-20	EEE
741.	Leafshafed Triboelectric Nanogenerators	2019-20	EEE
742.	Power Generation System using SCO2	2019-20	EEE
743.	Virtual Labs of conventional electric machines	2019-20	EEE
744.	Hybrid Electrical Vehicle with Reduced Voltage Induction Motor Drive	2019-20	EEE
745.	Recent Advancement in super capacitor Technology	2019-20	EEE
746.	Blue Brain Technology	2019-20	EEE
747.	Brain gate Technology	2019-20	EEE
748.	6G Mobile Technology	2019-20	EEE
749.	A Comprehensive Survey on PMU Application of WAMS	2019-20	EEE

750.	Artificial Intelligence and power station	2019-20	EEE
751.	Recent Advancements in Distribution Automation	2019-20	EEE
752.	Plasmonic Conversion of Solar Energy	2019-20	EEE
753.	Augmented Reality in Industry 4.0: Industrial Perspective	2019-20	EEE
754.	3D Integrated Circuits	2019-20	EEE
755.	Carbon Nan tube based paper battery	2019-20	EEE
756.	LPG Gas Leakage sensor	2019-20	EEE
757.	Smart transmission system by HVDC and facts	2019-20	EEE
758.	Solar thermal power	2019-20	EEE
759.	Controlled AC Electrical Drives`	2019-20	EEE
760.	Harnessing electricity by rain drop	2019-20	EEE
761.	Biometric Authentication	2019-20	EEE
762.	Current measurement using optical current transformer	2019-20	EEE
763.	Carbon nano tubes in solar panel technology	2019-20	EEE
764.	Current Li ion Battery Technologies in electrical vehicles and opportunities for advancement	2019-20	EEE
765.	MPPT controller for PV and wind energy conversion systems	2020-21	EEE
766.	Speed control of DC motor using PIC controller.	2020-21	EEE
767.	Design and development of solar Bi-Cycle	2020-21	EEE
768.	Designing of Smart drip Irrigation System for remote hilly areas	2020-21	EEE
769.	Speed Control of BLDC Motor using PWM Technique	2020-21	EEE
770.	ARDUINO in latest technology	2020-21	EEE
771.	Image Segmentation and Feature Extraction	2020-21	EEE
772.	Digital Image Processing	2020-21	EEE
773.	Non-isolated DC to DC boost converter for renewable energy systems	2020-21	EEE
774.	Wind Turbine Condition Monitoring and Fault Diagnosis	2020-21	EEE
775.	Modeling and simulation of wind turbine generator using MATLAB-simulink	2020-21	EEE
776.	Integrated DC to AC converter for hybrid power system	2020-21	EEE
777.	Autonomous vehicle control using image processing	2020-21	EEE
778.	Electrical Tricycle	2020-21	EEE
779.	PCA Implementation in power system	2020-21	EEE
780.	Early Event detection in power system	2020-21	EEE
781.	Artificial Intelligence in power system	2020-21	EEE

782.	Modeling of solar PV array in hybrid power system	2020-21	EEE
783.	Speed control of BLDC motor using FLC	2020-21	EEE
784.	Convolution Neural Network	2020-21	EEE
785.	Solar Tracking System using Microcontroller	2020-21	EEE
786.	Performance analysis of BLDC Motor under varying load	2020-21	EEE
787.	Image Processing for weed detection in Agriculture	2020-21	EEE
788.	Different Pole Arc and Different Magnet Combination to Reduce the Cogging Torque in PMDC Motors	2020-21	EEE
789.	Analysis of optical character recognition technology	2020-21	EEE
790.	Working of permanent magnet brushless under over voltage.	2020-21	EEE
791.	Wind turbine performance analysis for energy cost minimization.	2020-21	EEE
792.	Wind turbine blade design.	2020-21	EEE
793.	Advancements in solar power satellite & space rectenna systems.	2021-22	EEE
794.	Internet of things in power system.	2021-22	EEE
795.	Recent trends in silent sound technology	2021-22	EEE
796.	Recent advances in use of thermoelectric materials in renewable energy generation.	2021-22	EEE
797.	Variable frequency drive & its industrial applications.	2021-22	EEE
798.	Power Electronics in Renewable Energy systems.	2021-22	EEE
799.	Battery power management for portable devices.	2021-22	EEE
800.	Battery power management IC's	2021-22	EEE
801.	Sustainable energy system with HVDC transmission.	2021-22	EEE
802.	Recent development in Maglev Train	2021-22	EEE
803.	Automatic braking system using ultrasonic sensor.	2021-22	EEE
804.	Hybrid Electric vehicles.	2021-22	EEE
805.	Electricity theft detection & localization in smart grids for Industry 4.0	2021-22	EEE
806.	Flexible lithium ion planer thin film battery.	2021-22	EEE
807.	Single electron Transistor	2021-22	EEE
808.	Ultrasonic motor	2021-22	EEE
809.	PMU based wide area monitoring system in Indian power grid.	2021-22	EEE
810.	Fault detection & classification using PMU measurements.	2021-22	EEE
811.	Cascading failure in power grid analysis & algorithms.	2021-22	EEE
812.	Infrared plastic solar cell.	2021-22	EEE
813.	Skin put technology	2021-22	EEE
814.	Blue eyes technology	2021-22	EEE
815.	Advances in wireless electricity Transmission.	2021-22	EEE
816.	Bio Battery	2021-22	EEE
817.	Advances in Inverter technology for industry application.	2021-22	EEE

818.	Intelligent management of electrical systems in industries.	2021-22	EEE
819.	PPTC devices for protection of battery packs.	2021-22	EEE
820.	Net zero energy building	2021-22	EEE
821.	Electrical Bio chip technology-A tool for microarrays & continuous monitoring.	2021-22	EEE
822.	Recent technologies on under water optical communication system.	2021-22	EEE
823.	Air cooling using unsaturated air.	2021-22	EEE
824.	Detection of illegal Electricity usage.	2021-22	EEE
825.	Power system blackout: Research motivations & challenges.	2021-22	EEE
826.	Hyperloop Transportation System	2022-23	EEE
827.	Global Progress towards Renewable Electricity: Tracking the role of solar	2022-23	EEE
828.	Smart grid Management using AI & ML	2022-23	EEE
829.	Automatic Substation load Shedding and Sharing	2022-23	EEE
830.	Fault identification of power equipment based on image preprocessing	2022-23	EEE
831.	Autonomous underwater vehicle	2022-23	EEE
832.	Use of GPS Navigation for driverless cars	2022-23	EEE
833.	Object detection using Deep learning	2022-23	EEE
834.	Bladeless Wind Turbine	2022-23	EEE
835.	Graphene Super capacitor	2022-23	EEE
836.	The Future Robotics Technology	2022-23	EEE
837.	Application of Virtual reality Technology for study of power system	2022-23	EEE
838.	Smart Load Control	2022-23	EEE
839.	Wave Energy Converter	2022-23	EEE
840.	Smart Farming the Future of Modern Agriculture	2022-23	EEE
841.	HVDC Light-A New Technology Analysis	2022-23	EEE
842.	Fuel cell power generation	2022-23	EEE
843.	Tsunami Early Warning System	2022-23	EEE

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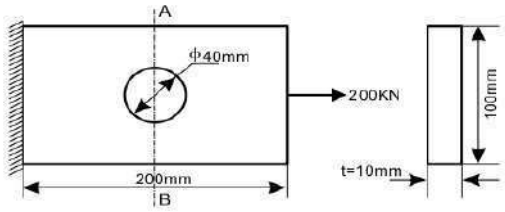
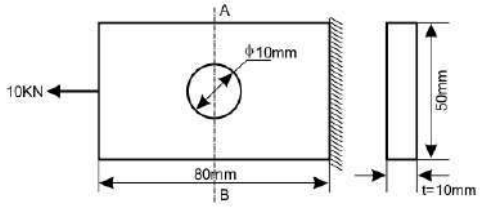
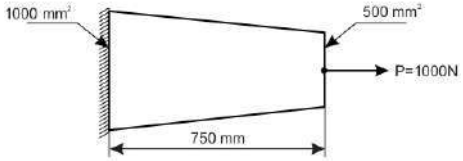
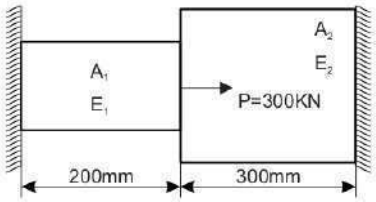
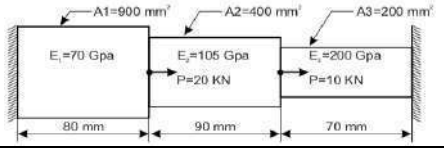
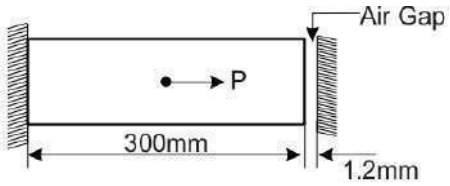
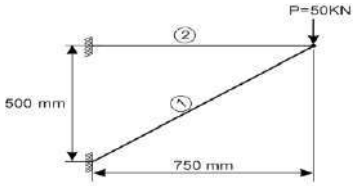
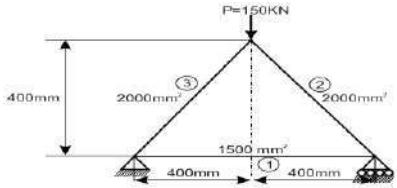
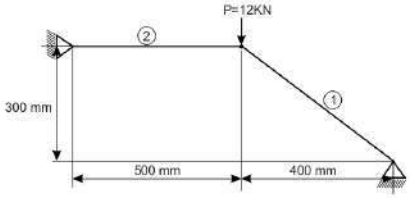
List of experiments conducted by the students

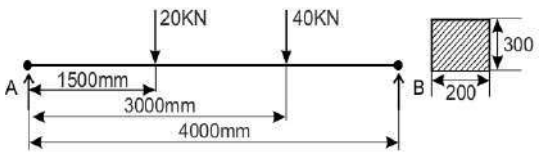
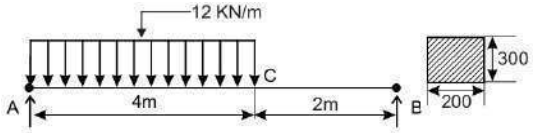
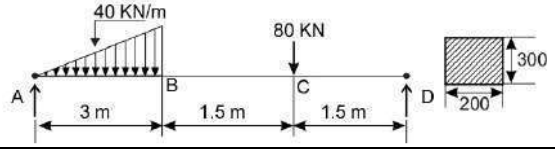
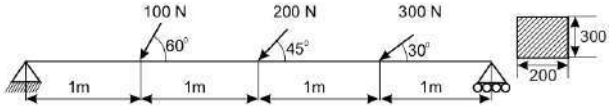
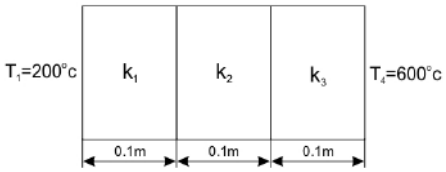
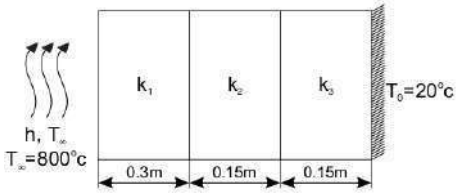
Institute is permanently affiliated to the Visvesvaraya Technological University, Belgaum. In view of NEP-2020 based revised curriculum of the affiliated university, the following experiments are conducted by the students as per the time table during every academic year. The lab journal/report submitted by the student, observations and results of each experiment, discussion on results and conclusions are continuously evaluated by the course coordinator as per the university guidelines. The realization of theoretical concepts and experimental results of each student are also evaluated in the internal assessment after completion of all experiments of the course through proper rubrics and in the semester end exams as per the university guidelines by the internal and external evaluators. The students are also conducted the integrated lab experiments of professional core courses (IPCC) as per the revised curriculum of the university recommended by AICTE. The following are the list of aims of experiments conducted by the students during last five years.

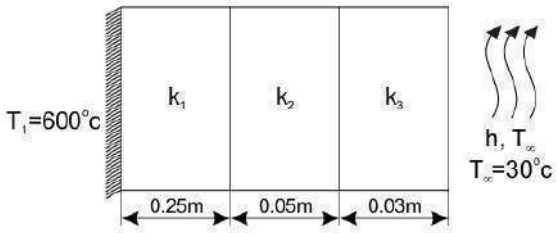
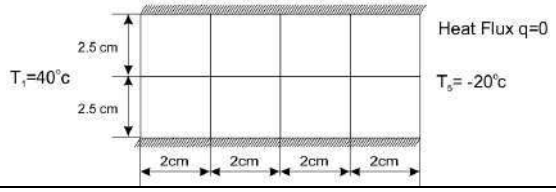
S.N.	Title/Aim of the Experiment	Dept.
1.	To determine the co-efficient of discharge of venturimeter and to draw following graphs. 1) Actual Discharge Vs Head, 2) Co-efficient of Discharge Vs Head	ME
2.	To determine the co-efficient of discharge of Orifice meter and draw the following graphs 1) Actual Discharge Vs Head 2) Co-efficient of Discharge Vs Head	ME
3.	To determine the co-efficient of friction in pipe.	ME
4.	To determine the loss of velocity co-efficient due to minor losses.	ME
5.	To determine the co-efficient of discharge of Triangular or V - Notch.	ME
6.	To determine impact of jet on Vane and to draw the following & to Draw the following Curves, 1) Discharge V/s efficiency, 2) Discharge V/s force Lifted.	ME
7.	To study the performance of a centrifugal pump at constant speed. and to draw the following Curves,1) Head Vs Overall efficiency. 2) Head Vs output Power.	ME
8.	To study the performance of Reciprocating Pump at constant speed and to draw the following a curves. 1) Head Vs Overall efficiency, 2) Head Vs output Power.	ME
9.	To study the performance of Pelton wheel under various load conditions and to draw following graphs. 1) Speed Vs Output power, 2) Speed Vs Efficiency	ME
10.	To study the performance of Francis Turbine at constant head and to draw following graphs. 1) Speed Vs Output power 2) Speed Vs Efficiency	ME

11.	To study the performance of Kaplan Turbine at constant head and to draw following graphs. 1) Speed Vs Output power 2) Speed Vs Efficiency	ME
12.	To determine the volumetric efficiency of an Air compressor.	ME
13.	To determine the flash point of given sample of oil by using Cleavland Apparatus	ME
14.	To determine the flash point of given sample of oil by using Penesky Martins Apparatus.	ME
15.	To determine the flash point of given sample of oil by using Abel's Apparatus.	ME
16.	To determine the viscosity of given sample of oil by using Redwood Viscometer.	ME
17.	To determine the viscosity of given sample of oil by using Saybolt Viscometer.	ME
18.	To determine the viscosity of given sample of oil by using Torsion Viscometer.	ME
19.	To determine the calorific value of solid fuel by using Bomb Calorimeter.	ME
20.	To determine the calorific value of liquid fuel by using Junkers Gas Calorimeter.	ME
21.	To conduct a performance test on two strokes single cylinder petrol engine.	ME
22.	To prepare the heat balance sheet on two stroke single cylinder petrol engine.	ME
23.	To conduct performance test on the VCR engine under compression ratio _____ & draw the graphs. (1. Sfc vs BP and 2. Mfc vs BP)	ME
24.	To prepare the heat balance sheet on the VCR engine under compression ratio ____	ME
25.	To conduct a performance test on the four stroke single cylinder diesel engine & draw the graphs. (1. Sfc vs BP and 2. Mfc vs BP)	ME
26.	To prepare the heat balance sheet on the four stroke single cylinder diesel engine.	ME
27.	Determination of equilibrium speed, sensitiveness, power, controlling force & Effort of Porter Governor.	ME
28.	Determination of equilibrium speed, sensitiveness, power, controlling force & Effort of Proell Governor.	ME
29.	To verify the gyroscope relationship $C=I\ \omega\ \omega p$ Where:-I =moment of inertia. ω = angular velocity of rotor. Rad./sec. ωp= angular velocity of precision. Rad/ sec.	ME
30.	To determine the critical speed of a shaft and compare the actual value with the theoretical value.	ME
31.	To determine static deflection, stiffness of the given spring & also find the natural Frequency of spring mass system. (Free Longitudinal Vibration).	ME
32.	To study the forced vibrations of equivalent spring mass damper system under different damping conditions, and plot the Amplitude v/s Frequency curve.	ME
33.	To determine the natural frequency, Torsional stiffness, logarithmic decrement, damping ratio, damping coefficient for torsional viscous damper. Also plot the graph of damping ratio v/s depth of immersion.	ME
34.	To conduct an experiment on balancing of rotating masses for both Static balance and dynamic balance.	ME
35.	To conduct the performance test on the Journal Bearing and study the effect of speed and load on the pressure distribution in Journal Bearing.	ME
36.	Determination of material fringe value and fringe constant for photo elastic material using circular disc.	ME
37.	Determination of fringe constant of photo elastic material using four point Bending	ME

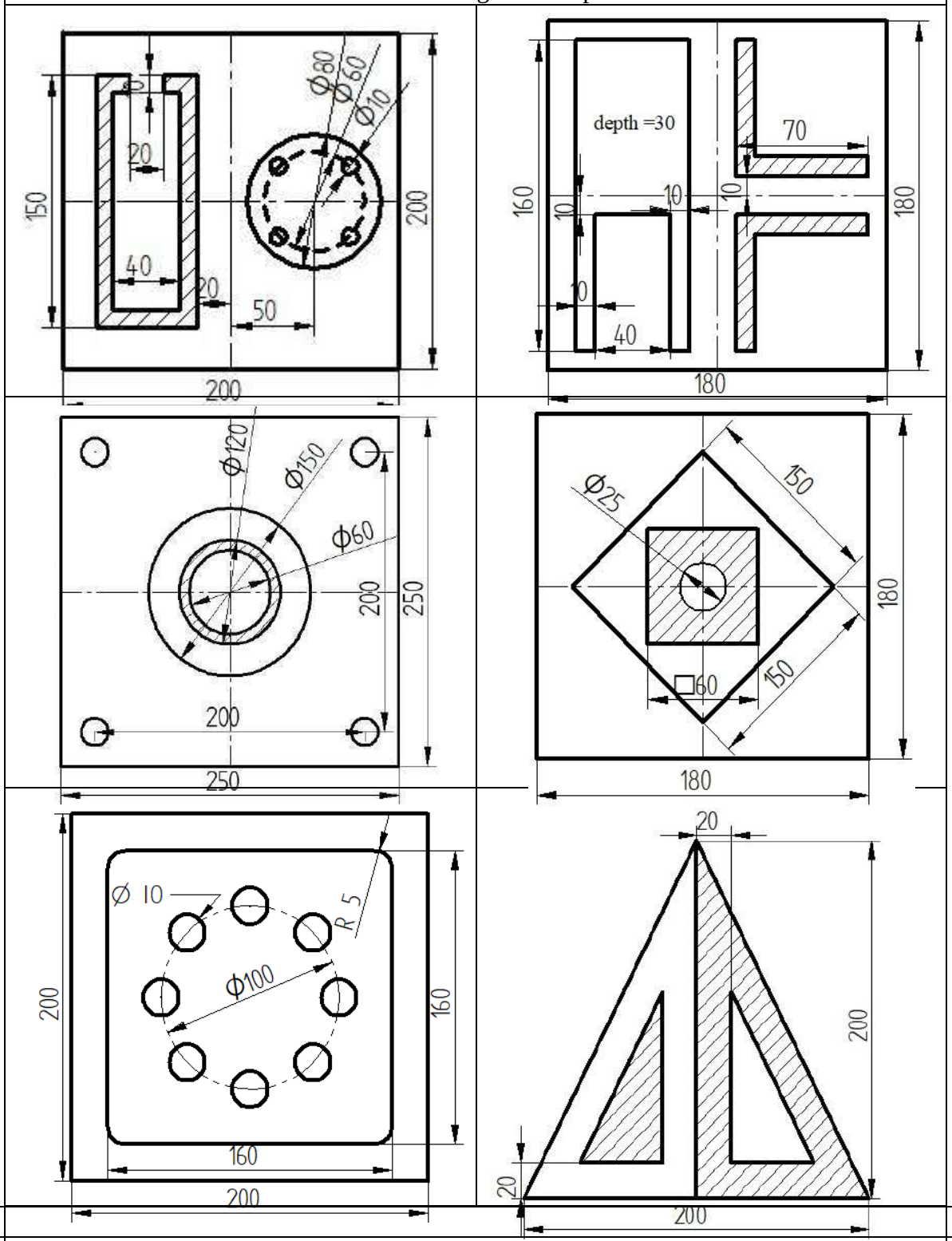
	arrangement	
38.	In a plate with a circular hole under axial loading. Find deformed shape of hole & determine maximum stress distribution along AB, thickness of plate is 10mm & Dia. of hole is 40mm, size of plate is 200mm X 100mm & axial load is 200KN. One end is fixed, other end is free. **Take E= 2X10^{5}MPa.** 	ME
39.	In a plate with a circular hole under axial loading. Find deformed shape of hole & determine maximum stress distribution along AB, thickness of plate is 10mm & Dia. of hole is 10mm, size of plate is 80mm x 50mm & axial load is10KN. One end is fixed, other end is free. **Take E= 2X10^{5}MPa?** 	ME
40.	Determine the Nodal Displacement, Stresses & reaction forces for the tapered bar, the cross-sectional area decreases linearly from 1000mm^2 to 500mm^2.Young's Modulus E = 2 x 10^5 N/mm^2 ? **Area A_1 = 1000 mm^2 A_2 = 500 mm^2** 	ME
41.	Find the Nodal Solution for the stepped bar both ends are fixed as shown in figure. It is subjected to axial load of 300KN. Also Determine displacement stress and reactions? **Area A_1=900 mm^2, A_2 = 1200 mm^2,** **E_1 = 70 x10^{3}N/ mm^2, E_2 = 200 x 10^3 N/mm^2** 	ME
42.	Find the Nodal Displacement, stresses and reaction solutions for the structure as shown in the figure?	ME

		
43.	Determine the Nodal Displacement, Reaction Solution & Stress for the given bar? E = 200 X 10^3 N/mm^2, P = 60 X 10^3 N A1 = A2 = 250mm^2 	ME
44.	For given truss find the following points? 1) Nodal Displacement, 2) Stresses 3) Reaction Solutions for a truss? Take Young's Modulus **E = 2 x 10^5 N/mm^2** **Area A_1= 1200mm^2 A_2= 1000mm^2** 	ME
45.	For a three bar truss as shown in figure. Determine: Nodal Displacement, Stresses. Reaction Solutions for the truss? Take Young's Modulus **E = 200 Gpa.** 	ME
46.	For given truss find the following points? 1.Nodal Displacement, 2. Stresses, 3. Reaction Solutions for a truss? Take Young's Modulus **E = 200 Gpa, A_1 = A_2 = 200mm^2** 	ME
47.	Simply supported beam subjected to concentrated load compute the shear force (SFD) and bending moment diagram (BMD) for the beam as shown in fig. and reaction at the supports. Take rectangular C/S area is 200mm x 300mm? **E = 2 x 10^5 N/mm^2**	ME

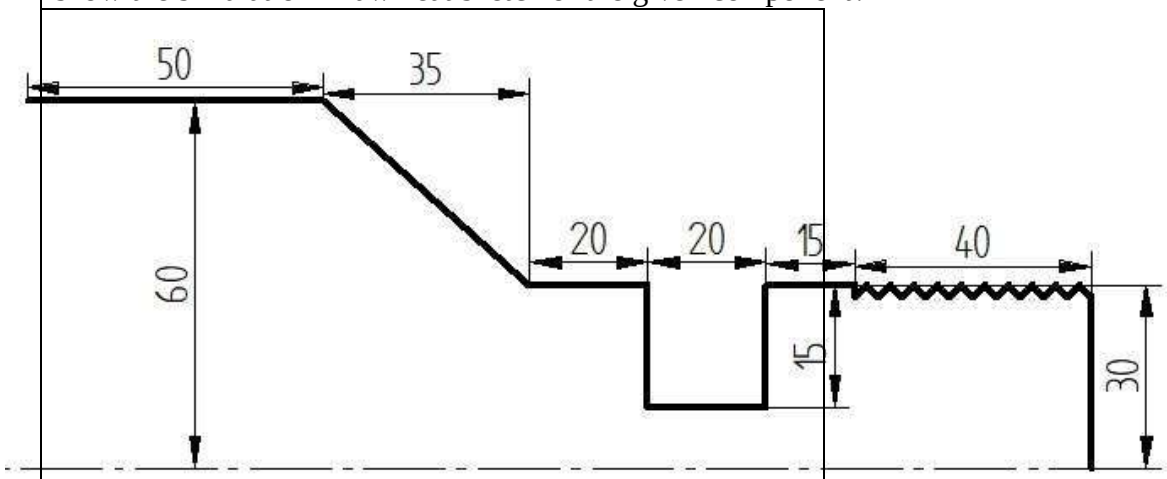
		
48.	Determine shear force and bending moment for the Beam element as shown in Fig.? Take **E = 2 x 10^5 MPa** **A = 200 x 300 mm^2** 	ME
49.	Find the shear force and bending moments for the Beam element as shown in Fig.? **E = 2 x 10^5 MPa A = 200 x 300 mm^2** 	ME
50.	Determine the SFD & BMD for the Beam as shown in Fig. 	ME
51.	and  Determine the Natural Frequency Mode shape for fixed beam. **E = 2.068 X 10^{11} N/m^2 =7830 kg/m^3**	ME
52.	For the element as shown in Fig. The left end has constant Temperature T_1=200°c & right end has temperature T_4=600 °c. Take **K_1 =5W/m°c. K_2 =10W/m°c. K_3=15W/m°c. Area of element = 0.1m^2** 	ME
53.	A composite wall consists of 3 material as shown in Fig. The outer temperature is T0=20°c convection heat transfer takes place on inner surface of wall with T∞ =800°c & fin co-efficient h=25 w/m°c. Determine intermediate temperature of wall. Given **K_1 =20W/m°c. K_2 =30W/m°c. K_3=50W/m°c.** 	ME
54.	A composite wall is made of 3 layers as shown in Fig. Their thermal conductivities are K_1=8.5W/mK, K_2=0.25W/mK, K_3=0.08W/mK. Rate of	ME

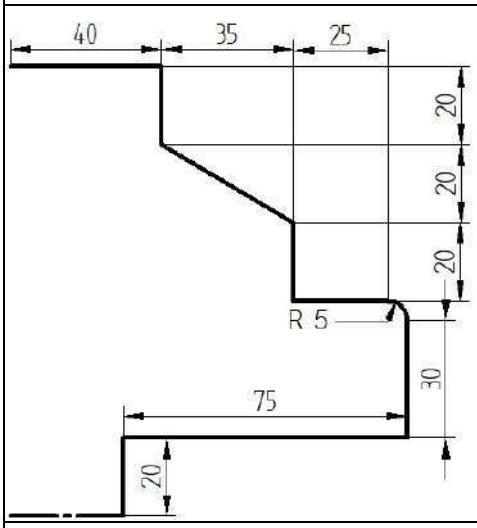
	heat transfer co-efficient h=45W/m^2 K. Assume c/s area A=1m^2, T_1=600°C, T_∞ =30°C. Determine intermediate temperature of given wall. 	
55.	For body as shown in Fig. Determine the temperature distribution. The body is insulated along top & bottom edges, K_{xx} = K_{yy} = 1.7307 w/m° C. No internal heat generation is present. **Heat Flux q=0** 	ME

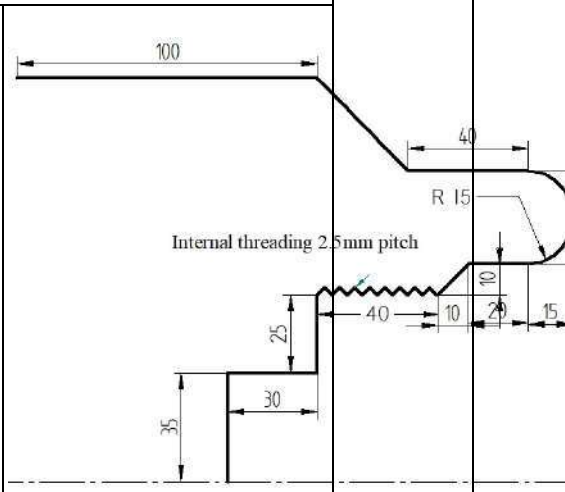
56.	write a brief procedure and simulate the following component using CAM software and show the simulation Draw neat sketch of the given component?	ME
57.		ME
58.	write a brief procedure and simulate the following component using CAM software and	ME

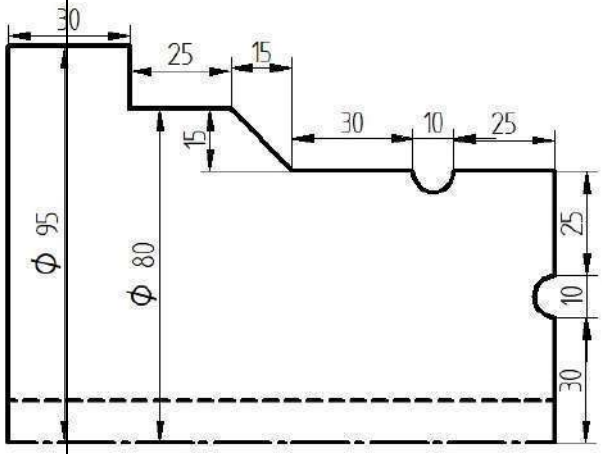


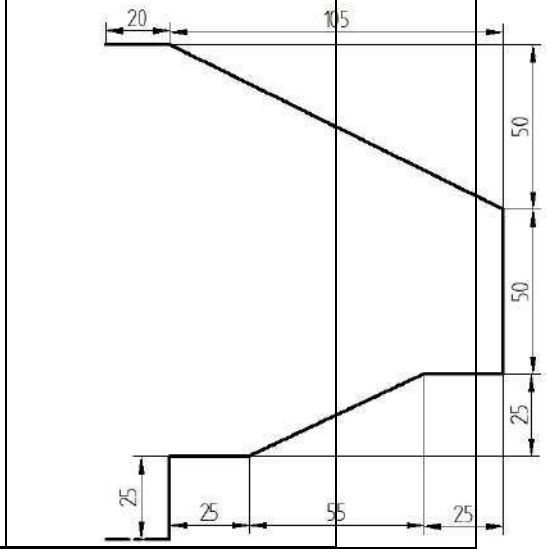
show the simulation Draw neat sketch of the given component?



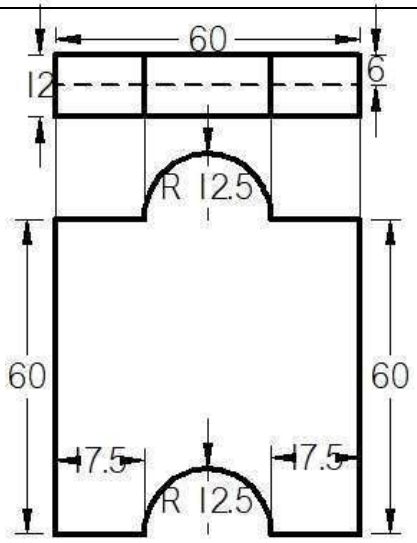


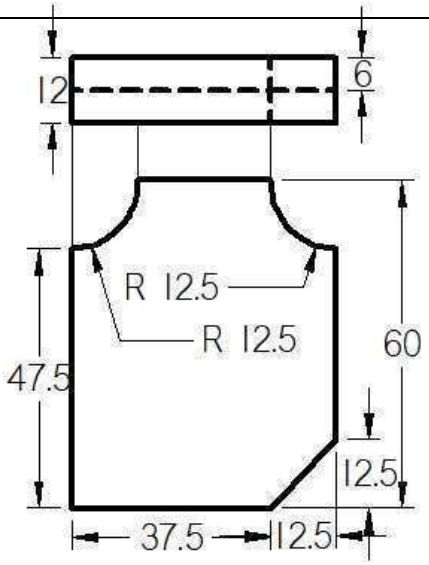


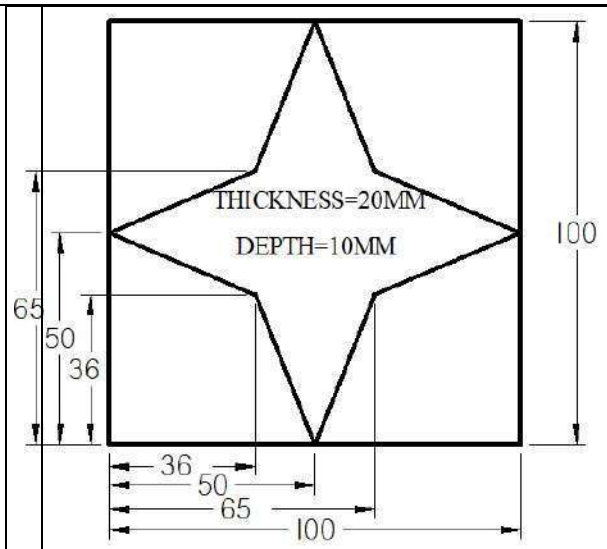


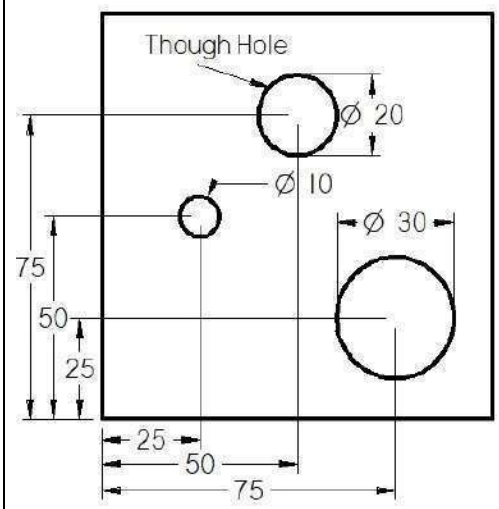


59.	Write a manual part programme for given component and verify the Simulation using NCVerify Software.	ME



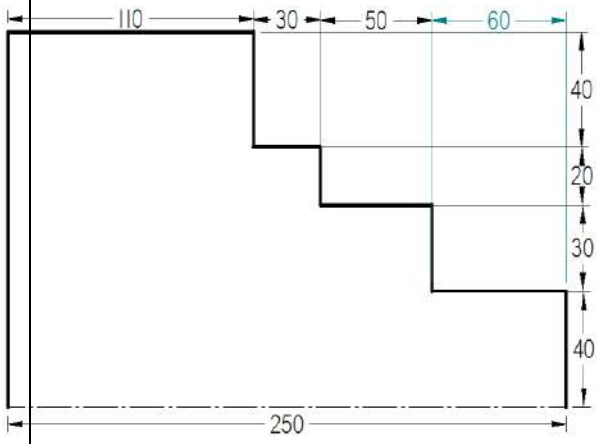


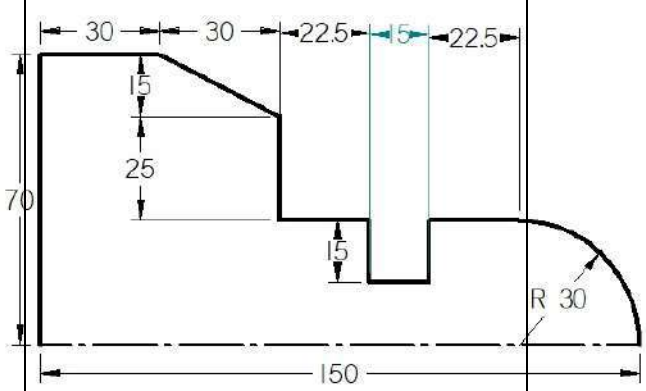




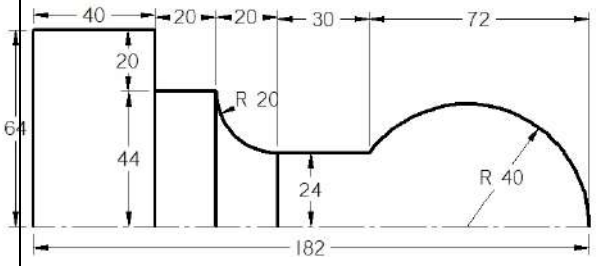
60. Write a manual part programme for given component and verify the Simulation using NCVerify Software — ME

B8

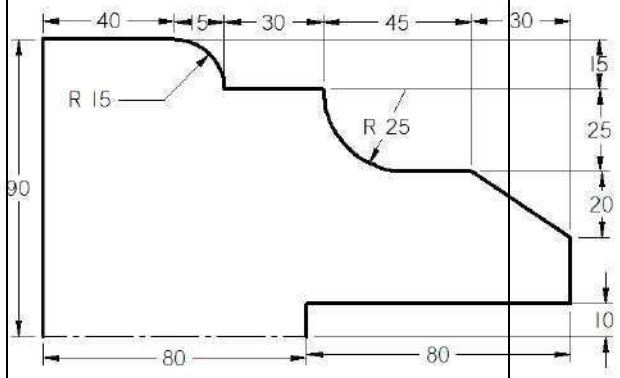




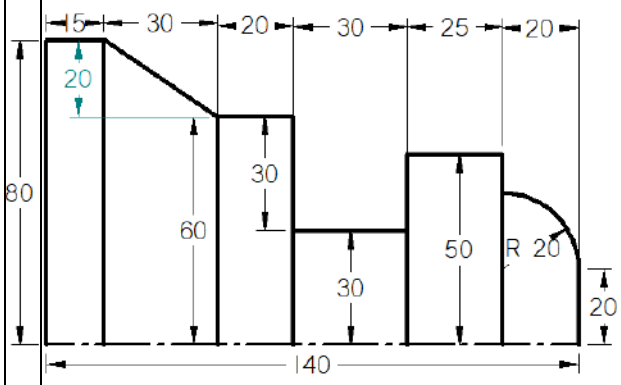
B9



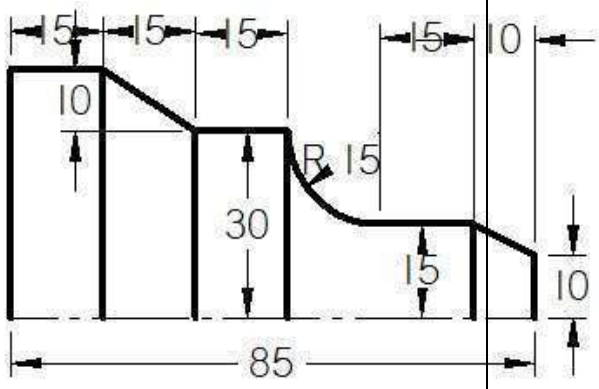
B10



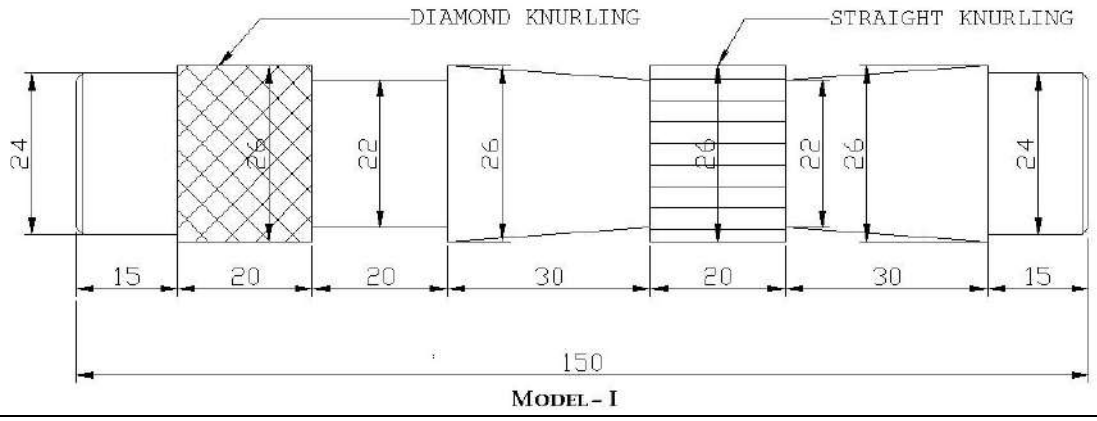
B11



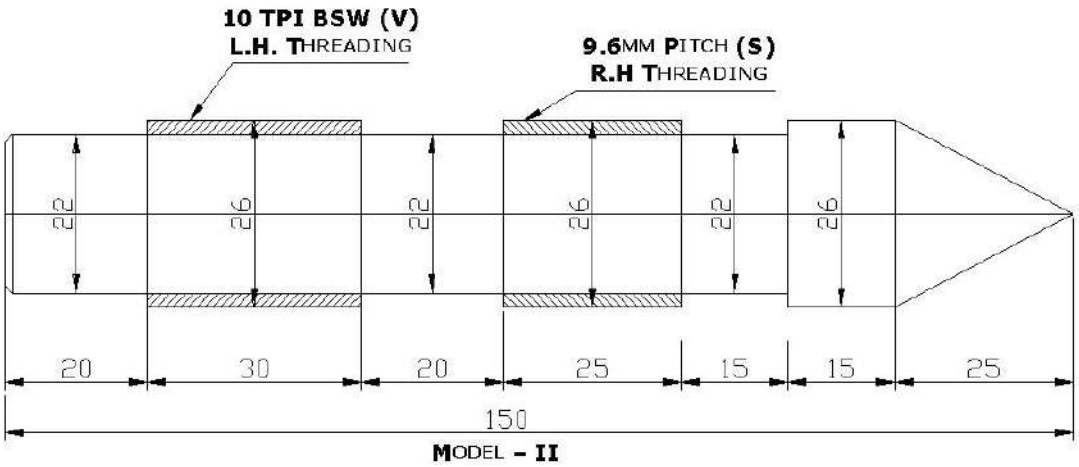
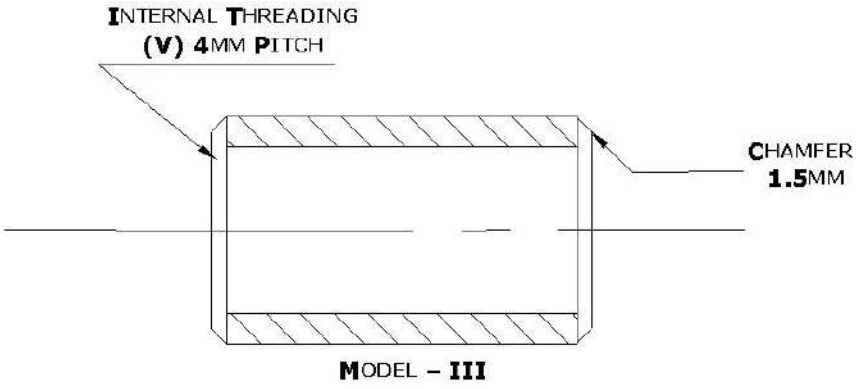
B12



61. **Aim:** To perform machine cutting operations on a given metal rod to obtain the model shown below. ME



MODEL – I

62.	**AIM:** To perform machine cutting operations on a given metal rod to obtain the model shown below.  MODEL – II	ME
63.	**Aim:** To perform machine cutting operations on a given metal rod to obtain the model shown below  MODEL – III	ME
64.	To determine the Rockwell hardness number of given specimen.	ME
65.	To determine the Brinell hardness number of given specimen.	ME
66.	To determine strength of notched mild steel specimen using Izod impact test.	ME
67.	To determine strength of notched mild steel specimen using Charpy Impact test.	ME
68.	To determine Tensile Strength of Mild steel specimen.	ME
69.	To determine compressive strength of a wooden specimen when loaded. 1) Along the grains. 2) Across the grains.	ME
70.	To determine the torsional strength of the given mild steel specimen.	ME
71.	To determine the crack in given weld using penetration Test.	ME
72.	To etch the surface of the prepared sample using suitable element to observe the	ME

	constituents of the micro-structure.	
73.	To conduct static bending test on timber.	ME
74.	To determine the ultimate shear stress of the given specimen in single and double shear.	ME
75.	Heat Treatment of Mild steel.	ME
76.	To determine the co-efficient of friction under test of the given material. To determine the weight loss of given material under wear tester.	ME
77.	To study the ultrasonic flow detector and to determine the location of the interior crack of cavity given specimen	ME
78.	To detect the surface or subsurface crack of the given ferromagnetic material.	ME
79.	To study slip gauges and build up a slip gauge for given dimensions.	ME
80.	To calibrate the given load cell with the help of fulcrum weights.	ME
81.	To calibrate the thermocouple using glass thermometer.	ME
82.	To determine the straightness & flatness of surface by using autocollimator.	ME
83.	To determination of experimental young's modulus of aluminum specimen by using strain gauges and compare with theoretical young's modulus.	ME
84.	To calibrate the micrometer using slip gauges.	ME
85.	To calibrate the LVDT with respect to micrometer by spring core method.	ME
86.	To study the use of bevel protractor and to measure the angle.	ME
87.	To measurement of angles using sine bar.	ME
88.	To measurement of angles using sine centre.	ME
89.	To measurement of gear tooth profile using gear tooth Vernier caliper.	ME
90.	To measurement of the linear and angular parameters of screw thread using toolmaker's microscope.	ME
91.	To measurement of the screw thread parameters using three wire method.	ME
92.	To study the flatness of the surface by using optical flats.	ME
93.	To conduct an experiment to find out the compression strength of the given sand test specimen.	ME
94.	To conduct an experiment to find out the shear strength of the given sand test specimen.	ME
95.	To find the grain fineness no of the given sand sample.	ME
96.	To determine the percentage of clay in the given sand sample.	ME
97.	To determine the permeability no of given sand sample.	ME
98.	To cut an ellipse of given dimensions.	ME
99.	To make equilateral triangle core in a circle.	ME
100.	To make hexagonal cavity in a square.	ME
101.	To make round bar to square bar.	ME
102.	To make eye hook in a round bar.	ME
103.	To make round headed bolt using round bar.	ME

104.	Determination of Thermal Conductivity of a Metal Rod.	ME
105.	Determination of Overall Heat Transfer Coefficient of a Composite wall.	ME
106.	Determination of Effectiveness on a Metallic fin.	ME
107.	Determination of Heat Transfer Coefficient in a free Convection on a vertical tube.	ME
108.	Determination of Heat Transfer Coefficient in a Forced Convention Flow through a Pipe.	ME
109.	Determination of Emissivity of a Surface.	ME
110.	Determination of Stefan Boltzman Constant.	ME
111.	Determination of LMDT and Effectiveness in a Parallel Flow and Counter Flow Heat Exchangers	ME
112.	Experiments on Boiling of Liquid and Condensation of Vapour	ME
113.	Performance Test on a Vapour Compression Refrigeration.	ME
114.	Performance Test on a Vapour Compression Air - Conditioner	ME
115.	Experiment on Transient Conduction Heat Transfer.	ME
116.	Draw the projection of the following points on the same XY line, keeping convenient distance between each projector. Name the Quadrants in which they lie. A - 30 mm above HP & 35 mm in front of VP. B - 35 mm above HP & 40 mm behind VP. C - 40 mm above HP & on VP. D - 35 mm below HP & 30mm in front of VP.	ME
117.	Draw the projection of the following points on the same XY line, keeping convenient distance between each projector. Name the Quadrants in which they lie. E - 30 mm below HP & 25 mm behind VP. F - 35 mm below HP & 30mm in front of VP. G - On HP & 30mm in front of VP. H - On HP & 30 mm behind VP.	ME
118.	Draw and state the quadrants in which the following points are located. Assume any distance. A - Front view below XY line & top view above XY line. B - Front & Top views are below XY line. C - Front & Top views are above XY line. D - Front view above XY line & top view below XY line.	ME
119.	A point 30mm above XY line is the front view of two points A& B. The top view of A is 40 mm behind VP & the top view of B is 45 mm front of VP draw the projection of the points & state the quadrants in which the points are situated.	ME
120.	A point A is 30mm in front of VP and 40 mm above HP. Another point B is 20 mm behind VP & 35 mm below hp The horizontal distance between the points measured parallel to XY line is 60mm. Draw the three projections of the points. Join their front and top views.	ME
121.	Draw all the three views of a point P lying 60mm below HP 70 mm in front of VP and 40 mm from the RPP. Also state the quadrants in which it lies.	ME
122.	A point P is on HP and 30 mm in front of VP. Another point Q is on VP and below HP. The line joining their front views makes an angle of 30° to XY line while the line joining	ME

	their top views makes an angle of 45° with XY line. Find the distance of the point Q from HP.	
123.	Two points R & S on HP. The point R is 35 mm in front of VP. While S is 50 mm behind VP. The line joining their top views makes an angle of 40° with XY. Find the horizontal distance between the two projectors.	ME
124.	A point G is 25mm below HP & situated in the third quadrant its shortest distance from XY line is 45 mm. Draw its projections and find its distance from VP.	ME
125.	A point S is in the first quadrant and equidistance of 50 mm from all the three principle planes Draw the projection of the point. Draw all the three views of the point.	ME
126.	Draw the projection of point G which is in first quadrant such that it is equidistance from HP & VP. The point is 25mm from RPP. Determine its distances from HP & VP.	ME
127.	A point R is 25mm above HP & 20mm in front of VP. Another point S is on HP & 30mm behind VP. The distance between their projectors measured parallel to the line of intersection of VP & HP is 50mm. Find the distance between the top views of points R & S.	ME
128.	A point M is on HP & 30 mm in front of VP. Another point N is 20mm below HP and 20mm in front of VP. The distance between their projectors measured parallel to XY line is 50mm. Find the distance between front views of the points M & N.	ME
129.	A point P is on HP and 30 mm infront of VP. Another point Q is on VP and 40mm above HP. The distance between their projectors parallel to XY line is 50mm. Find the distance between their front and top views of the points p and Q.	ME
130.	A point P is 30mm in front of VP, 40mm above HP and 50mm from RPP. Draw its projections.	ME
131.	The point P is 45mm above HP, 60 mm behind VP and 30mm from RPP. Draw the three principles view of the point. Also state the quadrant in which it lies.	ME
132.	Draw all the three view of a point P lying 60mm below HP, 70mm infront of VP and 40 mm from the RPP. Also state the quadrant in which it lies.	ME
133.	A point is 30mm in front of VP, 20mm above HP & 25 mm in front/behind/ from LPP. Draw its projections and name the side view.	ME
134.	A point is 40mm behind VP, 15mm above HP and 25 mm in front/behind/ from LPP. Draw the projection and name the side view.	ME
135.	A point is 30mm behind VP, 30mm above HP and 25 mm in front/behind/ from LPP. Draw the projection and name the side view.	ME
136.	A point is lying on HP, 20mm behind VP and 25mm behind/in front/from RPP. Draw the projection and name the side view.	ME
137.	A point is 35mm below HP, 20mm behind VP and 25mm behind/in front/ from RPP. Draw its projections and name the side view.	ME
138.	A point is lying on VP, 20mm below HP and 30mm behind/in front/from LPP. Draw the projection and name the side view.	ME
139.	A point A is 20mm above HP & 25 mm infront of VP. Another point B is 25mm behind VP and 40mm below HP. Draw their projections when the distance between their projectors parallel to XY line is zero mm. add the right side view only to point B.	ME
140.	Draw the projections of the following points on the same XY line, keeping convenient distance between each projector. Name the Quadrants in which they lie.	ME

	P – 20 mm above HP & 35mm infront of VP. Q – 30mm above HP & 40mm behind VP. R – 40mm above HP & on VP. S – 35mm below HP & 30mm infront of VP.	
141.	Draw the projections of the following points on the same XY line, keeping convenient distance between each projector. Name the Quadrants in which they lie. M - 30mm below HP & 25mm behind VP N - 35mm below HP & 30mm in front of VP P – On HP & 30mm infront of VP Q – On HP & 35mm behind VP.	ME
142.	State the Quadrant in which the following points are located. Assume any distances. A - Front view below XY & Top view above XY line B - Front and top views are below XY line. C - Front and top views are above XY line. D - Front view above XY & Top view below XY line.	ME
143.	A point 30mm above XY line is the front view of three points P, Q and R. The top view of R is 40 mm behind VP, the top view of Q is on XY line and top view of point P is 45mm in front of VP. Draw the projections of the points & state the Quadrants in which the points are situated.	ME
144.	A point M is 30mm in front of VP and 20mm above HP. Another point N is 15 mm behind VP & 25mm below HP. The horizontal distance between the points parallel to XY line is 50mm. Draw the projection of the points M& N and join their front and top views. Draw the right side view for the point N only.	ME
145.	The common point 40mm below XY line represents not only the front view of three points A, B and C but also the top view of point C. The top view of point B is lies on XY line and top view of point A is lies 50mm above it. Draw the projection of the points and add the right side view to the point A only. Also state in which quadrants the points lie.	ME
146.	A point A is on HP and 35mm in front of VP. Another point B is on VP and below HP. The line joining their front views makes an angle of 30° to XY line while the line joining their top views makes an angle 45°with XY line. Find the distance of the point B from HP.	ME
147.	Two points P and Q are on HP. The point P is 30mm behind VP, while Q is 50mm in front of VP. The line joining their top views make an angle of 40° with XY. Find the horizontal distance between their projectors parallel to XY line.	ME
148.	A point A is 40 mm in front of VP and is situated in the fourth quadrant. Its shortest distance from the intersection HP & VP is 45mm. Draw its projections. Also find the distance from HP.	ME
149.	A point A is 20mm above HP and in the first quadrant its shortest distance from the XY line is 40mm. draw the projections. Determine the distance from VP.	ME
150.	Draw the projections of the following points on the same XY line, keeping convenient distance between each projector. Name the Quadrants in which they lie. P - 10mm above HP & 15mm in front of VP. Q - 15mm above HP & 25mm behind VP. R – 25mm below HP & in VP.	ME

	S – 40mm above HP & in VP.	
151.	A point P is 25 mm above HP and 20mm in front of VP. Another point Q is on HP and 30 mm behind VP. The distance between their projectors measured parallel to the line of intersection of VP and HP is 50mm. Find the distance between the top views of points P and Q.	ME
152.	A point A is on HP & 30mm infront of VP. Another point B is 20 mm below HP and 20mm In front of VP. The distance between their projectors measured parallel to XY line is 50mm. Find the distance between the front views of the points A & B.	ME
153.	A point P is on HP and 30mm infront of VP. Another Point Q is on VP & 40 mm above HP. The distance between their projectors parallel to XY line is 50mm. Find the distance between their front and top view of the points P & Q.	ME
154.	Draw the projections of a point A lying 30mm above HP and in first quadrant, if its shortest distance form the line of intersection of HP and VP is 50mm. Also find the distance of the point from VP.	ME
155.	Draw the projections of the following points on the same reference XY line & state the Quadrants in which they lie E – 35mm above HP & on VP. F – 30mm below HP & on VP. G – On HP & 25mm behind VP. H – On HP & 30mm infront of VP.	ME
156.	A point 20mm below the reference XY line is the top view of three points P,Q & R. P is 20 mm below HP, Q is 35mm above HP and R is on HP. Draw the projections of the three points and state their position & quadrants in which they situated.	ME
157.	A point is 30 mm in front of VP, 20mm above HP & 25mm infront/behind/ from LPP. Draw its projections and name the side view.	ME
158.	A point is 40mm behind VP, 20mm above HP and 30 mm in front/behind/from LPP. Draw its projections and name the side view.	ME
159.	A point is 30mm behind VP, 30mm above HP and 25mm infront/behind/from RPP. Draw its projections and name the side view.	ME
160.	A point is lying on VP, 10mm below HP & 30mm behind/in front/from LPP. Draw its projections and name the side view.	ME
161.	A point is lying on HP, 20mm behind VP & 35mm behind/in front/from RPP. Draw its projections and name the side view.	ME
162.	A point is 35mm below HP, 15mm behind VP & 25mm behind/in front/from RPP. Draw the projection and name the side view.	ME
163.	A point P is 15 mm above HP & 25mm in front of VP. Another point Q is 25mm behind VP and 40mm below HP. Draw their projections when the distance between their projectors parallel to XY line is zero mm. Add the right side view only to point Q.	ME
164.	Draw the projections of the following points on the same XY line, keeping convenient distance between each projector. Also state the quadrants in which they lie. P - 25mm above HP & 35mm in front of VP Q - 30mm above HP & 40mm in front of VP R - 40mm above HP & on VP S - 35mm below HP & 30mm in front of VP.	ME

165.	Draw the projections of the following points on the same XY line, keeping convenient distance between each projector. Also state the Quadrants in which they lie. A - 30mm below HP & 25mm behind VP. B - 35mm below HP & 30mm in front of VP. C - On HP & 30mm in front of VP. D - On HP & 35mm behind of VP.	ME
166.	A line AB 80mm long has its end A 20 mm above the HP and 30 mm infront of VP. It is inclined at 30 to HP and 45 to VP. Draw the projection of the line and find apparent lengths and apparent inclinations.	ME
167.	A line AB 80mm long is inclined to HP at 30 and inclined to VP at 45. The end A touches both HP & VP. Draw front and top views of line and determine their lengths. Also measure the perpendicular distance of end B from both HP and VP.	ME
168.	A line AB has its end A 20 mm above the HP and 30 mm infront of the VP. The other end B is 60 mm above the HP and 45mm infront of VP. The distance between end projectors is 70 mm. Draw its projections. Determine the true length and apparent inclinations.	ME
169.	A line AB has its end A 20 mm above the HP and 15 mm infront of the VP. The other end B is 60 mm above the HP & 45mm infront of VP. The distance between end projectors is 70 mm. Draw its projections. Determine the apparent lengths and true inclinations.	ME
170.	The top view pq of a straight line is 70 mm and makes an angle of 60 with XY line. The end Q is 10 mm infront of VP and 30 mm above the HP. The difference between the distances of P and Q above the HP is 45 mm. Draw the projections. Determine its true length and true inclinations with HP and VP.	ME
171.	A line PQ 85 mm long has its end P 10 mm above the HP and 15 mm infront of the VP. The top view and front view of line PQ are 75 mm and 80mm respectively. Draw its projections. Also determine the true and apparent inclinations of the line.	ME
172.	A line has its end A 10 mm above Hp and 15 mm infront of VP. The end B is 55 mm above HP and line is inclined at 30 to HP and 35 to VP. The distance between the end projectors is 50 mm. Draw the projections of the line. Determine the true length of the line and its inclinations with VP.	ME
173.	The top view of a line 75 mm long measure 50 mm. The end P is 30 mm infront of VP and 15 mm above HP. The End Q is 15 mm infront of VP and above HP. Draw the Projections of the line and find its true inclinations with HP and VP.	ME
174.	A line AB 60 mm long has one of its extremities 20 mm infront of VP and 15 mm above HP. The line is inclined at 25 to HP and 40 to VP. Draw its top and front views.	ME
175.	A line AB measuring 70 mm has its end A 15mm infront of VP and 20 mm above HP and the other end B is 60mm infront of VP and 50 mm above HP. Draw the projections of the line and find the inclinations of the line with both the reference planes of projections.	ME
176.	The front view of a 90 mm long line which is inclined at45 to the XY line, measures 65 mm. End A is 15 mm above the XY line and is in VP. Draw the projections of the line and find its inclinations with HP and VP.	ME
177.	The distance between the end projectors through the end points of a line AB is 60 mm.	ME

	The end A is 10 mm above HP and 15 mm in front of VP. The end B is 35 mm infront of VP. The line AB appears 70 mm long in the front view. Complete the projections. Find the true length of the line and its inclinations with HP and VP.	
178.	The distance between the end projectors through the end point of a line AB is 40mm. The end A is 20mm above HP and 15mm in front of VP. The end B is 45mm infront of VP. The line AB appears 50mm long in the front view. Complete the projections. Find the true length of the line and its inclination with HP and VP.	ME
179.	The point B of a line AB is on the horizontal plane, the top view of the line makes an angle of 30° with XY line, being 80mm. The point A is on the vertical plane and 50mm above the horizontal plane. Draw the top and front views of the line and obtain the true length of the line. Also find the inclinations of the line with the two planes.	ME
180.	Draw the projections of a straight line AB, 100mm long, inclined at 45° to HP and 30° to VP. The end A is in HP and the end B is in VP. Find the shortest distance between the straight line AB and the line of intersection of planes of projection.	ME
181.	A line AB 100mm long is inclined to HP at 45° and inclined to VP at 30°. End A touches VP & HP. Draw front and top views of line and determine their lengths. Also determine the perpendicular distance of end B from both HP and VP.	ME
182.	The top view of a 75 mm long line AB measures 65 mm, while the front view is 50mm. The one end A is in the H.P and 12mm infront of the VP. Draw the projections of AB and determine its inclinations with the HP and the VP.	ME
183.	A line AB, 65mm long, has its end A 20mm above the HP and 25mm in front of the VP. The end B is 40 mm above the HP and 65mm in front of VP. Draw the projections of AB and show its inclination with the HP and the VP.	ME
184.	A Straight line PQ, 65mm long, is inclined at 45° to HP and 30° to VP. The point P is 70 mm from both the reference planes and the point Q is towards the reference planes. Draw the projections.	ME
185.	A point P is 40mm above HP and 20mm infront of VP another point Q is 20mm above HP and 50 mm in front of VP. The top view of line PQ is inclined at 30° to XY. Draw the projections.	ME
186.	The top view of a line PQ is 70mm and front view is 60mm long. The end Q is nearer to both HP and VP than the end P and is 15mm above HP and 20mm infront of VP. Draw the projections of line if the distance between projectors is 50mm.	ME
187.	A line AB 100mm long measures 80mm in front view and 70mm in top view the midpoint M of the line is 40 mm from both HP and VP. Draw its projection. Find the inclinations.	ME
188.	A line has its end A 15 mm above HP and 10mm infront of VP. The end B is 55mm above HP and the line is inclined at 30° to HP. The distance between the end projectors is 50mm. Draw the projections of line and determine the true length of the line and its inclination with VP.	ME
189.	A line MN 90mm long has a point P on it which divides the line in the ratio 2:1, i.e. MP: PN = 2:1. This point P is 50mm above HP and 60 mm infront of VP. The line is inclined at 35° to HP and 40 to VP. Draw the projection of line. Find the distance between end projector and the position of the ends of line with HP and VP	ME
190.	A straight line PQ inclined at 40° to VP has pq = 60mmand p'q'=50mm. The end P is	ME

	both in HP and VP, and 40 mm to the right of left profile plane. a) Draw the projections of the straight line PQ b) Draw the true length and true inclination with HP. c) Draw the profile view of the straight line. d) Find the position of the end Q with HP and VP.	
191.	A line has one end 30mm in front of VP and 15mm above HP and the other end is 15mm in front of VP and is above HP. Length of the line is 60mm. Top view of the line is 40mm long. Draw the two views of the line and obtain the inclination of the line with HP and VP.	ME
192.	The top view of the line PQ 75mm long measures 50mm.The end P is 30mm in front of VP and 15mm above HP. The ends Q is 15mm in front of VP and above HP. Draw the projections of the line and find its true inclinations with HP and VP. Find length of front view and distance between the end projectors.	ME
193.	A straight line AB measuring 80mm long has the end A in the HP and 25mm in front of the VP. Its midpoint M is 25mm above the HP and 40mm in front of the VP. Draw the projections of the line and determine the inclination of the line with HP and VP.	ME
194.	The front view of the line PQ 80mm long measures 50mm and it is inclined to XY at 50. One end of the line P is 20mm above HP and 25m in front of VP. Draw the front and top view of the line and find the inclinations of the line with HP and VP.	ME
195.	Draw the projections of a line AB 100mm long inclined at 45 to VP and 30 to HP. One end of the line is 20 mm above the HP and in the VP. Also determine the apparent length and inclinations.	ME
196.	Draw the projections of line PQ and find the true length and inclinations when the line is inclined at 30 to the HP and 45 to the VP. The line is having one of its end 15mm above HP and 20mm in front of VP. The distance between the end projectors on the XY line is 60mm.	ME
197.	The top view ab of a straight line AB is 60mm long and makes an angle 30 with the XY line. The end A is in VP and above 30mm HP. The end B is 65mm above HP. Draw the projections of the line AB and determine i) length of the front view. ii) Its true length and true inclinations with the reference plane.	ME
198.	A line AB 65mm long has its end A 25mm above HP and 30mm in front of VP. The other end is 45mm above HP and 50mm in front of VP. Draw the projections and determine its inclinations.	ME
199.	One end of a line is 30mm in front of VP and 30mm above HP. The line is inclined at 40 to HP and its top view measuring 60mm, is inclined at 50 to XY. Draw the projections of the line and determine true length and inclination with VP.	ME
200.	The top view of the line AB 80mm long, measures 65mm. The midpoint of the line is 30 mm in front of VP and 40mm above HP. The point A is in the VP. Draw the projections and find its inclinations.	ME
201.	A straight line PQ is inclined at 45 to HP and 30 to VP. The point P is in HP and the point Q is in VP. The length of the straight line is 65mm. Draw the projections of the straight line AB.	ME
202.	Draw the projections of a line AB 90mm long and find its true and apparent inclinations	ME

	with HP and VP, when its end A is on HP and 20mm in front of VP. Its midpoint M is 20mm above the HP and 40 mm in front of the VP.	
203.	A line PQ is inclined to both HP and VP by 30° and 45 respectively. One of its ends P is at a distance of 10mm from HP and 15mm from VP. The distance between the end projectors is 45mm. Draw the top and front views of the line. Determine the true length of the line and the distance of the end Q from VP and HP.	ME
204.	Two lines AB and AC make an angle of 120 between them in their front view and top view. AB is parallel to both the HP and the VP. Determine the real angle between AB and AC.	ME
205.	The elevation of a line AB 90mm long is inclined at 30° to HP and measures 70mm. The end A is 20mm above HP and is in VP. Draw the projections of the line and find its inclination with VP.	ME
206.	A line PQ measures 80mm in length. The point P is above HP and in front of VP by 10mm and 15mm respectively. The distance between the end projectors is 50mm. The line is inclined to HP by 30°. Draw the projections of the line and specify its true inclination with VP.	ME
207.	The top view of a line PQ 75mm long measures 50mm and the front view measures 60mm. The end P is 30mm above HP and 15 mm in front of VP. Draw the projections of the line and find its true inclinations with HP and VP. Find distance between the end projectors.	ME
208.	A straight line AB measuring 80mm long has the end A in the HP and 25mm in front of VP. Its midpoint M is 25 mm above HP and 40mm in front of VP. Draw the views of the line and determine the inclination of the line with HP and VP and also find distance between end projectors.	ME
209.	The end A of a line AB is in HP and 25mm in front of VP. The end B is in VP and 50mm above HP. The distance between the end projectors when measured parallel to the line of intersection of HP & VP is 65mm. Draw the projections of the line AB and determine its true length and true inclinations with HP & VP.	ME
210.	A line has its end A, 15mm from HP and 10mm from VP. The end B is 55 mm from HP and the line is inclined at 30□ to HP. The distance between the end projectors is 50 mm. Draw the projections of the line. Determine the true length of the line and its inclination with VP.	ME
211.	The end A of a line AB is in HP and 25mm in front of VP. The end B is 10mm in front of VP and 50mm above HP. The distance between the end projectors when measured parallel to the line of intersection of HP & VP is 80 mm. Draw the projections of the line AB and determine its true length and true inclinations with HP & VP.	ME
212.	A straight line PQ 80mm long appears to a length of 50mm and inclined at 30 to xy line in its side view. Draw its projection when its end point P is 15mm above HP and 60mm in front of VP. Point Q is nearer to VP than P.	ME
213.	The top view of a line AB, 80mm long measures 65mm and the length of the front view is 50mm. The end A is on HP and 15mm in front of VP. Draw the projectors.	ME
214.	Draw the projections of a line PQ and find its apparent lengths, true length and true inclination with HP when the line PQ has its end P 25mm above HP and 20mm in front of VP. The distance between the end projectors of the line when measured parallel to the	ME

	line of intersection of the HP & VP is 60mm. The end Q is 50mm above the HP and the line is inclined at 30 to the VP.	
215.	Find the true length and true inclination of a line AB with HP having one of its ends 20mm in front of VP and 30 mm above the HP. The line is inclined at 40° to VP and the left side view of the line is 60 mm long and inclined at 60° to X1Y1 line. Draw all the three views of the line.	ME
216.	An equilateral triangular lamina of 25mm side lies with one of its edges on HP such that the surface of the lamina is inclined to HP at 60°. The edge on which it rests is inclined to VP at 60°. Draw the projections.	ME
217.	An equilateral triangular lamina of 25mm side lies on one of its sides on HP. The lamina makes 45° with HP and one of its medians is inclined at 40° to VP. Draw its projections.	ME
218.	A triangular lamina of 25mm sides rests on one of its corners on VP such that median passing through the corner on which it rests is inclined to HP at 30° and lamina makes an angle 45deg with VP.draw its projections.	ME
219.	A triangular plane figure of sides 25mm is resting onHP with one of its corners, such that the surface of the lamina makes an angle of 60° with HP. If the side opposite to the corner on which the lamina rests makes an angle of 30° with VP, draw the top and front views in this position.	ME
220.	A triangular plane lamina of sides 25mm is resting on HP with one of its corners touching it, such that the side opposite to the corner on which it rests is 15mm above HP and makes an angle of 30° with VP. Draw the top and front views in this position. Also determine the inclination of the lamina to the reference plane.	ME
221.	A 30°-60° setsquare of 60mm longest side is so kept such that the longest side is in HP, making an angle of 30° with VP. The setsquare itself is inclined at 45° to HP. Draw the projections of the setsquare.	ME
222.	An isosceles triangular plate of negligible thickness has base 25mm long and altitude 35mm. it is so placed on HP such that in the front view it is seen as an equilateral triangle of 25mm sides with the side that is parallel to VP is inclined at 45° to HP. Draw its top and front views. Also determine the inclination of the plate with the reference plane.	ME
223.	A square lamina of 40mm side rests on one of its sides on HP. The lamina makes 30° to HP and the side on which it rests makes 45° to VP. Draw its projections.	ME
224.	A square plate of 30mm sides rests on HP such that one of the diagonals is inclined at 30° to HP and 45° to VP. Draw its projections.	ME
225.	A square lamina ABCD of 40mm side rests on corner C such that the diagonal AC appears to be 45° to VP. The two sides BC and CD containing the corner C make equal inclinations with HP. The surface of the lamina makes 30° with HP. Draw its top and front views.	ME
226.	The top views of a square lamina of side 30mm is a rectangle of sides 30mm X 20mm with the longer side of the rectangle being parallel to both HP & VP. Draw the top and front views of the square lamina. What is the inclination of the surface of the lamina with HP and VP?	ME
227.	A rectangular lamina of sides 20mm X 30mm rests on HP on one of its longer edges. The lamina is tilted about the edge on which it rests till its plane surface is inclined to HP at 45°. The edge on which it rests is inclined at 30° to VP. Draw the projections of the	ME

	lamina.	
228.	A rectangular lamina of 35mm X 20mm rests on HP on one of its shorter edges. The lamina is rotated about the edge on which it rests till it appears as a square in the top view. The edge on which the lamina rests being parallel to both HP & VP. Draw its projections and find its inclinations to HP and VP.	ME
229.	A rectangular lamina of 35mm X 20mm rests on HP on one its shorter edges. The lamina is rotated about the edge on which it rests till it appears as a square in the top view. The edge on which the lamina rests is inclined 30° to VP. Draw its projections and find its inclination to HP.	ME
230.	A rectangular lamina of 20mm X 25mm has as edge in HP and adjoining edge in VP, is tilted such that the front view appears as a rectangular of 20mm X 15mm. the edge, which is of VP, is 30mm from the right profile plane. (a) Draw the top view, front view and the left profile view in this position. (b) Find its inclinations with the corresponding principal planes.	ME
231.	The front view of a rectangular lamina of sides 30mm X 20mm sides. Draw the projections and determine the inclinations of the surface of the lamina with HP & VP.	ME
232.	A mirror 30mm X 40mm is inclined to the wall such that its front view is a square of 30mm side. The longer side of the mirror appears perpendicular to both HP and VP. Find the inclination of the mirror with the wall.	ME
233.	A rectangular plate of negligible thickness of size 35mm X 20mm has one of its shorter edges in VP with that edge inclined at 40 ° to HP. Draw the top view if its front view is square of side 20mm.	ME
234.	A pentagonal lamina of edges 25mm is resting on HP with one of its sides such that the surface makes an angle of 60° with HP. The edge on which it rests is inclined at 45° to VP. Draw its projections.	ME
235.	A pentagonal lamina of edges 25mm is resting on HP with one of its corners such that the plane surface makes an angle of 60°e with HP. The two of the edges containing the corner on which the lamina rests makes equal inclinations with HP. When the edge opposite this corner makes an angle of 45° with VP and nearer to the observer, draw the top and front views of the plane lamina in this position.	ME
236.	A pentagonal lamina of edges 25mm is resting on HP with one of its corners such that the edge opposite to this corner is s20mm above HP & makes an angle of 45° with VP. Draw the top and front views of the plane lamina in this position. Determine the inclination of the lamina	ME
237.	A pentagonal lamina of sides 25mm is resting on one of its edges on HP with the corner opposite to the edge touching VP. This edge is parallel to VP and the corner, which touches VP, is at a height of 15mm above HP. Draw the projections of the lamina and determines the inclinations of the lamina with HP and VP and the distance at which the parallel edge lies from VP.	ME
238.	A pentagonal lamina having edges 25mm is placed on one of its corners on HP such that the perpendicular bisector of the edge passing through the corner on which the lamina rests is inclined at 30 to HP and 45 VP. Draw the top and front views of the lamina.	ME
239.	A pentagonal lamina of sides 25mm is having a side both on HP and VP. The corner opposite to the side on which it rests is 15mm above HP. Draw the top front views of the	ME

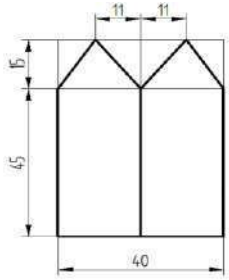
	lamina.	
240.	A pentagonal lamina of sides 25mm is having a side both on HP and VP. The surface of the lamina is inclined at an angle of 60 with HP. Draw the top and front views of the lamina.	ME
241.	A regular pentagonal lamina of 25mm side is resting on one of its corners on HP while the side opposite to this corner touches VP. If the lamina makes an angle of 60 with HP, draw the top and front views of the lamina.	ME
242.	A pentagonal lamina having edges 25mm is placed on one of its corners on HP such that the surface makes an angle 30 with HP and perpendicular bisector of the edge passing through the corner on which the lamina rests appears to be inclined at 30 to VP. Draw the top and front views of the lamina.	ME
243.	A regular pentagonal lamina of 25mm side is resting on one of its sides on HP while the corner opposite to this side touches VP. If the lamina makes an angle of 60 with HP, draw the projections of the lamina.	ME
244.	A pentagonal lamina of edges 25mm is resting on VP with one of its sides such that the surface makes an angle of 60 with VP. The edge on which it is inclined at 45 to HP. Draw its projections.	ME
245.	A pentagonal lamina having edges 25mm is placed on one of its corners on VP such that the surface makes an angle 30 with VP and perpendicular bisector of the edge passing through the corner on which the lamina rests appears to be inclined at 30 to HP. Draw the top and front views of the lamina.	ME
246.	A pentagonal lamina having edges 25mm is placed on one of its corners on VP such that the surface makes an angle 30 with VP and perpendicular bisector of the edge passing through the corner on which the lamina rests is inclined at 45 to HP. Draw the top and front views of the lamina.	ME
247.	A hexagonal lamina of 30mm sides rests on HP with one of its corners touching VP and surface inclined at 45 to it. One of its edges is inclined to HP at 30. Draw the front and top views of the lamina in its final position.	ME
248.	Draw the top and front views of a hexagonal lamina of 30mm sides having two of its edges parallel to both vertical and horizontal planes and one at its edges is 10mm from each of the planes of projection. The surface of the lamina is inclined at an angle of 60 to the HP.	ME
249.	A regular hexagonal lamina of sides 30mm is lying in such way that one of its sides touches both the reference planes. If the lamina makes 60 with HP, draw the projection of the lamina.	ME
250.	A regular hexagonal lamina of side 30mm is lying in such a way that one of its sides touches both the reference planes. If the side opposite to the side on which it rests is 45mm above HP, draw the projections of the lamina.	ME
251.	A regular hexagonal lamina of sides 25mm is laying in such a way that one of its sides on HP while the side opposite to the side on which it rests is on VP. If the lamina makes 60 to HP, draw the projections of the lamina.	ME
252.	A regular hexagonal lamina of side 25mm is lying in such a way that one of its corners on HP while the corner opposite to the corner on which it rests is on VP. If the lamina makes 60 to HP, draw the projections of the lamina.	ME

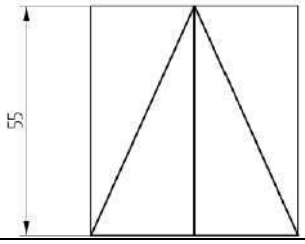
253.	A hexagonal lamina of side 30mm is resting on HP with one of its corners in VP and its surface inclined at an angle of 30 with VP. The diagonal passing through that corner which is in VP is inclined at 45 to HP. Draw the projections of the lamina.	ME
254.	A hexagonal lamina of side 30mm is resting onHP with one of its corners in VP and its surface inclined at an angle of 30 with VP. The diagonal passing through that corner which is in VP appears to be inclined at 40 to HP. Draw the projections of the lamina.	ME
255.	A hexagonal lamina of side 25mm rests on one of its sides on HP. The lamina makes 45 to HP and the side on which it rests makes 30 to VP. Draw its projections.	ME
256.	A hexagonal lamina of side 25mm rests on one of its corners on HP. The lamina makes 45 to HP and the diagonal passing through the corner on which it rest is inclined at 30 to VP. Draw its projections.	ME
257.	A hexagonal lamina of side 25mm rests on one of its corners on HP. The lamina makes 45 to HP and the diagonal passing through the corner on which it rest appears to be inclined at 30 to VP. Draw its projections.	ME
258.	A hexagonal lamina of side 25mm rests on one of its sides on VP. The lamina makes 45 to VP and the side on which it rests makes 45 to HP. Draw its projections.	ME
259.	A hexagonal lamina of side 25mm rests on one of its sides on VP. The side opposite to the side on which it rests is 30mm in front of VP & the side on which it rests makes 45 to HP. Draw its projections. Also determine the inclination of the lamina with the reference plane.	ME
260.	A hexagonal lamina of side 25mm rests on one of its corners on HP. The corner opposite to the corner on which it rests is 35mm above HP and the diagonal passing through the corner on which it rests is inclined at 30 to VP. Draw its projections. Find the inclination of the surface with HP.	ME
261.	Draw the projection of a circular plate of negligible thickness of 50mm diameter resting on HP on a point A on the circumference, with its plane incline at 45 to HP and the top view of the diameter passing through the resting point makes 60 with VP.	ME
262.	A circular lamina of 50mm diameter is standing with one of its points on the rim on HP and lamina inclined at 45 to HP. The diameter at right angles to the diameter which is passing through the point on which the lamina rests is parallel to VP. Draw its projections.	ME
263.	A circular lamina of 50mm diameter rests on HP such that one its diameters is inclined at 30 to VP and 45 to HP. Draw its top and front views in this position.	ME
264.	A circular lamina inclined to the VP appears in the front view as an ellipse of major axis 30mm and minor axis 15mm. the major axis is parallel to both HP and VP. One end of the minor axis is in both the HP and VP. Draw the projection of the lamina and determine the inclination of the lamina with the VP.	ME
265.	A circular lamina of 30mm diameter rest on VP such that one of its diameters is inclined at 30 to VP and HP. Draw its top and front views in this position.	ME
266.	A square prism 35mm sides of base and 65mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30. Draw the projections of the prism when the axis is inclined to HP at 45.	ME
267.	A square prism 35mm sides of base and 60mm axis length rests on HP on one of its	ME

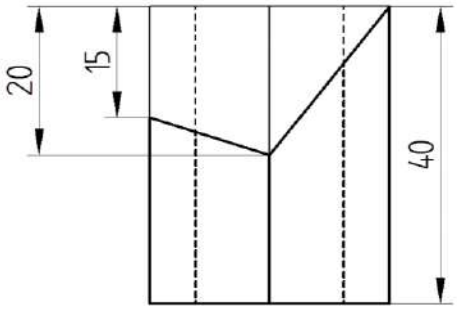
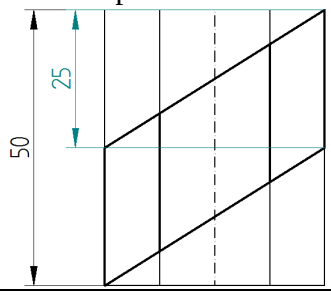
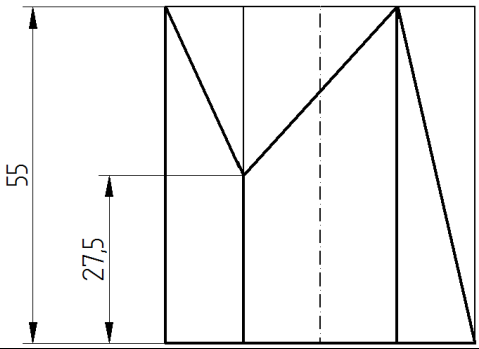
	corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40 and appears to be inclined to VP at 45.	
268.	A square prism 35mm sides of base and 60mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40 and to VP at 30.	ME
269.	A square prism 35mm sides of base and 65mm axis length rests on HP on one of its edges of the base. Draw the projections of the prism when the axis is inclined to HP at 45 and VP at 30.	ME
270.	A pentagonal prism 25mm sides of the base and 60mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30. Draw the projections of the prisms when the axis is inclined to HP at 40.	ME
271.	A pentagonal prism 25mm sides of the base and 60mm axis length rests on HP on one of its edges of the base. Draw the projections of the prisms when the axis is inclined to HP at 40 and VP at 30	ME
272.	A pentagonal prism 25mm sides of the base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40 and appears to be inclined to VP at 45.	ME
273.	A pentagonal prism 25mm sides of the base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40 and to VP at 30	ME
274.	A hexagonal prism 25mm sides of base and 50mm axis length rests on HP on one of its edges. Draw the projections of the prism when the axis is inclined at 45appears to be inclined to VP at 40.	ME
275.	A hexagonal prism 25mm sides of base and 50mm axis length rests on HP on one of its edges of the base. Draw the projections of the prism when the axis is inclined to HP at 45 and VP at 30.	ME
276.	A hexagonal prism 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests makes equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40 and appears to be inclined to VP at 45.	ME
277.	A hexagonal prism 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests makes equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40 and to VP at 30	ME
278.	A square prism 35mm sides of base and 60mm axis length is suspended freely from a corner of its base. Draw the projections of the prism when the axis appears to be inclined to VP at 45.	ME
279.	A pentagonal prism 25mm sides of the base and 50mm axis length is suspended freely from a corner of its base. Draw the projections of the prism when the axis appears to be inclined to VP at 45.	ME

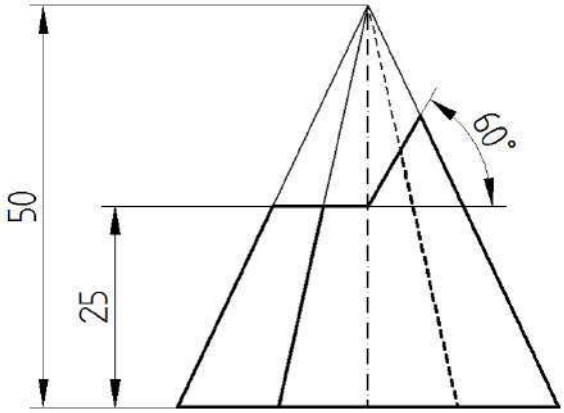
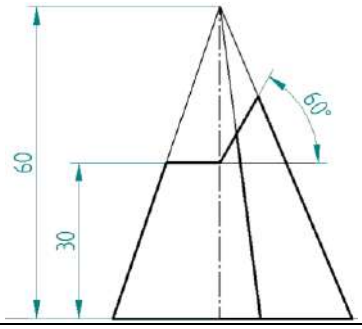
280.	A hexagonal prism 25mm sides of base and 50mm axis length is suspended freely from a corner of its base. Draw the projections of the prism when the axis appears to be inclined to VP at 45.	ME
281.	A square pyramid 35mm sides of base and 65mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30. Draw the projections of the pyramid when the axis is inclined to HP at 45.	ME
282.	A square pyramid 35mm sides of base and 65mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests makes equal inclinations with HP. Draw the projections of the pyramid when the axis of the pyramid is inclined to HP at 40 and appears to be inclined to VP at 45.	ME
283.	A square pyramid 35mm sides of base and 60mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests makes equal inclinations with HP. Draw the projections of the pyramid when the axis of the pyramid is inclined to HP at 40 and to V at 30.	ME
284.	A square pyramid 35mm sides of base and 60mm axis length rests on HP on one of its edges of the base. Draw the projections of the pyramid when the axis is inclined to HP at 45 and VP at 30.	ME
285.	A pentagonal pyramid 25mm sides of base and 60mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30. Draw the projections of pyramid when the axis is inclined to HP at 40.	ME
286.	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its edges of the base.Draw the projections of pyramid when the axis is inclined to HP at 45 and VP at 30.	ME
287.	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the pyramid when the axis of the pyramid is inclined to HP at 40 and appeas to be inclined to VP at 45.	ME
288.	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the pyramid when the axis of the pyramid is inclined to HP at 40 and to VP at 30.	ME
289.	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30°. Draw the projections of the pyramid when the axis is inclined to HP at 45	ME
290.	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its edges of the base. Draw the projections of the pyramid when the axis is inclined to HP at 45 and VP at 30.	ME
291.	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclination with HP. Draw the projections of the pyramid when the axis of the pyramid is inclined to HP at 40 and appears to be inclined to VP at 45	ME
292.	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclination with HP. Draw the projections of the pyramid when the axis of	ME

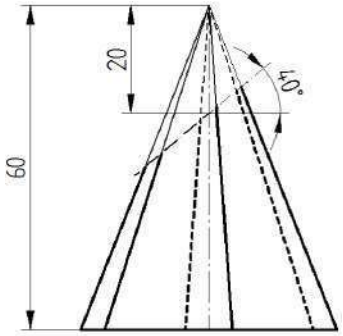
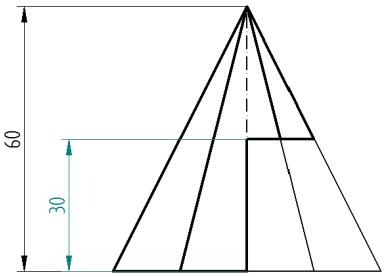
	the pyramid is inclined to HP at 40 and to VP at 30	
293.	A square pyramid 35mm sides of base and 60mm axis length is suspended freely from a corner of its base. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
294.	A pentagonal pyramid 25mm sides of base and 50mm axis length is suspended freely from a corner of its base. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
295.	A hexagonal pyramid 25mm sides of base and 50mm axis length is suspended freely from a corner of its base. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
296.	A square pyramid 35mm sides of base and 60mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
297.	A square pyramid 35mm sides of base and 60mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis is inclined to VP at 45.	ME
298.	A square pyramid 35mm sides of base and 60mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
299.	A square pyramid 35mm sides of base and 60mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis is inclined to VP at 45.	ME
300.	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
301.	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis is inclined to VP at 45.	ME
302.	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
303.	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis is inclined to VP at 45.	ME
304.	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
305.	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis is inclined to VP at 45.	ME
306.	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45.	ME
307.	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis is inclined to VP at 45.	ME
308.	A cube 40mm sides rests on HP on an edge which is inclined to VP at 30. Draw the	ME

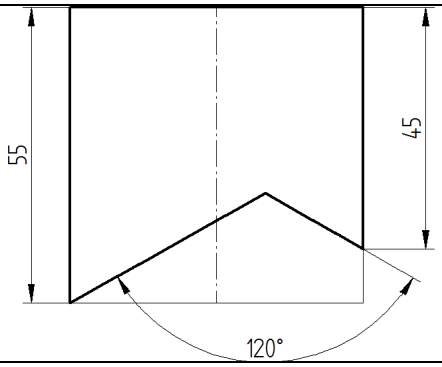
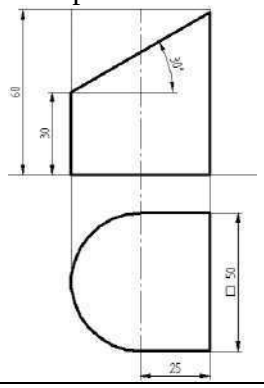
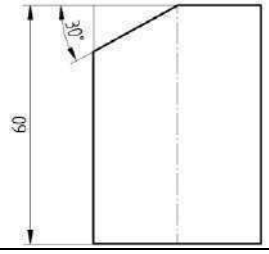
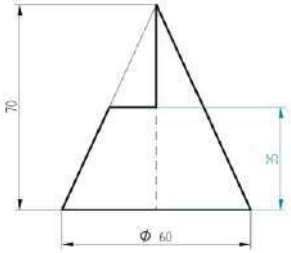
	projections when lateral square face containing the edge on which it rests makes an angle of 50 to HP.	
309.	A tetrahedron of 55mm sides rests on one of its corners such that an edge containing that corner is inclined to HP at 50 and VP at 30. Draw its projections.	ME
310.	A cone of 50mm base diameter and 60mm axis length rests on HP on one of its generators. Draw its projections when the axis is inclined to VP at 30.	ME
311.	A tetrahedron of sides 40mm is resting on one of its sides on HP. This side is parallel to VP and 40mm away from it. It is tilted about resting side such that the base containing this edge is inclined at 30.	ME
312.	A hexahedron of 30mm sides is resting on one of its corners on HP such that one of its solid diagonals is perpendicular to VP. Draw the projections of the solid.	ME
313.	A pentagonal prism of base side 25mm and height 50mm is resting on HP on one of its base corners such that the top most edge is at a distance of 60mm above HP. Draw its projections, when its top view of the axis is inclined at 45 to VP. Also, determine the inclination of the longer edge of the prism to HP which contains the resting corner.	ME
314.	A square pyramid of base sides 30mm and height 60mm is suspended by a thread tied to one of the corners of its base. It is then tilted such that the axis makes an angle of 45 with respect to the VP. Considering the apex of the solid to be nearer to the observer, draw the projections of the solid	ME
315.	A cone of base Φ 40mm axis length 50mm is resting on HP on a point on the circumference of its base such that its apex is at 40mm above the HP and its top view of the axis is inclined at 60 to VP. Draw the top and front views of the solid. Also, determine the inclinations of the axis when the base is nearer to the observer.	ME
316.	A Triangular Prism with one of its rectangular faces parallel to VP and nearer to it is cut as show in Figure. Draw the development of the retained portions of the prism which are shown in dark lines. 	ME
317.	A square prism of base side 30mm and axis length 60mm is resting on HP on its base with all the vertical faces being equally inclined to VP. It is cut by an inclined plane 600 to HP and perpendicular to VP and is passing through a point on the axis at a distance 15mm form its top face. Draw the development of the lower portion of the prism.	ME
318.	A square prism of base side 40mm and axis length 65mm is resting on HP on its base with all the vertical faces being equally inclined to VP. It is cut by an inclined plane 600 to HP and perpendicular to VP and is passing through a point on the axis at distance 15mm form the top face. Draw the development of the lower portion of the prism.	ME
319.	A square prism of 30mm side of the base and height 50mm is resting with its base on HP such that one of its vertical faces is inclined at 400 to VP. It is cut as shown in the following front view figure. Draw the development of the lateral surface of the prism.	ME

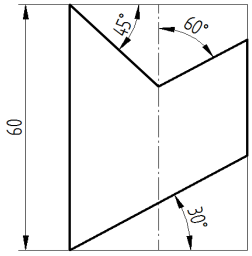
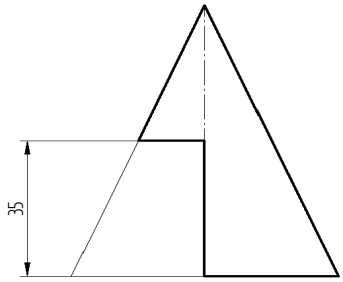
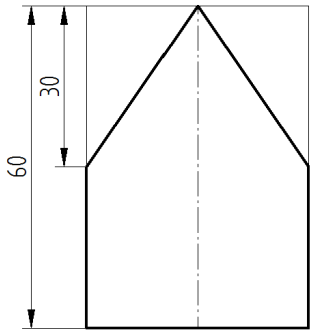
320.	A Cube of side 40mm is resting with its base on HP such that one of its vertical faces is inclined at 30 to VP. It is cut by a section plane perpendicular to VP, inclined to HP at an angle 45 and passes through the midpoint of the axis. Draw the development of the lower lateral surface of the cube.	ME
321.	A Square prism of base side 35mm & height 55mm rests with its base on HP and two faces equally inclined to VP. Draw the development of lateral surfaces of the retained portions of the cut prism shown by dark lines in the figure. 	ME
322.	A rectangular prism of base 40mm × 25mm and height 65mm rests on HP on its base with the longer base side inclined at 30 to VP. It is cut by a plane inclined at 40 to HP; perpendicular to VP cuts the axis at its mid height. Draw the development of the remaining portion of the prism.	ME
323.	A rectangular prism of base 30mm × 20 mm and height 60mm rests on HP on its base with the longer base side inclined at 40 to VP. It is cut by plane inclined at 45 to HP, perpendicular to VP and bisects the axis. Draw the development lateral surface of prism.	ME
324.	A rectangular prism of base size 25mm × 40mm and axis length 65mm is resting on HP on its base with the longer side of the base inclined at 30 to VP. It is cut by a plane inclined at 40 to HP and perpendicular to VP and passes through extreme left corner of base. Draw the development of the lateral surface of the remaining portion of the prism.	ME
325.	Draw the development of the truncated portion of lateral faces of a pentagonal prism of 20mm sides of base and 50mm height standing vertically with one of its rectangular faces parallel to VP and nearer to it so as to produce a one piece development. The inclined face of truncated prism is 30 to its axis and passes through the right extreme corner of the top face of the prism.	ME
326.	A regular pentagonal prism of height 60mm and base edge 30mm rests with its base on HP. The vertical face closest to VP is 30 to it. Draw the development of truncated prism with its truncated surface inclined at 60 to its axis and bisecting it.	ME
327.	A pentagonal prism of 30mm side of base and height 50mm lies with its base on HP such that one of the rectangular faces is inclined at 40 to VP. It is cut to the shape of a truncated pyramid with the truncated surface inclined at 30° to the axis so as to pass through a point on it 30mm above the base. Develop the truncated portion of the prism so as to produce a one piece development.	ME
328.	A pentagonal prism of base sides 30mm and axis length 60mm rests with its base on HP and an edge of the base inclined at 45 to VP. It is cut by plane perpendicular to VP, inclined at 40 to HP and passing through a point on axis, at distance of 30mm from the base. Develop the remaining surfaces of the truncated prism.	ME
329.	A pentagonal prism of base sides 20 mm and height 40 mm is resting with its base on HP with a base edge parallel to VP. The prism is cut as shown in the following front view.	ME

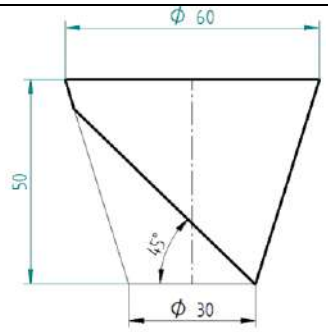
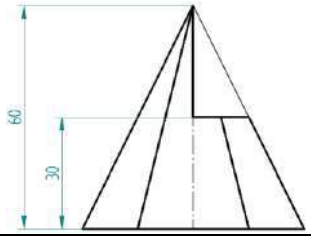
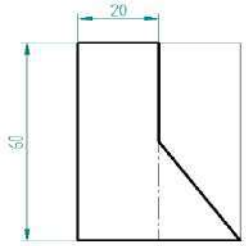
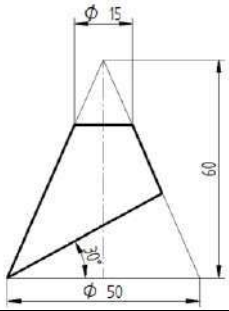
	Draw the development of lateral surface of prism. 	
330.	A hexagonal prism of base side 20mm and height 50mm is resting on HP on its base, such that one of its base edge is parallel to VP. The prism is cut in this position as shown in following front view. Draw the development of lateral surface of prism. 	ME
331.	A hexagonal prism of base side 25mm and height 55mm is resting on HP on its base, such that one of the base edges is parallel to VP. The prism is cut in this position as shown in the following front view. Draw the development of the lateral surface of the prism. 	ME
332.	The inside of a hopper of a flour mill is to be lined with thin sheet. The top and bottom of the hopper are regular pentagons with each side equal to 30mm and 22.5mm respectively. The height of hopper is 30mm. Draw the shape of the sheet to which it is to be cut so as to fit into the hopper.	ME
333.	A square pyramid of side of base 45mm, altitude 70mm is resting with its base on HP with two sides of the base parallel to VP. The pyramid is cut by a section plane which is perpendicular to VP and inclined at 40 to the HP. The cutting plane bisects the axis of the pyramid. Obtain the development of the lateral surfaces of the truncated pyramid.	ME
334.	A square pyramid base 40mm side and axis 65mm long has its base on HP and all the edges of the base are equally inclined to VP. It is cut by an inclined section plane so as the truncated surface at 45 to its axis, bisecting it. Draw the development of the truncated	ME

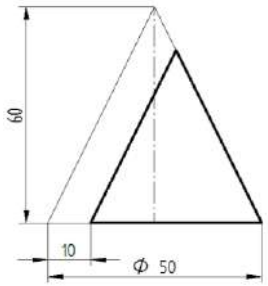
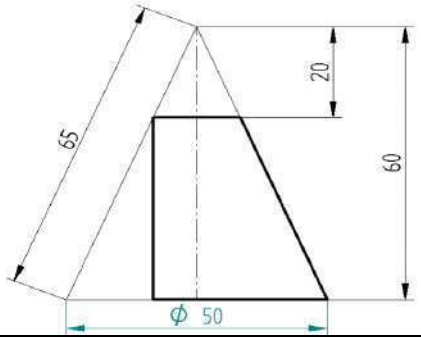
	pyramid.	
335.	A frustum of a square pyramid has its base 40mm sides, top 16mm sides and height 60mm, its axis is vertical and a side of its base is parallel to VP. Draw the projections of the frustum and show the development of lateral surfaces of it.	ME
336.	A square pyramid of 25mm base edge and 50mm height rests with its base on HP with its entire base edges equally inclined to VP. It is cut by plane perpendicular to VP and inclined to HP at 60, passing through the extreme right corner of base. Draw the development of lateral surface of pyramid.	ME
337.	A rectangular pyramid, side of base 25 mm × 40 mm and height 50mm has one of the sides of the base inclined at 30 to VP. Draw the development of the lateral surface of the cut pyramid, whose front view shown below. 	ME
338.	A frustum of a pentagonal pyramid, smaller base sides 16mm and bigger top face sides 32mm and height 40 mm, is resting on the HP on its smaller base, with one of its base sides parallel to VP. Draw the projections of the frustum and develop the lateral surface of it.	ME
339.	A regular pentagonal pyramid of side of base 35mm and altitude 65mm has its base on HP with a side of base perpendicular to VP. The pyramid is cut by section plane which is perpendicular to VP and inclined at 30 to HP. The cutting plane meets the axis of the pyramid at a point 30mm below the vertex. Obtain the development of the remaining part of the pyramid.	ME
340.	A pentagonal pyramid, 30mm sides, with a side of base perpendicular to VP. Draw the development of the lateral surfaces of the retained portion of the pyramid shown by the dark lines in the following figure. 	ME
341.	A pentagonal pyramid 30mm edges of base and 50mm height rests vertically with one of	ME

	its base edges parallel to VP and nearer to it. It is cut as shown in the following figure. Draw the development of the lateral surfaces of the upper portion of the pyramid.	
342.	A hexagonal pyramid, base sides 25mm and height 60mm, is resting with its base on HP and an edge of base inclined at 40 to VP. It is cut to the shape of a truncated pyramid with the truncated surface indicated in the front view at a point on the axis 20mm from the apex and inclined at 40 to XY. Draw the projections and show the development of the lateral surface of the remaining portion of the pyramid. 	ME
343.	A hexagonal pyramid of sides 35mm and altitude 65mm is resting on HP on its base with two of the base sides perpendicular to VP. The pyramid is cut by a plane inclined at 30 to HP and perpendicular to VP and is intersecting the axis at 30mm above the base. Draw the development of the remaining portion of the pyramid.	ME
344.	A hexagonal pyramid 25mm side of base and axis 65mm long is resting on its base on HP with one of the edges of the base parallel to VP. It is cut by a vertical section plane at a distance of 8mm from the axis towards right side. Develop the lateral surface of the left part of pyramid.	ME
345.	A hexagonal pyramid of 30mm base sides with a side of base parallel to VP. Draw the development of the lateral surfaces of the retained portions of the pyramid cut by two perpendicular planes shown by dark lines in the figure. 	ME
346.	A vertical cylinder of base diameter 45mm and axis length 60mm is cut by a plane perpendicular to VP and inclined at 50 to HP, is passing through the center point of the top face. Draw the development of the lateral surface of the cylinder.	ME
347.	Following figure shows the front view of a model of a steel chimney of diameter 54 mm made from a flat thin sheet metal fitted over an inclined plane roof. Develop the portion of the chimney.	ME

		
348.	A vertical cylinder of base diameter 50mm and axis length 60mm is cut by two planes which are perpendicular to VP and inclined at 45 to HP and passing through either side from the center point of the top face. Draw the development of the lateral surface of the cylinder.	ME
349.	A pipe made of using a half tubular (circular) with a half square in shape is cut as shown in the following figure. Draw the development of the lateral surface of the object. 	ME
350.	Develop the lateral surface of the cylinder of 40mm diameter and height 60mm which is cut in the following way. 	ME
351.	A cone of base diameter 60mm and height 70mm is resting on its base on HP. It is cut as shown in the following figure. Draw the development of the lateral surface of the remaining portion of the cone. 	ME

352.	Develop the lateral surface of the cylinder of 40mm diameter and height 60mm which is cut in the following way. 	ME
353.	A cone of base diameter 60mm and height 70mm is resting on its base on HP. It is cut as shown in the following figure. Draw the development of the lateral surface of the remaining portion of the cone. 	ME
354.	Draw the Development of the lateral surface of a truncated vertical cylinder, 40mm diameter of base and height 50 mm, the truncated flat surface of the cylinder bisects the axis at 60 to it.	ME
355.	Develop the lateral surface of the cylinder of 40mm diameter and height 60mm cut in the following way. 	ME
356.	A right cone of 60mm diameter of base and 75mm height stands on its base on HP. It is cut to the shape of a truncated cone with its truncated surface inclined at 45 to the axis lying at a distance of 40 mm from the apex of the cone. Obtain the development of the lateral surface of the truncated cone.	ME
357.	Draw the development of following truncated cone.	ME

		
358.	A hexagonal pyramid of 30mm sides of base with a side of base parallel to VP. Draw the development of the lateral surface of the retained portion of the pyramid which is shown by dark lines in the following figure 	ME
359.	Develop the lateral surface of the cylinder of 40mm diameter and height 60mm which is cut in the following way 	ME
360.	Draw the Development of the lateral surface of the cone, whose front view is as shown in the following figure. 	ME
361.	A cone of base diameter 50mm and height 60mm is resting with its base on HP. It is cut, as shown in the following front view of which is as shown in figure. Draw the development of the lateral surface of it.	ME

		
362.	Draw the development of the lateral surface of a funnel consisting of a cylinder and a frustum of a cone. The diameter of the cylinder is 20mm and top face diameter of the funnel is 80mm. The height of frustum and cylinder are equal to 60mm and 40mm respectively.	ME
363.	Draw the Development of the lateral surface of the cut cone, whose front view is shown in following figure. 	ME
364.	A funnel is to be made of sheet metal. The funnel tapers from 40mm to 20mm diameter to a height of 20mm and from 20mm to 15mm diameter, for the next 20mm height. The bottom of the funnel is beveled off to a plane inclined at 45 to the axis. Draw the development of the funnel.	ME
365.	A funnel is made of sheet metal. The funnel tapers from 60 mm to 30 mm diameter to a height of 25mm and then forms to a cylinder with a height of 50 mm. Bottom of funnel is beveled off completely at an angle of 450 to axis. Draw the development of funnel.	ME
366.	Conduct experiment to test diode clipping(single/double ended) and clamping circuits(positive/negative)	EC
367.	Half wave Rectifier and Full wave Rectifier with and without filter and measure the ripple factor.	EC
368.	Characteristics of Zener diode and design a simple Zener voltage regulator to determine line and load regulation.	EC
369.	Characteristics of LDR and photodiode and to turn on an LED using LDR.	EC
370.	Static Characteristics of SCR.	EC

371.	SCR controlled HWR and FWR using RC triggering circuit.	EC
372.	Conduct an experiment to measure temperature in terms of current/voltage using a temperature sensor bridge.	EC
373.	Measurement of Resistance using wheatstone's bridge and kelvin's bridge.	EC
374.	Input and output characteristics of BJT Emitter configuration and Evaluation of Parameters.	EC
375.	Transfer and drain characteristics of a JFET and MOSFET.	EC
376.	UJT triggering circuits for Controlled Rectifiers,.	EC
377.	Design and simulation of Regulated Power supply.	EC
378.	Verify (a) Demorgan's Theorem for 2 variables. (b) The sum -of product and product -of-sum expressions using universal gates.	EC
379.	Design and implement (a) Half Adder & Full Adder using (i) basic logic gates and (ii) NAND gates. (b) Half Subtractor & Full subtractor using (i) basic logic gates and (ii) NANAD gates	EC
380.	Design and implement of (a) 4-bit Parallel Adder/ Subtractor using IC 7483. (b) BCD to Excess-3 code conversion and vice versa.	EC
381.	Design and Implementation of (a) 1-bit Comparator. (b) 5-bit Magnitude Comparator using IC 7485.	EC
382.	Realize (a) Adder & Subtractors using IC 74153. (b) 4-variable function using IC 74151(8:1MUX).	EC
383.	Realize (a) Adder & Subtractors using IC74139. (b) Binary to Gray code conversion & vice versa (IC74139).	EC

384.	Realize the following flip/flops using NAND gates. Master-Slave JK, D & T Flip-Flop.	EC
385.	Realize the following shift registers using IC7474/IC 7495 (a)SISO (b) SIPO (c) PISO (d) PIPO (e) Ring and (f) Johnson counter.	EC
386.	Realize (i) Design Mod-N Synchronous Up counter & Down Counter using 7476 JK F/F. (ii) Mod-N Asynchronous Counter using IC7490/7476. (ii) Mod-N Synchronous counter using IC74192.	EC
387.	Design Pseudo Random Sequence generator using 7495.	EC
388.	Design binary multiplier and simulate using simulation tool.	EC
389.	**Programs involving:** Data transfer instructions like: Block Move, Exchange, Sorting, Finding largest element in an array.	EC
390.	**Programs involving:** Arithmetic & logical operations like: Addition/subtraction, multiplication and division, square, Cube – (16 bits Arithmetic operations – bit addressable).	EC
391.	Counters.	EC
392.	Boolean & Logical Instructions (Bit manipulations).	EC
393.	Conditional CALL & RETURN.	EC
394.	Code conversion: BCD – ASCII; ASCII – Decimal; Decimal - ASCII; HEX - Decimal and Decimal -HEX.	EC
395.	Programs to generate delay, Programs using serial port and on-Chip timer/counter.	EC
396.	Interface a simple toggle switch to 8051 and write an ALP to generate an interrupt which switches on an LED (i) continuously as long as switch is on and (ii) only once for a small time when the switch is turned on.	EC
397.	Write a C program to (i) transmit and (ii) to receive a set of characters serially by interfacing 8051 to a terminal.	EC
398.	Write ALPs to generate waveforms using ADC interface.	EC

399.	Write ALP to interface an LCD display and to display a message on it.	EC
400.	Write ALP to interface a Stepper Motor to 8051 to rotate the motor.	EC
401.	Design and setup the Common Source JFET/MOSFET amplifier and plot the frequency response.	EC
402.	Design and set up the BJT common emitter voltage amplifier with and without feedback and determine the gain- bandwidth product, input and output impedances.	EC
403.	Design and set-up BJT/FET i) Colpitts Oscillator, and ii) Crystal Oscillator	EC
404.	Design active second order Butterworth low pass and high pass filters.	EC
405.	Design Adder, Integrator and Differentiator circuits using Op-Amp	EC
406.	Test a comparator circuit and design a Schmitt trigger for the given UTP and LTP values and obtain the hysteresis.	EC
407.	Design 4 bit R – 2R Op-Amp Digital to Analog Converter (i) using 4 bit binary input from toggle switches and (ii) by generating digital inputs using mod-16 counter.	EC
408.	Design Monostable and a stable Multivibrator using 555 Timer.	EC
409.	RC Phase shift oscillator and Hartley oscillator Simulation using PSpice	EC
410.	Narrow Band-pass Filter and Narrow band-reject filter Simulation using PSpice	EC
411.	Precision Half and full wave rectifier Simulation using PSpice	EC
412.	Monostable and A stable Multivibrator using 555 Timer Simulation using PSpice	EC
413.	Verification of sampling theorem (use interpolation function).	EC
414.	Linear and circular convolution of two given sequences, Commutative, distributive and associative property of convolution.	EC
415.	Auto and cross correlation of two sequences and verification of their properties	EC
416.	Solving a given difference equation.	EC
417.	Computation of N point DFT of a given sequence and to plot magnitude and	EC

	phase spectrum (using DFT equation and verify it by built-in routine).	
418.	(i) Verification of DFT properties (like Linearity and Parsevals theorem, etc.) (ii) DFT computation of square pulse and sinc function etc.	EC
419.	Design and implementation of Low pass and High pass FIR filter to meet the desired specifications (using different window techniques) and test the filter with an audio file. Plot the spectrum of audio signal before and after filtering.	EC
420.	Design and implementation of a digital IIR filter (Low pass and High pass) to meet given specifications and test with an audio file. Plot the spectrum of audio signal before and after filtering.	EC
421.	Obtain the Linear convolution of two sequences using DSP kit	EC
422.	Compute Circular convolution of two sequences using DSP kit	EC
423.	Compute the N-point DFT of a given sequence using DSP kit	EC
424.	Determine the Impulse response of first order and second order system using DSP kit	EC
425.	Generation of Sine wave and standard test signals using DSP kit	EC
426.	Write Verilog program for the following combinational design along with test bench to verify the design: a. 2 to 4 decoder realization using NAND gates only (structural model) b. 8 to 3 encoder with priority and without priority (behavioural model) c. 8 to 1 multiplexer using case statement and if statements d.4-bit binary to gray converter using 1-bit gray to binary converter 1-bit adder and subtractor	EC
427.	Model in Verilog for a full adder and addfunctionality to perform logical operations of XOR, XNOR,AND and OR gates. Write test bench with appropriate input patterns to verify the modelled behaviour.3. Write a Verilog/VHDL code to describe the functions of a Full Adder Using three modeling styles.	EC
428.	Verilog 32-bit ALU shown in figure below and verify the functionality of ALU by selecting appropriate test patterns. The functionality of the ALU is presented in Table 1.	EC

a. Write test bench to verify the functionality of the ALU considering all possible input patterns

b. The enable signal will set the output to required functions if enabled, if disabled all the outputs are set to tri-state

c. The acknowledge signal is set high after every operation is completed

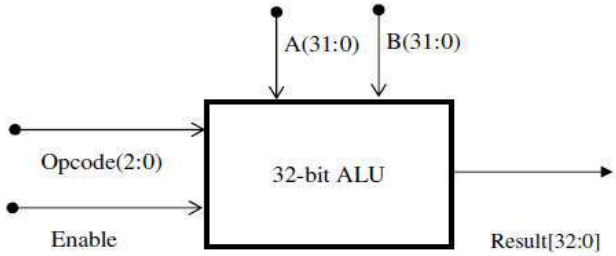


Figure 1 ALU top level block diagram

Opcode(2:0)	ALU Operation	Remarks	
000	A + B	Addition of two numbers	Both A and B are in two's complement format
001	A – B	Subtraction of two numbers	
010	A + 1	Increment Accumulator by 1	A is in two's complement format
011	A - 1	Decrement accumulator by 1	
100	A	True	Inputs can be in any format
101	A Complement	Complement	
110	A OR B	Logical OR	
111	A AND B	Logical AND	

Table 1 ALU Functions

429.	Write Verilog code for SR, D and JK and verify the flip flop.	EC
430.	Write Verilog code for 4-bit BCD synchronous counter.	EC
431.	Write Verilog code for counter with given input clock and check whether it works as clock divider performing division of clock by 2, 4, 8 and 16. Verify the functionality of the code.	EC
432.	Write a Verilog code to design a clock divider circuit that generates 1/2, 1/3rd and 1/4thclock from a given input clock. Port the design to FPGA and validate the functionality through oscilloscope.	EC
433.	Interface a DC motor to FPGA and write Verilog code to change its speed and direction.	EC
434.	Interface a Stepper motor to FPGA and write Verilog code to control the Stepper motor rotation which in turn may control a Robotic Arm. External switches to be used for different controls like rotate the Stepper motor (i) +N steps if Switch no.1 of a Dip	EC

	switch is closed (ii) +N/2 steps if Switch no. 2 of a Dip switch is closed (iii) –N steps if Switch no. 3 of a Dip switch is closed etc.	
435.	Interface a DAC to FPGA and write Verilog code to generate Sine wave of frequency F KHz (eg.200 KHz) frequency. Modify the code to down sample the frequency to F/2 KHz. Display the Original and Down sampled signals by connecting them to an oscilloscope.	EC
436.	Write Verilog code using FSM to simulate elevator operation.	EC
437.	Write Verilog code to convert an analog input of a sensor to digital form and to display the same on a suitable display like set of simple LEDs, 7-segment display digits or LCD display.	EC
438.	ALP to write data to RAM	EC
439.	Display "Hello World" message using Internal UART (using LPC7168)	EC
440.	Interface and Control a DC Motor (using LPC7168)	EC
441.	Interface a Stepper motor and rotate it in clockwise and anti-clockwise direction (using LPC7168)	EC
442.	Interface a DAC and generate Triangular and Square waveforms (using LPC7168)	EC
443.	Interface a 4x4 keyboard and display the key code on an LCD (using LPC7168)	EC
444.	Demonstrate the use of an external interrupt to toggle an LED On/Off (using LPC7168)	EC
445.	Display the Hex digits 0 to F on a 7-segment LED interface, with an appropriate delay in between (using LPC7168)	EC
446.	Measure ambient temperature using a sensor and SPI ADC IC(using LPC7168)	EC
447.	Frequency modulation and demodulation(IC8038/2206 can be used)	EC
448.	Pulse sampling ,flat top sampling and reconstruction	EC
449.	Time Division Multiplexing and Demultiplexing of two band limited signals.	EC
450.	FSK and PSK generation and detection	EC
451.	Measurement of frequency, guide wavelength, power, VSWR and attenuation in	EC

	microwave test bench.	
452.	ObtaintheRadiationPatternandMeasurementofdirectivityandgainofmicrostripdipolean dYagi antennas.	EC
453.	Determination of a. Coupling and isolation characteristics of micro strip directional coupler. b. Resonance characteristics of micro strip ring resonator and computation of dielectric constant of the substrate. Power division and isolation of micro strip power divider	EC
454.	Simulate NRZ, RZ, half-sinusoid and raised cosine pulses and generate eye diagram for binary polar signaling.	EC
455.	Pulse code modulation and demodulation system..	EC
456.	Computations of the Probability of bit error for coherent binary ASK, FSK and PSK for an AWGN Channel and Compare them with their Performance curves. Digital Modulation Schemes i) DPSK Transmitter and receiver, ii) QPSK Transmitter and Receiver	EC
457.	Implementapointtopointnetworkwithfournodesandduplexlinksbetweenthem.Analy ze the network performance by setting the queue size and varying the bandwidth.	EC
458.	Implementafournodepointtopointnetworkwithlinksn0-n2,n1-n2andn2-n3.ApplyTCPagentbetween n0-n3 and UDP between n1-n3. Apply relevant applications over TCP and UDP agents changing the parameter and determine the number of packets sent by TCP/UDP.	EC
459.	Implement Ethernet LAN using n (6-10) nodes. Compare the throughput by changing the error rate and data rate.	EC
460.	Implement Ethernet LAN using n nodes and assign multiple traffic clothe nodes and obtain congestion window for different sources/ destinations.	EC
461.	Implement ESS with transmission nodes in Wireless LAN and obtain the performance parameters.	EC

462.	Implementation of Link stator outing algorithm.	EC
463.	Write a program for a HLDC frame toper form the following. 1. Bit stuffing 2. Character stuffing.	EC
464.	Write a program for distance vector algorithm to find suitable path for transmission.	EC
465.	Implement Dijkstra's algorithm to compute the shortest routing path.	EC
466.	For the given data, use CRC-CCITT polynomialtoobtain CRC code. Verify the program for the cases 1.Without error 2. With error	EC
467.	Implementation of Stop and Wait Protocol and Sliding Window Protocol	EC
468.	Write a program for congestion control using leaky bucket algorithm	EC
469.	Capture the schematic of CMOS inverter with load capacitance of 0.1pF and set the widths of inverter with Wn = Wp,Wn =2Wp, Wn =Wp/2 and length at selected technology	EC
470.	Draw layout of inverter with Wp/Wn = 40/20, use optimum layout methods. Verify for DRC and LVS, extract parasitic and perform post layout simulations, compare the results with pre- layout simulations. Record The observations.	EC
471.	Capture the schematic of 2-input CMOS NAND gate having similar delay as that of CMOS inverter computed in experiment 1. Verify the functionality of NAND gate and also find out the delay td for all four possible combinations of input vectors. Table the results. Increase the drive strength to 2X and 4X and tabulate the results.	EC
472.	Draw layout of NAND withWp/Wn=40/20,use optimum layout methods .Verify for DRC and LVS, Extract parasitic and perform post layout simulations, compare the results with pre-layout simulations. Record the observations	EC
473.	Capture schematic of Common Source Amplifier with PMOS Current Mirror Load and find its transient response and AC response? Measures the Unity Gain Band width (UGB), amplification factor by varying transistor geometries, study the impact of variation in width to UGB.	EC
474.	Draw layout of common source amplifier, use optimum layout methods. Verify for	EC

	DRC and LVS, extract parasitic and perform post layout simulations, compare the results with pre-layout simulations. Record the observations.	
475.	Capture schematic of two-stage operational amplifier and measure the following: UGB dB bandwidth Gain margin and phase margin with and without coupling capacitance	EC
476.	Forthesynthesizednetlistcarryoutthefollowingforanytwoaboveexperiments: 1.Floor planning(automatic),identify the placement of pads 2.Placement and Routing, record the parameters such as no. of layers used for routing, flip method for placement of standard cells, placement of standard cells, routes of power and ground, and routing of standard cells	EC
477.	Amplitude Modulation and Demodulation of (a) Standard AM and (b) DSBSC (LM741 and LF398 ICs can be used)	EC
478.	Frequency modulation and demodulation	EC
479.	Design and test Time Division Multiplexing and Demultiplexing of two band limited signals.	EC
480.	Design and test i) Pulse sampling, flat top sampling and reconstruction. ii) Pulse amplitude modulation and demodulation.	EC
481.	Design and test BJT/FET Mixer	EC
482.	Phase locked loop Synthesis	EC
483.	Illustration of (a) AM modulation and demodulation and display the signal and its spectrum. (b) DSB-SC modulation and demodulation and display the signal and its spectrum. (Use MATLAB/SCILAB)	EC
484.	Illustration of FM modulation and demodulation and display the signal and its spectrum. (Use MATLAB/SCILAB)	EC
485.	Illustrate the process of sampling and reconstruction of low pass signals. Display	EC

	the signals and its spectrums of both analog and sampled signals. (Use MATLAB/SCILAB).	
486.	Illustration of Delta Modulation and the effects of step size selection in the design of DM encoder. (Use MATLAB/SCILAB)	EC
487.	To realize using op-amp an Inverting Amplifier and Non-Inverting Amplifier using simulation tool (Ps pice)	EC
488.	To realize using op-amps i) Summing Amplifier ii)Difference amplifier using simulation tool (Ps pice)	EC
489.	To realize using op-amps an Instrumentation Amplifier using simulation tool (Ps pice)	EC
490.	To realize using op-amps i) Differentiator ii)Integrator using simulation tool (Ps pice)	EC
491.	To realize using op-amps a Full wave Precision Rectifier using simulation tool (Ps pice)	EC
492.	To realize using op-amps using simulation tool using simulation tool (Ps pice) Inverting and Non-Inverting Zero Crossing Detectors Positive and Negative Voltage level detectors	EC
493.	To realize using op-amp an Inverting Schmitt Trigger using simulation tool (Ps pice)	EC
494.	To realize using op-amp an Astable Multivibrator using simulation tool (Ps pice)	EC
495.	To design and implement using op-amps using simulation tool (Ps pice) Butterworth I & II order Low Pass Filter Butterworth I & II order High Pass Filter	EC
496.	To design and implement using op-amp a RC Phase Shift Oscillator using simulation tool (Ps pice)	EC
497.	To design and implement Mono-stable Multivibrator using 555 timer using simulation tool (Ps pice)	EC
498.	To design and implement 4 - bit R-2R Digital to Analog Converter using simulation tool (Ps pice)	EC
499.	Open Circuit and Short circuit tests on single phase step up or step down transformer and predetermination of (i) Efficiency and regulation (ii) Calculation of parameters of	EEE

	equivalent circuit	
500.	Sumpner's test on similar transformers and determination of combined and individual transformer efficiency.	EEE
501.	Parallel operation of two dissimilar single-phase transformers of different kVA and determination of load.	EEE
502.	Polarity test and connection of 3 single-phase transformers in star – delta and determination of efficiency and regulation under balanced resistive load.	EEE
503.	Comparison of performance of 3 single-phase transformers in delta – delta and V – V (open delta) connection under load	EEE
504.	Scott connection with balanced and unbalanced loads.	EEE
505.	Separation of hysteresis and eddy current losses in single phase transformer.	EEE
506.	Voltage regulation of an alternator by EMF and MMF methods.	EEE
507.	Voltage regulation of an alternator by ZPF method.	EEE
508.	Power angle curve of synchronous generator or Direct load test on three phase synchrous generator to determine efficiency and regulation	EEE
509.	Slip test – Measurement of direct and quadrature axis reactance and predetermination of regulation of salient pole synchronous machines.	EEE
510.	Performance of synchronous generator connected to infinite bus, under constant power and variable excitation & vice - versa.	EEE
511.	Investigate the voltage and current ratios of a multi-tapped transformer and verify the ideal transformer ratio.	EEE
512.	Power angle curve of synchronous generator or Direct load test on three phase synchronous generator to determine efficiency and regulation.	EEE
513.	Model transformer in Simscape for Automatic Voltage Regulation.	EEE
514.	Simulate power angle curve of generator in MATLAB.	EEE
515.	Design and Testing of Full wave – centre tapped transformer type and Bridge type rectifier circuits with and without Capacitor filter. Determination of ripple factor, regulation and efficiency.	EEE
516.	Static Transistor characteristics for CE, CB and CC modes and determination of h parameters	EEE
517.	Frequency response of single stage BJT and FET RC coupled amplifier and determination of half power points, bandwidth, input and output impedances.	EEE
518.	Design and testing of BJT -RC phase shift oscillator for given frequency of oscillation.	EEE
519.	Determination of gain, input and output impedance of BJT Darlington emitter follower with and without bootstrapping.	EEE
520.	Simplification, realization of Boolean expressions using logic gates/Universal gates	EEE
521.	Realization of Half/Full adder and Half/Full Subtractors using logic gates.	EEE
522.	Realization of parallel adder/Subtractors using 7483 chip- BCD to Excess-3 code conversion and Vice - Versa.	EEE
523.	Realization of Binary to Gray code conversion and vice versa.	EEE
524.	Design and testing Ring counter/Johnson counter.	EEE
525.	Design and testing of Sequence generator.	EEE
526.	Realization of 3 bit counters as a sequential circuit and MOD – N counter design using 7476, 7490, 74192,	EEE

527.	Experiments on clippers and clampers.	EEE
528.	Verifying its logic operation and obtaining its truth table of flip –flops: RS and JK.	EEE
529.	Design, simulation (MATLAB) and testing of Wien bridge oscillator for given frequency of oscillation	EEE
530.	Design and testing of Hartley and Colpitt's oscillator for given frequency of oscillation	EEE
531.	Design and testing of Class A and Class B power amplifier and to determine conversion efficiency.	EEE
532.	Design and simulation of Full wave – centre tapped transformer type and Bridge type rectifier circuits with and without Capacitor filter using MATLAB. Determination of ripple factor, regulation and efficiency.	EEE
533.	Load test on DC shunt motor to draw speed–torque, horse power–efficiency characteristics.	EEE
534.	Field Test on DC series machines.	EEE
535.	Speed control of DC shunt motor by armature and field control	EEE
536.	Swin burne's Test on DC motor.	EEE
537.	Retardation test on DC shunt motor.	EEE
538.	Regenerative test on DC shunt machines.	EEE
539.	Load test on three phase induction motor	EEE
540.	No-load and Blocked rotor test on three phase induction motor to draw(i)equivalent circuit and(ii)circle diagram. Determination of performance parameters at different load conditions	EEE
541.	Load test on induction generator.	EEE
542.	Load test on single phase induction motor to draw output versus torque, current, power and efficiency characteristics.	EEE
543.	Conduct suitable tests to draw thee equivalent circuit of single phase induction motor and determine performance parameters.	EEE
544.	Conduct an experiment to draw v and Inverted curves of synchronous motor at no load and load conditions.	EEE
545.	Design and verify a precision full wave rectifier. Determine the performance parameters.	EEE
546.	Design and realize to analyse the frequency response of an op – amp amplifier under inverting and non - inverting configuration for a given gain.	EEE
547.	Design and verify the output waveform of an op – amp RC phase shift oscillator for a desired frequency	EEE
548.	Design and realize Schmitt trigger circuit using an op – amp for desired upper trip point (UTP) and lower trip point (LTP).	EEE
549.	Verify the operation of an op – amp as (a) voltage comparator circuit and (b) zero crossing detector.	EEE
550.	Design and verify the operation of op – amp as an (a) adder (b) subtractor (c) integrator and (d) differentiator.	EEE
551.	Design and realize an op – amp based first order Butterworth (a) low pass (b) high pass and (c) band pass filters for a given cut off frequency/frequencies to verify the frequency response characteristic.	EEE
552.	Design and realize an op – amp based function generator to generate sine, square and triangular waves of desired frequency.	EEE

553.	Design and realization of R-2R ladder DAC.	EEE
554.	Realization of Two bit Flash ADC.	EEE
555.	Design and verify an IC 555 timer based pulse generator for the specified pulse.	EEE
556.	Designing of Fixed voltage power supply (voltage regulator) using IC regulators 78 series and 79 series.	EEE
557.	Data transfer – Program for block data movement, sorting, exchanging, finding largest element in an array	EEE
558.	Arithmetic instructions: Addition, subtraction, multiplication and division. Square and cube operations for 16 bit numbers.	EEE
559.	Counters	EEE
560.	Boolean and logical instructions (bit manipulation).	EEE
561.	Conditional call and return instructions.	EEE
562.	Code conversion programs – BCD to ASCII, ASCII to BCD, ASCII to decimal, Decimal to ASCII, Hexa	EEE
563.	Programs to generate delay, using serial port and on-chip timer/counters.	EEE
564.	Stepper motor interface.	EEE
565.	DC motor interface for direction and speed control using PWM.	EEE
566.	Alphanumerical LCD panel interface.	EEE
567.	Generate different waveforms: Sine, Square, Triangular, Ramp using DAC interface.	EEE
568.	External ADC and Temperature control interface.	EEE
569.	Elevator interface.	EEE
570.	Static Characteristics of SCR	EEE
571.	Static Characteristics of MOSFET and IGBT.	EEE
572.	Characteristic of TRIAC.	EEE
573.	SCR turn on circuit using synchronized UJT relaxation oscillator	EEE
574.	SCR digital triggering circuit for a single phase controlled rectifier and ac voltage regulator.	EEE
575.	Single phase controlled full wave rectifier with R load, R –L load, R-L-E load with and without free wheeling diode.	EEE
576.	AC voltage controller using TRIAC and DIAC combination connected to R and RL loads.	EEE
577.	Speed control of DC motor using single semi converter.	EEE
578.	Speed control of stepper motor	EEE
579.	Speed control of universal motor using ac voltage regulator.	EEE
580.	Speed control of a separately excited D.C. Motor using an IGBT or MOSFET chopper.	EEE
581.	Single phase MOSFET/IGBT based PWM inverter.	EEE
582.	Experiment to draw the speed torque characteristics of (i) AC servo motor (ii) DC servo motor	EEE
583.	Experiment to draw synchro pair characteristics	EEE
584.	Experiment to determine frequency response of a second order system	EEE
585.	(a) To design a passive RC lead compensating network for the given specifications, viz, the maximum phase lead and the frequency at which it occurs and to obtain the frequency response.	EEE

586.	a)To design a passive RC lag compensating network for the given specifications, viz, the maximum phase lag and the frequency at which it occurs and to obtain the frequency response. b) To determine experimentally the transfer function of the lag compensating network.	EEE
587.	Eperiment to draw the frequency response characteristics of the lag-lead compensator network and determination of its transfer function.	EEE
588.	To study a second order system and verify the effect of (a) P, (b) PI, (c) PD and (d) PID controller on the step response.	EEE
589.	a) To simulate a typical second order system and determine step response and evaluate time response specifications b) To evaluate the effect of adding poles and zeros on time response of second order system. c) To evaluate the effect of pole location on stability.	EEE
590.	a) To simulate a D.C. Position control system and obtain its step response. b) To verify the effect of input waveform, loop gain and system type on steady state errors. c) To perform trade-off study for lead compensator. d) To design PI controller and study its effect on steady state error.	EEE
591.	a) To examine the relationship between open-loop frequency response and stability, open-loop frequency and closed loop transient response. b) To study the effect of open loop gain on transient response of closed loop system using root locus.	EEE
592.	a) To study the effect of open loop poles and zeros on root locus contour. b) Comparative study of Bode, Nyquist and root locus with respect to stability.	EEE
593.	Verification of Sampling Theorem both in time and frequency domains	EEE
594.	Evaluation of impulse response of a system	EEE
595.	To perform linear convolution of given sequences	EEE
596.	To perform circular convolution of given sequences using (a) the convolution summation formula.	EEE
597.	Computation of N-point DFT and to plot the magnitude and phase spectrum.	EEE
598.	Linear and circular convolution by DFT and IDFT method	EEE
599.	Solution of a given difference equation.	EEE
600.	Calculation of DFT and IDFT by FFT	EEE
601.	Design and implementation of IIR filters to meet given specification (Low pass, high pass, band pass and band reject filters)	EEE
602.	Design and implementation of FIR filters to meet given specification (Low pass, high pass, band pass and band reject filters) using different window functions.	EEE
603.	Design and implementation of FIR filters to meet given specification (Low pass, high pass, band pass and band reject filters) using frequency sampling technique.	EEE
604.	Realization of IIR and FIR filters.	EEE
605.	Formation for symmetric π /T configuration for Verification of Determination of Efficiency and Regulation.	EEE
606.	Determination of Power Angle Diagrams, Reluctance Power, Excitation, EMF and Regulation for Salient and Non-Salient Pole Synchronous Machines.	EEE

607.	To obtain Swing Curve and to Determine Critical Clearing Time, Regulation, Inertia Constant/Line Parameters /Fault Location/Clearing Time/Pre-Fault Electrical Output for a Single Machine connected to Infinite Bus through a Pair of identical Transmission Lines Under 3-Phase Fault On One of the two Lines.	EEE
608.	Y Bus Formation for Power Systems with and without Mutual Coupling, by Singular	EEE
609.	Formation of Z Bus (without mutual coupling) using Z-Bus Building Algorithm.	EEE
610.	Determination of Bus Currents, Bus Power and Line Flow for a Specified System Voltage.	EEE
611.	Formation of Jacobian for a System not Exceeding 4 Buses in Polar Coordinates	EEE
612.	Load Flow Analysis using Gauss Siedel Method, NR Method and Fast Decoupled Method for Both PQ and PV Buses.	EEE
613.	To Determine Fault Currents and Voltages in a Single Transmission Line System with	EEE
614.	Optimal Generation Scheduling for Thermal power plants by simulation.	EEE
615.	Over Current Relay: (a)Inverse Definite Minimum Time(IDMT) Non Directional Characteristics (b) Directional Features (c) IDMT Directional.	EEE
616.	IDMT Characteristics of Over Voltage or Under Voltage Relay (Solid State or Electromechanical type).	EEE
617.	Operation of Negative Sequence Relay	EEE
618.	Operating Characteristics of Microprocessor Based (Numeric) Over –Current Relay.	EEE
619.	Operating Characteristics of Microprocessor Based (Numeric) Distance Relay.	EEE
620.	Operating Characteristics of Microprocessor Based (Numeric) Over/Under Voltage.	EEE
621.	Generation Protection: Merz Price Scheme.	EEE
622.	Feeder Protection against Faults.	EEE
623.	Motor Protection against Faults.	EEE
624.	Spark Over Characteristics of Air subjected to High Voltage AC with Spark Voltage Corrected to Standard Temperature and Pressure for Uniform [as per IS1876: 2005]and Nonuniform [as per IS2071(Part 1) : 1993] Configurations: Sphere – Sphere, Point – Plane.	EEE
625.	Spark Over Characteristics of Air subjected to High voltage DC.	EEE
626.	Measurement of HVAC and HVDC using Standard Spheres as per IS 1876 :2005	EEE
627.	Measurement of Breakdown Strength of Transformer Oil as per IS 1876 :2005	EEE
628.	Field Mapping using Electrolytic Tank for any one of the following Models: Cable/ Capacitor	EEE
629.	(a) Generation of standard lightning impulse voltage and to determine efficiency and energy of impulse generator. (b) To determine 50% probability flashover voltage for air insulation subjected to impulse voltage.	EEE
630.	Loading effect of different voltmeters on an electric circuit.	EEE
631.	Voltage Dividers with Loads	EEE
632.	Measurement AC and DC quantities (voltage, frequency, current) using oscilloscope.	EEE
633.	Determination of resonant frequency, bandwidth, and Q of a series circuit.	EEE
634.	Determination of resonant frequency, bandwidth, and Q of a parallel circuit.	EEE
635.	Verification of Thevenin's theorem.	EEE

636.	Verification of Norton's theorem.	EEE
637.	Verification of Superposition theorem.	EEE
638.	Power factor correction.	EEE
639.	Measurement of time constant of an RC circuit.	EEE
640.	Study of the effect of Open and Short circuits in simple circuits.	EEE
641.	Verification of maximum Power transfer theorem.	EEE
642.	Construct Astable Multivibrator circuit using IC-555 Timer.	EEE
643.	Construct Mono-stable Multivibrator circuit using IC-555 Timer.	EEE
644.	Construct and test Sequential timer using IC-555.	EEE
645.	Generate Pulse Width Modulator (PWM) signal using IC-555 Timer.	EEE
646.	Construct Burglar Alarm circuit using IC-555 Timer.	EEE
647.	Construct and generate Frequency Shift Keying (FSK) signal using IC-555 Timer.	EEE
648.	Construct and test Running LED circuit using IC-555 Timer.	EEE
649.	Construct water level indicator using IC-555 Timer.	EEE
650.	Construct continuity tester using IC-555 Timer.	EEE
651.	Design and Analysis of (i) Voltage Follower (ii) Inverting & Non – Inverting Amplifier.	EEE
652.	Design and Analysis of full wave rectifier and determine its performance parameters.	EEE
653.	Design and Analysis of frequency response of an Operational Amplifier under inverting and non -inverting configuration for a given gain.	EEE
654.	Design and Analysis of Operational Amplifier based RC Phase Shift Oscillator.	EEE
655.	Design and Analysis of an Operational Amplifier based Wein Bridge Oscillator.	EEE
656.	Design and Analysis of Operational Amplifier based Schmitt Trigger.	EEE
657.	Design and Analysis of Operational Amplifier based (i) Voltage Comparator circuit and (ii) Zero Crossing Detector.	EEE
658.	Design and Analysis of Op-Amp based (i) Adder (ii) Subtractor (iii) Integrator and (iv) Differentiator.	EEE
659.	Design and Analysis of Frequency Response Characteristics Op-Amp based First Order Butterworth (i) Low Pass, (ii) High Pass Filters.	EEE
660.	Design and Analysis of Frequency Response Characteristics Op-Amp based First Order Butterworth (i)Band Pass, (ii) Band Rejection Filters.	EEE
661.	Design and Analysis of Op-Amp based Function Generator to generate Sine, Square and Triangular Signals of desired frequency.	EEE
662.	Design and Analysis of Op-Amp based R – 2R ladder Digital to Analog Converter.	EEE
663.	Design and Analysis of Op-Amp based two bit flash Analog to Digital Converter.	EEE
664.	Design and Analysis of Three Op-Amp Instrumentation Amplifier.	EEE
665.	Familiarization with computer hardware and programming environment, concept of naming the program files, storing, compilation, execution and debugging, taking any simple C – Code.	CSE
666.	Develop a program to compute the roots of a quadratic equation by accepting the coefficients. (No built-in math function)	CSE
667.	Develop a program to compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages.	CSE

668.	Develop a program to find the reverse of a posit integer and check for PALINDROME or NOT. Display appropriate messages. Ex: Num: 2014, Reverse: 4102, Not a Palindrome.	CSE
669.	An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit: for the next 100 units 90 paise per unit: beyond 300 units Rs 1 per unit. All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs. 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the same of the user, number of units consumed and print out the charges.	CSE
670.	Introduce 1 D Array manipulation and implement Binary search.	CSE
671.	Implement using functions to check whether the given number is prime and display appropriate messages. (No built-in math function).	CSE
672.	Develop a program to introduce 2D Array manipulation and implement Matrix multiplication and ensure the rules of manipulation are checked.	CSE
673.	Develop a program to compute Sin(x) using Taylor series approximation. Compare your result with the built-in Library function. Print both the results with appropriate messages.	CSE
674.	Write functions to implement string operations such as compare, concatenate, string length. Convince the parameter passing techniques.	CSE
675.	Develop a program to sort the given set of N numbers using Bubble sort.	CSE
676.	Develop a program to find the square root of a given number N and execute for all possible inputs with appropriate messages. Note: Don't use library function sqrt (n).	CSE
677.	Implement structures to read, write and compute average marks for a class of N students.	CSE
678.	Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of n real numbers.	CSE
679.	Implement Recursive functions for Binary to Decimal Conversion.	CSE
680.	Design an astablemultivibratorciruit for three cases of duty cycle (50%, <50% and >50%) using NE 555 timer IC. Simulate the same for any one duty cycle.	CSE
681.	Using ua 741 Opamp, design a 1 kHz Relaxation Oscillator with 50% duty cycle. And simulate the same	CSE
682.	Using ua 741 opamap, design a window comparate for any given UTP and LTP. And simulate the same.	CSE
683.	Design and implement Half adder, Full Adder, Half Subtractor, Full Subtractor using basic gates. And implement the same in HDL.	CSE
684.	Given a 4-variable logic expression, simplify it using appropriate technique and realize the simplified logic expression using 8:1 multiplexer IC. And implement the same in HDL.	CSE
685.	Realize a J-K Master / Slave Flip-Flop using NAND gates and verify its truth table. And	CSE

	implement the same in HDL.	
686.	Design and implement code converter I)Binary to Gray (II) Gray to Binary Code using basic gates.	CSE
687.	Design and implement a mod-n (n<8) synchronous up counter using J-K Flip-Flop ICs and demonstrate its working.	CSE
688.	Design and implement an asynchronous counter using decade counter IC to count up from 0 to n (n<=9) and demonstrate on 7-segment display (using IC-7447)	CSE
689.	Design, Develop and Implement a menu driven Program in C for the following array operations. a. Creating an array of N Integer Elements b. Display of array Elements with Suitable Headings c. Inserting an Element (ELEM) at a given valid Position (POS) d. Deleting an Element at a given valid Position (POS) e. Exit. Support the program with functions for each of the above operations.	CSE
690.	Design, Develop and Implement a Program in C for the following operations on Strings. a. Read a main String (STR), a Pattern String (PAT) and a Replace String (REP) b. Perform Pattern Matching Operation: Find and Replace all occurrences of PAT in STR with REP if PAT exists in STR. Report suitable messages in case PAT does not exist in STR Support the program with functions for each of the above operations. Don't use Built-in functions.	CSE
691.	Design, Develop and Implement a menu driven Program in C for the following operations on STACK of Integers (Array Implementation of Stack with maximum size MAX) a. Push an Element on to Stack b. Pop an Element from Stack c. Demonstrate how Stack can be used to check Palindrome d. Demonstrate Overflow and Underflow situations on Stack e. Display the status of Stack f. Exit Support the program with appropriate functions for each of the above operations	CSE
692.	Design, Develop and Implement a Program in C for converting an Infix Expression to Postfix Expression. Program should support for both parenthesized and free parenthesized expressions with the operators: +, -, *, /, % (Remainder), ^ (Power) and alphanumeric operands.	CSE
693.	Design, Develop and Implement a Program in C for the following Stack Applications	CSE

	a. Evaluation of Suffix expression with single digit operands and operators: +, -, *, /, %, ^ b. Solving Tower of Hanoi problem with n disks	
694.	Design, Develop and Implement a menu driven Program in C for the following operations on Circular QUEUE of Characters (Array Implementation of Queue with maximum size MAX) a. Insert an Element on to Circular QUEUE b. Delete an Element from Circular QUEUE c. Demonstrate Overflow and Underflow situations on Circular QUEUE d. Display the status of Circular QUEUE e. Exit Support the program with appropriate functions for each of the above operations	CSE
695.	Design, Develop and Implement a menu driven Program in C for the following operations on Singly Linked List (SLL) of Student Data with the fields: USN, Name, Programme, Sem, PhNo a. Create a SLL of N Students Data by using front insertion. b. Display the status of SLL and count the number of nodes in it c. Perform Insertion / Deletion at End of SLL d. Perform Insertion / Deletion at Front of SLL(Demonstration of stack) e. Exit Design, Develop and Implement a menu driven Program in C for the following operations on Doubly Linked List (DLL) of Employee Data with the fields: SSN, Name, Dept, Designation, Sal, PhNo a. Create a DLL of N Employees Data by using end insertion. b. Display the status of DLL and count the number of nodes in it c. Perform Insertion and Deletion at End of DLL d. Perform Insertion and Deletion at Front of DLL e. Demonstrate how this DLL can be used as Double Ended Queue. f. Exit	CSE
696.	Design, Develop and Implement a Program in C for the following operationson Singly Circular Linked List (SCLL) with header nodes a. Represent and Evaluate a Polynomial P(x,y,z) = 6x2y2z-4yz5+3x3yz+2xy5z-2xyz3 b. Find the sum of two polynomials POLY1(x,y,z) and POLY2(x,y,z) and store the result in POLYSUM(x,y,z) Support the program with appropriate functions for each of the above operations	CSE
697.	Design, Develop and Implement a menu driven Program in C for the following operations on Binary Search Tree (BST) of Integers . a. Create a BST of N Integers: 6, 9, 5, 2, 8, 15, 24, 14, 7, 8, 5, 2 b. Traverse the BST in Inorder, Preorder and Post Order c. Search the BST for a given element (KEY) and report the appropriate message d. Exit	CSE
698.	Design, Develop and Implement a Program in C for the following operations on Graph(G) of Cities a. Create a Graph of N cities using Adjacency Matrix. b. Print all the nodes reachable from a given starting node in a digraph using DFS/BFS	CSE

	method	
699.	Given a File of N employee records with a set K of Keys (4-digit) which uniquely determine the records in file F. Assume that file F is maintained in memory by a Hash Table (HT) of m memory locations with L as the set of memory addresses (2-digit) of locations in HT. Let the keys in K and addresses in L are Integers. Design and develop a Program in C that uses Hash function H: K □L as H(K)=K mod m (remainder method), and implement hashing technique to map a given key K to the address space L. Resolve the collision (if any) using linear probing.	CSE
700.	A) Create a Java class called Student with the following details as variables within it. (i) USN (ii) Name (iii) Programme (iv) Phone Write a Java program to create n Student objects and print the USN, Name, Programme, and Phone of these objects with suitable headings. B) Write a Java program to implement the Stack using arrays. Write Push(), Pop(), and Display() methods to demonstrate its working.	CSE
701.	A) Design a superclass called Staff with details as StaffId, Name, Phone, Salary. Extend this class by writing three subclasses namely Teaching (domain, publications), Technical (skills), and Contract (period). Write a Java program to read and display at least 3 staff objects of all three categories B) Write a Java class called Customer to store their name and date_of_birth. The date_of_birth format should be dd/mm/yyyy. Write methods to read customer data as <name, dd/mm/yyyy> and display as <name, dd, mm, yyyy> using StringTokenizer class considering the delimiter character as "/".	CSE
702.	A) Write a Java program to read two integers aandb. Compute a/b and print, when b is not zero. Raise an exception when b is equal to zero. B) Write a Java program that implements a multi-thread application that has three threads. First thread generates a random integer for every 1 second; second thread computes the square of the number andprints; third thread will print the value of cube of the number.	CSE
703.	Sort a given set of n integer elements using Quick Sort method and compute its time complexity. Run the program for varied values of n> 5000 and record the time taken to sort. Plot a graph of the time taken versus non graph sheet. The elements can be read from a file or can be generated using the random number generator. Demonstrate using Java how the divide-and-conquer method works along with its time complexity analysis: worst case, average case and best case.	CSE
704.	Sort a given set of n integer elements using Merge Sort method and compute its time complexity. Run the program for varied values of n> 5000, and record the time taken to sort. Plot a graph of the time taken versus non graph sheet. The elements can be read from a file or can be generated using the random number generator. Demonstrate using Java how the divide-and-conquer method works along with its time complexity analysis: worst case, average case and best case.	CSE
705.	Implement in Java, the 0/1 Knapsack problem using (a) Dynamic Programming method	CSE

	(b) Greedy method	
706.	From a given vertex in a weighted connected graph, find shortest paths to other vertices using Dijkstra's algorithm. Write the program in Java.	CSE
707.	Find Minimum Cost Spanning Tree of a given connected undirected graph using Kruskal's algorithm. Use Union-Find algorithms in your program	CSE
708.	Find Minimum Cost Spanning Tree of a given connected undirected graph using Prim's algorithm.	CSE
709.	Write Java programs to (a) Implement All-Pairs Shortest Paths problem using Floyd's algorithm. (b) Implement Travelling Sales Person problem using Dynamic programming.	CSE
710.	Design and implement in Java to find a subset of a given set S = {Sl, S2,.....,Sn} of n positive integers whose SUM is equal to a given positive integer d. For example, if S ={1, 2, 5, 6, 8} and d= 9, there are two solutions {1,2,6}and {1,8}. Display a suitable message, if the given problem instance doesn't have a solution.	CSE
711.	Design and implement in Java to find all Hamiltonian Cycles in a connected undirected Graph G of n vertices using backtracking principle.	CSE
712.	Write a program to multiply two 16 bit binary numbers.	CSE
713.	Write a program to find the sum of first 10 integer numbers.	CSE
714.	Write a program to find factorial of a number.	CSE
715.	Write a program to add an array of 16 bit numbers and store the 32 bit result in internal RAM	CSE
716.	Write a program to find the square of a number (1 to 10) using look-up table.	CSE
717.	Write a program to find the largest/smallest number in an array of 32 numbers .	CSE
718.	Write a program to arrange a series of 32 bit numbers in ascending/descending order.	CSE
719.	Write a program to count the number of ones and zeros in two consecutive memory locations.	CSE
720.	Display "Hello World" message using Internal UART	CSE
721.	Interface and Control a DC Motor.	CSE
722.	Interface a Stepper motor and rotate it in clockwise and anti-clockwise direction.	CSE
723.	Determine Digital output for a given Analog input using Internal ADC of ARM controller.	CSE
724.	Interface a DAC and generate Triangular and Square waveforms	CSE
725.	Interface a 4x4 keyboard and display the key code on an LCD.	CSE
726.	Demonstrate the use of an external interrupt to toggle an LED On/Off.	CSE
727.	Display the Hex digits 0 to F on a 7-segment LED interface, with an appropriate delay in between	CSE
728.	Implement three nodes point – to – point network with duplex links between them. Set the queue size, vary the bandwidth and find the number of packets dropped.	CSE
729.	Implement transmission of ping messages/trace route over a network topology consisting of 6 nodes and find the number of packets dropped due to congestion.	CSE
730.	Implement an Ethernet LAN using n nodes and set multiple traffic nodes and plot congestion window for different source / destination.	CSE
731.	Implement simple ESS and with transmitting nodes in wire-less LAN by simulation and	CSE

	determine the performance with respect to transmission of packets.	
732.	Implement and study the performance of GSM on NS2/NS3 (Using MAC layer) or equivalent environment	CSE
733.	Implement and study the performance of CDMA on NS2/NS3 (Using stack called Call net) or equivalent environment	CSE
734.	Write a program for error detecting code using CRC-CCITT (16- bits).	CSE
735.	Write a program to find the shortest path between vertices using bellman-ford algorithm.	CSE
736.	Using TCP/IP sockets, write a client – server program to make the client send the file name and to make the server send back the contents of the requested file if present.	CSE
737.	Write a program on datagram socket for client/server to display the messages on client side, typed at the server side.	CSE
738.	Write a program for simple RSA algorithm to encrypt and decrypt the data.	CSE
739.	Write a program for congestion control using leaky bucket algorithm.	CSE
740.	Consider the following schema for a Library Database: BOOK(Book_id, Title, Publisher_Name, Pub_Year) BOOK_AUTHORS(Book_id, Author_Name) PUBLISHER(Name, Address, Phone) BOOK_COPIES(Book_id, Programme_id, No-of_Copies) BOOK_LENDING(Book_id, Programme_id, Card_No, Date_Out, Due_Date) LIBRARY_PROGRAMME(Programme_id, Programme_Name, Address) Write SQL queries to 1. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each Programme, etc. 2. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017. 3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation. 4. Partition the BOOK table based on year of publication. Demonstrate its working with a simple query. 5. Create a view of all books and its number of copies that are currently available in the Library.	CSE
741.	Consider the following schema for Order Database: SALESMAN(Salesman_id, Name, City, Commission) CUSTOMER(Customer_id, Cust_Name, City, Grade, Salesman_id) ORDERS(Ord_No, Purchase_Amt, Ord_Date, Customer_id, Salesman_id) Write SQL queries to 1. Count the customers with grades above Bangalore‟s average. 2. Find the name and numbers of all salesman who had more than one customer. 3. List all the salesman and indicate those who have and don‟t have customers in their cities (Use UNION operation.) 4. Create a view that finds the salesman who has the customer with the highest order of a day. 5. Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.	CSE

742.	Consider the schema for Movie Database: ACTOR(Act_id, Act_Name, Act_Gender) DIRECTOR(Dir_id, Dir_Name, Dir_Phone) MOVIES(Mov_id, Mov_Title, Mov_Year, Mov_Lang, Dir_id) MOVIE_CAST(Act_id, Mov_id, Role) RATING(Mov_id, Rev_Stars) Write SQL queries to 1. List the titles of all movies directed by „Hitchcock". 2. Find the movie names where one or more actors acted in two or more movies. 3. List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation). 4. Find the title of movies and number of stars for each movie that has at least one rating and find the highest number of stars that movie received. Sort the result by movie title. 5. Update rating of all movies directed by „Steven Spielberg" to 5.	CSE
743.	Consider the schema for College Database: STUDENT(USN, SName, Address, Phone, Gender) SEMSEC(SSID, Sem, Sec) CLASS(USN, SSID) COURSE(Subcode, Title, Sem, Credits) IAMARKS(USN, Subcode, SSID, Test1, Test2, Test3, FinalIA) Write SQL queries to 1. List all the student details studying in fourth semester „C" section. 2. Compute the total number of male and female students in each semester and in each section. 3. Create a view of Test1 marks of student USN „1BI15CS101" in all Courses. 4. Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students. 5. Categorize students based on the following criterion: If FinalIA = 17 to 20 then CAT = „Outstanding" If FinalIA = 12 to 16 then CAT = „Average" If FinalIA< 12 then CAT = „Weak" Give these details only for 8th semester A, B, and C section students.	CSE
744.	Consider the schema for Company Database: EMPLOYEE(SSN, Name, Address, Sex, Salary, SuperSSN, DNo) DEPARTMENT(DNo, DName, MgrSSN, MgrStartDate) DLOCATION(DNo,DLoc) PROJECT(PNo, PName, PLocation, DNo) WORKS_ON(SSN, PNo, Hours) Write SQL queries to 1. Make a list of all project numbers for projects that involve an employee whose last name is „Scott", either as a worker or as a manager of the department that controls the project. 2. Show the resulting salaries if every employee working on the „IoT" project is given a	CSE

	10 percent raise. 3. Find the sum of the salaries of all employees of the „Accounts" department, as well as the maximum salary, the minimum salary, and the average salary in this department 4. Retrieve the name of each employee who works on all the projects controlled by department number 5 (use NOT EXISTS operator). 5. For each department that has more than five employees, retrieve the department number and the number of its employees who are making more than Rs. 6,00,000	
745.	A) Write a LEX program to recognize valid arithmetic expression. Identifiers in the expression could be only integers and operators could be + and *. Count the identifiers & operators present and print them separately. B) Write YACC program to evaluate arithmetic expression involving operators: +, -, *, and /	CSE
746.	Develop, Implement and Execute a program using YACC tool to recognize all strings ending with b preceded by n a's using the grammar an b (note: input n value)	CSE
747.	Design, develop and implement YACC/C program to construct Predictive / LL(1) Parsing Table for the grammar rules: A □aBa , B □bB | □. Use this table to parse the sentence: abba$	CSE
748.	Design, develop and implement YACC/C program to demonstrate Shift Reduce Parsing technique for the grammar rules: E □E+T | T, T □T*F | F, F □(E) | id and parse the sentence: id + id * id.	CSE
749.	Design, develop and implement a C/Java program to generate the machine code using Triples for the statement A = -B * (C +D) whose intermediate code in three-address form: T1 = -B T2 = C + D T3 = T1 + T2 A = T3	CSE
750.	A) Write a LEX program to eliminate comment lines in a C program and copy the resulting program into a separate file. B) Write YACC program to recognize valid identifier, operators and keywords in the given text (C program) file	CSE
751.	Design, develop and implement a C/C++/Java program to simulate the working of Shortest remaining time and Round Robin (RR) scheduling algorithms. Experiment with different quantum sizes for RR algorithm.	CSE
752.	Design, develop and implement a C/C++/Java program to implement Banker"s algorithm. Assume suitable input required to demonstrate the results	CSE
753.	Design, develop and implement a C/C++/Java program to implement page replacement algorithms LRU and FIFO. Assume suitable input required to demonstrate the results	CSE
754.	Implement Brenham"s line drawing algorithm for all types of slope.	CSE
755.	Create and rotate a triangle about the origin and a fixed point.	CSE
756.	Draw a colour cube and spin it using OpenGL transformation matrices.	CSE

757.	Draw a color cube and allow the user to move the camera suitably to experiment with perspective viewing	CSE
758.	Clip a lines using Cohen-Sutherland algorithm	CSE
759.	To draw a simple shaded scene consisting of a tea pot on a table. Define suitably the position and properties of the light source along with the properties of the surfaces of the solid object used in the scene.	CSE
760.	Design, develop and implement recursively subdivide a tetrahedron to form 3D sierpinski gasket. The number of recursive steps is to be specified by the user.	CSE
761.	Develop a menu driven program to animate a flag using Bezier Curve algorithm	CSE
762.	Develop a menu driven program to fill the polygon using scan line algorithm	CSE
763.	Create an application to design a Visiting Card. The Visiting card should have a company logo at the top right corner. The company name should be displayed in Capital letters, aligned to the center. Information like the name of the employee, job title, phone number, address, email, fax and the website address is to be displayed. Insert a horizontal line between the job title and the phone number.	CSE
764.	Develop an Android application using controls like Button, Text View, Edit Text for designing a calculator having basic functionality like Addition, Subtraction, Multiplication, and Division	CSE
765.	Create a SIGN Up activity with Username and Password. Validation of password should happen based on the following rules: • Password should contain uppercase and lowercase letters. • Password should contain letters and numbers. • Password should contain special characters. • Minimum length of the password (the default value is 8). On successful SIGN UP proceed to the next Login activity. Here the user should SIGN IN using the Username and Password created during signup activity. If the Username and Password are matched then navigate to the next activity whichdisplays a message saying "Successful Login" or else display a toast message saying "Login Failed".The user is given only two attempts and after thatdisplay a toast message saying "Failed Login Attempts" and disable the SIGN IN button. Use Bundle to transfer information from one activity to another.	CSE
766.	Develop an application to set an image as wallpaper. On click of a button, the wallpaper image should start to change randomly every 30 seconds.	CSE
767.	Write a program to create an activity with two buttons START and STOP. On pressingoftheSTART button, the activity must start the counter by displaying the numbers from One and the counter must keep on counting until the STOP button is pressed. Display the counter value in a TextViewcontrol.	CSE
768.	Create two files of XML and JSON type with values for City_Name, Latitude, Longitude, Temperature,andHumidity. Develop an application to create an activity with two buttons to parse the XML and JSON files which when clicked should display the data in their respective layouts side by side	CSE
769.	Develop a simple application withoneEditTextso that the user can write some text in it. Create a button called "Convert Text to Speech" that converts the user input text into voice.	CSE

770.	Create an activity like a phone dialer withCALLand SAVE buttons. On pressing the CALL button, it must call the phone number and on pressing the SAVE button it must save the number to the phone contacts.	CSE
771.	Write a program to enter Medicine Name, Date and Time of the Day as input from the user and store it in the SQLite database. Input for Time of the Day should be either Morning or Afternoon or Eveningor Night. Trigger an alarm based on the Date and Time of the Day and display the Medicine Name.	CSE
772.	Develop a content provider application with an activity called "Meeting Schedule" which takes Date, Time and Meeting Agenda as input from the user and store this information into the SQLite database. Create another application with an activity called "Meeting Info" having DatePicker control, which on the selection of a date should display the Meeting Agenda information for that particular date, else it should display a toast message saying "No Meeting on this Date".	CSE
773.	Create an application to receive an incoming SMS which is notified to the user. On clicking this SMS notification, the message content and the number should be displayed on the screen. Use appropriate emulator control to send the SMS message to your application.	CSE
774.	Write a program to create an activity having a Text box, and also Save, Open and Create buttons. The user has to write some text in the Text box. On pressing the Create button the text should be saved as a text file in MkSDcard. On subsequent changes to the text, the Save button should be pressed to store the latest content to the same file. On pressing the Open button, it should display the contents from the previously stored files in the Text box. If the user tries to save the contents in the Textbox to a file without creating it, then a toast message has to be displayed saying "First Create a File". Create an application to demonstrate a basic media playerthat allows the user to Forward, Backward, Play and Pause an audio. Also, make use of the indicator in the seek bar to move the audio forward or backward as required.	CSE
775.	Develop an application to demonstrate the use of Asynchronous tasks in android. The asynchronous task should implement the functionality of a simple moving banner. On pressing the Start Task button, the banner message should scrollfrom right to left. On pressing the Stop Task button, the banner message should stop.Let the banner message be "Demonstration of Asynchronous Task".	CSE
776.	Develop an application that makes use of the clipboard framework for copying and pasting of the text. The activity consists of two EditText controls and two Buttons to trigger the copy and paste functionality.	CSE
777.	Create an AIDL service that calculates Car Loan EMI. The formula to calculate EMI is E = P * (r(1+r)n)/((1+r)n-1) where E = The EMI payable on the car loan amount P = The Car loan Principal Amount r = The interest rate value computed on a monthly basis n = The loan tenure in the form of months The down payment amount has to be deducted from the principal amount paid towards buying the Car. Develop an application that makes use of this AIDL service to calculate the EMI. This application should have four EditText to read the PrincipalAmount, Down	CSE

	Payment, Interest Rate, Loan Term (in months) and a button named as "Calculate Monthly EMI". On click of this button, the result should be shown in a TextView. Also, calculate the EMI by varying the Loan Term and Interest Rate values.	
778.	Implement A* Search algorithm.	CSE
779.	Implement AO* Search algorithm.	CSE
780.	For a given set of training data examples stored in a .CSV file, implement and demonstrate the Candidate-Elimination algorithm to output a description of the set of all hypotheses consistent with the training examples	CSE
781.	Write a program to demonstrate the working of the decision tree based ID3 algorithm. Use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample.	CSE
782.	Build an Artificial Neural Network by implementing the Back propagation algorithm and test the same using appropriate data sets.	CSE
783.	Apply EM algorithm to cluster a set of data stored in a .CSV file. Use the same data set for clustering using k-Means algorithm. Compare the results of these two algorithms and comment on the quality of clustering. You can add Java/Python ML library classes/API in the program.	CSE
784.	Write a program to implement k-Nearest Neigh bour algorithm to classify the iris data set. Print both correct and wrong predictions. Java/Python ML library classes can be used for this problem.	CSE
785.	Implement the non-parametric Locally Weighted Regression algorithm in order to fit data points. Select appropriate data set for your experiment and draw graphs.	CSE
786.	Practice Programs: • Calculation of Simple Interest, • Check whether the given number is even or odd • Convert string case • Check for palindrome, prime number, perfect square. • Development of linear search algorithm Etc…	CSE
787.	Simulation of a SimpleCalculator.	CSE
788.	Implement Matrix multiplication and validate the rules of multiplication.	CSE
789.	Compute sin(x)/cos(x) using Taylor series approximation. Compare your result with the built-in library function. Print both the results with appropriate inferences.	CSE
790.	Write functions to implement string operations such as compare, concatenate, string length. Convince the parameter passing techniques.	CSE
791.	Design, Develop and Implement a menu driven Program in C for the following Array Operations a. Creating an Array of N Integer Elements b. Display of Array Elements with Suitable Headings c. Exit. Support the program with functions for each of the above operations.	CSE
792.	Design, Develop and Implement a menu driven Program in C for the following Array operations a. Inserting an Element (ELEM) at a given valid Position (POS) b. Deleting an Element at a given valid Position POS)	CSE

793.	Design, Develop and Implement a menu driven Program in C for the following operations on STACK of Integers (Array Implementation of Stack with maximum size MAX) a. Push an Element on to Stack b. Pop an Element from Stack c. Demonstrate Overflow and Underflow situations on Stack d. Display the status of Stack e. Exit Support the program with appropriate functions for each of the above operations	CSE
794.	Design, Develop and Implement a Program in C for the following Stack Applications a. Evaluation of Suffix expression with single digit operands and operators: +, -, *, /, %, ^ b. Solving Tower of Hanoi problem with n disks	CSE
795.	Singly Linked List (SLL) of Integer Data a. Create a SLL stack of N integer. b. Display of SLL c. Linear search. Create a SLL queue of N Students Data Concatenation of two SLL of integers.	CSE
796.	Design, Develop and Implement a menu driven Program in C for the following operationson Doubly Linked List (DLL) of Professor Data with the fields: ID, Name, Branch, Area of specialization a. Create a DLL stack of N Professor's Data. b. Create a DLL queue of N Professor's Data Display the status of DLL and count the number of nodes in it.	CSE
797.	Given an array of elements, construct a complete binary tree from this array in level order fashion. That is, elements from left in the array will be filled in the tree level wise starting from level 0. Ex: Input : arr[] = {1, 2, 3, 4, 5, 6} Output : Root of the following tree 1 / \ 2 3 / \ /\ 4 5 6	CSE
798.	Design, Develop and Implement a menu driven Program in C for the following operations on Binary Search Tree (BST) of Integers a. Create a BST of N Integers b. Traverse the BST in Inorder, Preorder and Post Order	CSE
799.	Design, Develop and implement a program in C for the following operations on Graph (G) of cities a. Create a Graph of N cities using Adjacency Matrix. b. Print all the nodes reachable from a given starting node in a diagraph using DFS/BFS method.	CSE

800.	Design and develop a program in C that uses Hash Function H:K->L as H(K)=K mod m(reminder method) and implement hashing technique to map a given key K to the address space L. Resolve the collision (if any) using linear probing.	CSE
801.	Simulate BJT CE voltage divider biased voltage amplifier using any suitable circuit simulator	CSE
802.	Write a java program that prints all real solutions to the quadratic equation ax2+bx+c=0. Read in a, b, c and use the quadratic formula.	CSE
803.	Create a Java class called Student with the following details as variables within it. USN Name Branch Phone Write a Java program to create n Student objects and print the USN, Name, Branch, and Phone of these objects with suitable headings	CSE
804.	A) Write a program to check prime number B) Write a program for Arithmetic calculator using switch case menu	CSE
805.	Design a super class called Staff with details as StaffId, Name, Phone, Salary. Extend this class by writing three subclasses namely Teaching (domain, publications), Technical (skills), and Contract (period). Write a Java program to read and display at least 3 staff objects of all three categories.	CSE
806.	Write a java program demonstrating Method overloading and Constructor overloading.	CSE
807.	Develop a java application to implement currency converter (Dollar to INR, EURO to INR, Yen to INR and vice versa), distance converter (meter to KM, miles to KM and vice versa), time converter (hours to minutes, seconds and vice versa) using packages.	CSE
808.	Write a program to generate the resume. Create 2 Java classes Teacher (data: personal information, qualification, experience, achievements) and Student (data: personal information, result, discipline) which implements the java interface Resume with the method biodata().	CSE
809.	Write a Java program that implements a multi-thread application that has three threads. First thread generates a random integer for every 1 second; second thread computes the square of the number and prints; third thread will print the value of cube of the number.	CSE
810.	Write a program to perform string operations using ArrayList. Write functions for the following a. Append - add at end b. Insert – add at particular index c. Search d. List all string starts with given letter.	CSE
811.	Write a Java program to read two integers a and b. Compute a/b and print, when b is not zero. Raise an exception when b is equal to zero. Write a java program that reads a file name from the user, displays information about whether the file exists, whether the file is readable, or writable, the type of file and the length of the file in bytes	CSE
812.	Develop an applet that displays a simple message in center of the screen. Develop a simple calculator using Swings	CSE
813.	Sort a given set of n integer elements using Selection Sort method and compute its time complexity. Run the program for varied values of n> 5000 and record the time taken to sort. Plot a graph of the time taken versus n. The elements can be read from a file or can	CSE

	be generated using the random number generator. Demonstrate using C++/Java how the brute force method works along with its time complexity analysis: worst case, average case and best case	
814.	Sort a given set of n integer elements using Quick Sort method and compute its time	CSE
815.	Sort a given set of n integer elements using Merge Sort method and compute its time complexity. Run the program for varied values of n> 5000, and record the time taken to sort. Plot a graph of the time taken versus n. The elements can be read from a file or can be generated using the random number generator. Demonstrate using C++/Java how the divide-and-conquer method works along with its time complexity analysis: worst case, average case and best case.	CSE
816.	To solve Knapsack problem using Greedy method.	CSE
817.	To find shortest paths to other vertices from a given vertex in a weighted connected graph, using Dijkstra's algorithm	CSE
818.	To find Minimum Cost Spanning Tree of a given connected undirected graph using Kruskal's algorithm. Use Union-Find algorithms in your program.	CSE
819.	To find Minimum Cost Spanning Tree of a given connected undirected graph using Prim's algorithm.	CSE
820.	Solve All-Pairs Shortest Paths problem using Floyd's algorithm.	CSE
821.	Solve Travelling Sales Person problem using Dynamic programming.	CSE
822.	Solve 0/1 Knapsack problem using Dynamic Programming method.	CSE
823.	Design and implement C++/Java Program to find a subset of a given set S = {Sl, S2,…,Sn} of n positive integers whose SUM is equal to a given positive integer d. For example, if S = {1, 2, 5, 6, 8} and d= 9, there are two solutions {1, 2, 6} and {1, 8}. Display a suitable message, if the given problem instance doesn't have a solution.	CSE
824.	Design and implement C++/Java Program to find all Hamiltonian Cycles in a connected undirected Graph G of n vertices using backtracking principle.	CSE
825.	Using Keil software, observe the various registers, dump, CPSR, with a simple ALP programme.	CSE
826.	A) Write a python program to find the best of two test average marks out of three test's marks accepted from the user. B) Develop a Python program to check whether a given number is palindrome or not and also count the number of occurrences of each digit in the input number.	CSE
827.	A) Defined as a function F as Fn = Fn-1 + Fn-2. Write a Python program which accepts a value for N (where N >0) as input and pass this value to the function. Display suitable error message if the condition for input value is not followed. B) Develop a python program to convert binary to decimal, octal to hexadecimal using functions .	CSE
828.	a) Write a Python program that accepts a sentence and find the number of words, digits, uppercase letters and lowercase letters.	CSE
829.	Write a Python program to find the string similarity between two given strings	CSE
830.	a) Write a python program to implement insertion sort and merge sort using lists b) Write a program to convert roman numbers in to integer values using dictionaries.	CSE
831.	a) Write a function called is phonenumber () to recognize a pattern 415-555-4242 without	CSE

	using regular expression and also write the code to recognize the same pattern using regular expression. b) Develop a python program that could search the text in a file for phone numbers (+919900889977) and email addresses (sample@gmail.com)	
832.	A) Write a python program to accept a file name from the user and perform the following operations 1. Display the first N line of the file 2. Find the frequency of occurrence of the word accepted from the user in the file B) Write a python program to create a ZIP file of a particular folder which contains several files inside it.	CSE
833.	A) By using the concept of inheritance write a python program to find the area of triangle, circle and rectangle. B) Write a python program by creating a class called Employee to store the details of Name, Employee_ID, Department and Salary, and implement a method to update salary of employees belonging to a given department.	CSE
834.	Write a python program to find the whether the given input is palindrome or not (for both string and integer) using the concept of polymorphism and inheritance.	CSE
835.	A) Write a python program to download the all XKCD comics B) Demonstrate python program to read the data from the spreadsheet and write the data in to the spreadsheet	CSE
836.	A) Write a python program to combine select pages from many PDFs B) Write a python program to fetch current weather data from the JSON file	CSE
837.	Design and develop a web page to create student profile using basic html tags.	CSE
838.	Design and develop a web page to create travel book for demonstrating Hyperlinks.	CSE
839.	Design and develop a web page to display list of courses offered by college using Lists.	CSE
840.	Design and develop a web page to create class time-table using tables.	CSE
841.	Design and develop a web page to display table of content chapterwise using frames.	CSE
842.	Design and develop a web page to create college website using cascading stylesheets.	CSE
843.	Design and develop a javascript program to design simple calculator to perform the following operations sum, difference, product and quotient .	CSE
844.	Design and develop a javascript program that calculates the squares and cubes of the number from 0 to 10 and outputs html texts that displays the resulting values in an html table format.	CSE
845.	a. Design and develop a javascript program to display weekday name using switch case.	CSE
846.	b. Design and develop a javascript program to display the numbers 1 to 4 using regular expression.	CSE
847.	Develop Angular JS program that allows user to input their first name and last name and display their full name..	CSE
848.	Develop an Angular JS application that displays a list of shopping items. Allow users to add and remove items from the list using directives and controllers.	CSE
849.	Develop a simple Angular JS calculator application that can perform basic mathematical operations (addition, subtraction, multiplication, division) based on user input.	CSE
850.	Write an Angular JS application that can calculate factorial and compute square based on given user input.	CSE

851.	Develop AngularJS application that displays a details of students and their CGPA. Allow users to read the number of students and display the count.	CSE
852.	Develop an AngularJS program to create a simple to-do list application. Allow users to add, edit, and delete tasks.	CSE
853.	Write an AngularJS program to create a simple CRUD application (Create, Read, Update, and Delete) for managing users.	CSE
854.	DevelopAngularJS program to create a login form, with validation for the username and password fields.	CSE
855.	Create an AngularJS application that displays a list of employees and their salaries. Allow users to search for employees by name and salary.	CSE
856.	Create AngularJS application that allows users to maintain a collection of items. The application should display the current total number of items, and this count should automatically update as items are added or removed. Users should be able to add items to the collection and remove them as needed.	CSE
857.	Create AngularJS application to convert student details to Uppercase using angular filters.	CSE
858.	Create an AngularJS application that displays the date by using date filter parameters	CSE
859.	Write a C Program to display the following by reading the number of rows as input, 1 1 2 1 1 2 2 3 1 ---------- nth row	CSE
860.	Given a 4-variable logic expression, simplify it using appropriate technique and simulate the same using basic gates	CSE
861.	Design a 4 bit full adder and subtractor and simulate the same using basic gates.	CSE
862.	Design Verilog HDL to implement simple circuits using structural, Data flow and Behavioural model.	CSE
863.	Design Verilog HDL to implement Binary Adder-Subtractor – Half and Full Adder, Half and Full Subtractor.	CSE
864.	Design Verilog HDL to implement Decimal adder.	CSE
865.	Design Verilog program to implement Different types of multiplexer like 2:1, 4:1 and 8:1.	CSE
866.	Design Verilog program to implement types of De-Multiplexer.	CSE
867.	Design Verilog program for implementing various types of Flip-Flops such as SR, JK and D.	CSE
868.	Develop a c program to implement the Process system calls (fork (), exec(), wait(), create process, terminate process)	CSE
869.	Simulate the following CPU scheduling algorithms to find turnaround time and waiting time a) FCFS b) SJF c) Round Robin d) Priority.	CSE
870.	Develop a C program to simulate producer-consumer problem using semaphores.	CSE

871.	Develop a C program which demonstrates interprocess communication between a reader process and a writer process. Use mkfifo, open, read, write and close APIs in your program.	CSE
872.	Develop a C program to simulate Bankers Algorithm for DeadLock Avoidance.	CSE
873.	Develop a C program to simulate the following contiguous memory allocation Techniques: a) Worst fit b) Best fit c) First fit.	CSE
874.	Develop a C program to simulate page replacement algorithms: a) FIFO b) LRU	CSE
875.	Simulate following File Organization Techniques a) Single level directory b) Two level directory	CSE
876.	Develop a C program to simulate the Linked file allocation strategies.	CSE
877.	Develop a C program to simulate SCAN disk scheduling algorithm.	CSE
878.	Develop a Program in C for the following: a) Declare a calendar as an array of 7 elements (A dynamically Created array) to represent 7 days of a week. Each Element of the array is a structure having three fields. The first field is the name of the Day (A dynamically allocated String), The second field is the date of the Day (A integer), the third field is the description of the activity for a particular day (A dynamically allocated String). b) Write functions create(), read() and display(); to create the calendar, to read the data from the keyboard and to print weeks activity details report on screen.	CSE
879.	Develop a Program in C for the following operations on Strings. a. Read a main String (STR), a Pattern String (PAT) and a Replace String (REP) b. Perform Pattern Matching Operation: Find and Replace all occurrences of PAT in STR with REP if PAT exists in STR. Report suitable messages in case PAT does not exist in STR Support the program with functions for each of the above operations. Don't use Built-in functions.	CSE
880.	Develop a menu driven Program in C for the following operations on STACK of Integers (Array Implementation of Stack with maximum size MAX) a. Push an Element on to Stack b. Pop an Element from Stack c. Demonstrate how Stack can be used to check Palindrome d. Demonstrate Overflow and Underflow situations on Stack e. Display the status of Stack f. Exit Support the program with appropriate functions for each of the above operations	CSE
881.	Develop a Program in C for converting an Infix Expression to Postfix Expression. Program should support for both parenthesized and free parenthesized expressions with the operators: +, -, *, /, % (Remainder), ^ (Power) and alphanumeric operands.	CSE
882.	Develop a Program in C for the following Stack Applications	CSE

	a. Evaluation of Suffix expression with single digit operands and operators: +, -, *, /, %, ^ b. Solving Tower of Hanoi problem with n disks	
883.	Develop a menu driven Program in C for the following operations on Circular QUEUE of Characters (Array Implementation of Queue with maximum size MAX) a. Insert an Element on to Circular QUEUE b. Delete an Element from Circular QUEUE c. Demonstrate Overflow and Underflow situations on Circular QUEUE d. Display the status of Circular QUEUE e. Exit Support the program with appropriate functions for each of the above operations	CSE
884.	Develop a menu driven Program in C for the following operations on Singly Linked List (SLL) of Student Data with the fields: USN, Name, Programme, Sem, PhNo a. Create a SLL of N Students Data by using front insertion. b. Display the status of SLL and count the number of nodes in it c. Perform Insertion / Deletion at End of SLL d. Perform Insertion / Deletion at Front of SLL(Demonstration of stack) e. Exit	CSE
885.	Develop a menu driven Program in C for the following operations on Doubly Linked List (DLL) of Employee Data with the fields: SSN, Name, Dept, Designation, Sal, PhNo a. Create a DLL of N Employees Data by using end insertion. b. Display the status of DLL and count the number of nodes in it c. Perform Insertion and Deletion at End of DLL d. Perform Insertion and Deletion at Front of DLL e. Demonstrate how this DLL can be used as Double Ended Queue. f. Exit	CSE
886.	Develop a Program in C for the following operationson Singly Circular Linked List (SCLL) with header nodes a. Represent and Evaluate a Polynomial P(x,y,z) = 6x2y2z-4yz5+3x3yz+2xy5z-2xyz3 b. Find the sum of two polynomials POLY1(x,y,z) and POLY2(x,y,z) and store the result in POLYSUM(x,y,z) Support the program with appropriate functions for each of the above operations	CSE
887.	Develop a menu driven Program in C for the following operations on Binary Search Tree (BST) of Integers . a. Create a BST of N Integers: 6, 9, 5, 2, 8, 15, 24, 14, 7, 8, 5, 2 b. Traverse the BST in Inorder, Preorder and Post Order c. Search the BST for a given element (KEY) and report the appropriate message d. Exit	CSE
888.	Develop a Program in C for the following operations on Graph(G) of Cities a. Create a Graph of N cities using Adjacency Matrix. b. Print all the nodes reachable from a given starting node in a digraph using DFS/BFS	CSE

	method	
889.	Given a File of N employee records with a set K of Keys (4-digit) which uniquely determine the records in file F. Assume that file F is maintained in memory by a Hash Table (HT) of m memory locations with L as the set of memory addresses (2-digit) of locations in HT. Let the keys in K and addresses in L are Integers. Develop a Program in C that uses Hash function H: K →L as H(K)=K mod m (remainder method), and implement hashing technique to map a given key K to the address space L. Resolve the collision (if any) using linear probing.	CSE
890.	Develop a C++ program to find the largest of three numbers	CSE
891.	Develop a C++ program to sort the elements in ascending and descending order.	CSE
892.	Develop a C++ program using classes to display student name, roll number, marks obtained in two subjects and total score of student	CSE
893.	Develop a C++ program for a bank empolyee to print name of the employee, account_no. &balance.Print invalid balance if amount<500, Display the same, also display the balance after withdraw and deposit.	CSE
894.	Develop a C++ program to demonstrate function overloading for the following prototypes. add(int a, int b) add(double a, double b	CSE
895.	Develop a C++ program using Operator Overloading for overloading Unary minus operator.	CSE
896.	Develop a C++ program to implement Multiple inheritance for performing arithmetic operation of two numbers	CSE
897.	Develop a C++ program using Constructor in Derived classes to initialize alpha, beta and gamma and display corresponding values.	CSE
898.	Develop a C++ program to create a text file, check file created or not, if created it will write some text into the file and then read the text from the file.	CSE
899.	Develop a C++ program to write and read time in/from binary file using fstream	CSE
900.	Develop a function which throws a division by zero exception and catch it in catch block. Write a C++ program to demonstrate usage of try, catch and throw to handle exception.	CSE
901.	Develop a C++ program that handles array out of bounds exception using C++.	CSE
902.	a) Write a python program to find the best of two test average marks out of three test's marks accepted from the user. b) Develop a Python program to check whether a given number is palindrome or not and also count the number of occurrences of each digit in the input number.	CSE
903.	a) Defined as a function F as Fn = Fn-1 + Fn-2. Write a Python program which accepts a value for N (where N >0) as input and pass this value to the function. Display suitable error message if the condition for input value is not followed.	CSE

	b) Develop a python program to convert binary to decimal, octal to hexadecimal using functions.	
904.	a) Write a Python program that accepts a sentence and find the number of words, digits, uppercase letters and lowercase letters. b) Write a Python program to find the string similarity between two given strings	CSE
905.	a) Write a Python program to Demonstrate how to Draw a Bar Plot using Matplotlib. b) Write a Python program to Demonstrate how to Draw a Scatter Plot using Matplotlib.	CSE
906.	a) Write a Python program to draw Time Series using Plotly Libraries. b) Write a Python program for creating Maps using Plotly Libraries.	CSE
907.	Familiarization with computer hardware and programming environment, concept of naming the program files, storing, compilation, execution and debugging, taking any simple C – Code.	CSE
908.	Develop a program to compute the roots of a quadratic equation by accepting the coefficients. (No built-in math function)	CSE
909.	Develop a program to compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages.	CSE
910.	Develop a program to find the reverse of a posit integer and check for PALINDROME or NOT. Display appropriate messages. Ex: Num: 2014, Reverse: 4102, Not a Palindrome.	CSE
911.	An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit: for the next 100 units 90 paise per unit: beyond 300 units Rs 1 per unit. All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs. 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the same of the user, number of units consumed and print out the charges.	CSE
912.	Introduce 1 D Array manipulation and implement Binary search.	CSE
913.	Implement using functions to check whether the given number is prime and display appropriate messages. (No built-in math function).	CSE
914.	Develop a program to introduce 2D Array manipulation and implement Matrix multiplication and ensure the rules of manipulation are checked.	CSE
915.	Develop a program to compute Sin(x) using Taylor series approximation. Compare your result with the built-in Library function. Print both the results with appropriate messages.	CSE
916.	Write functions to implement string operations such as compare, concatenate, string length. Convince the parameter passing techniques.	CSE
917.	Develop a program to sort the given set of N numbers using Bubble sort.	CSE
918.	Develop a program to find the square root of a given number N and execute for all possible inputs with appropriate messages. Note: Don't use library function sqrt (n).	CSE
919.	Implement structures to read, write and compute average marks for a class of N students.	CSE
920.	Develop a program using pointers to compute the sum, mean and standard deviation of	CSE

	all elements stored in an array of n real numbers.	
921.	Implement Recursive functions for Binary to Decimal Conversion.	CSE
922.	2D-Plots of Cartesian and Polar Curves	Mathematics
923.	Finding Angle Between Two Polar Curves, Curvature and Radius of Curvature	Mathematics
924.	Finding Partial Derivatives and Jacobian	Mathematics
925.	Taylor Series Expansion and L'Hospital's Rule	Mathematics
926.	Solution of First Order Differential Equations and Plotting the Solution Curve	Mathematics
927.	Numerical Solution of System of Equations, Test for Consistency and GraphicalRepresentation of the Solution.	Mathematics
928.	Solution of Linear Equations by Gauss-Seidel Method	Mathematics
929.	Compute Eigen Value and Corresponding Eigen Vectors, Find the Dominant Eigen Value and Corresponding Eigen Vector by Rayleigh Power Method.	Mathematics
930.	Finding GCD Using Euclid's Algorithm	Mathematics
931.	Solve Linear Congruence of the Form $ax \equiv b(\mathrm{mod} n)$	Mathematics
932.	Progamme to Compute Area, Volume and Center of Gravity	Mathematics
933.	Evaluation of Improper Integrals	Mathematics
934.	Solution of Second Order Ordinary Differential Equation and Plotting the Solution Curve	Mathematics
935.	Solution of Differential Equation of Oscillations of Spring with Various Load	Mathematics
936.		
937.	Finding gradient, divergent, curl and their geometrical interpretation and Verification of Green's theorem	Mathematics
938.	Solution of algebraic and transcendental equation by Regula-Falsi and Newton-Raphson method	Mathematics
939.	Interpolation /Extrapolation using Newton's forward and backward difference formula	Mathematics
940.	Computation of area under the curve using Trapezoidal, Simpson's $1/3^{rd}$ rule and $3/8^{th}$ rule	Mathematics
941.	Solution of ODE of first order and first degree by Taylor's series and Modified Euler's method	Mathematics
942.	Solution of ODE of first order and first degree by Runge-Kutta 4th order method and Milne's predictor and corrector method	Mathematics

943.	Programme to compute area, volume and center of gravity.	Mathematics
944.	Evaluation of improper integrals , Beta and Gamma functions.	Mathematics
945.	Computation of basis and dimension for a vector space and graphical representation of linear transformation	Mathematics
946.	Computing the inner product and Orthogonality	Mathematics
947.	Verification of Green's theorem	Mathematics
948.	Solution of Lagrange's linear partial differential equations	Mathematics
949.	Computation of basis and dimension for a vector space and graphical representation of linear transformation	Mathematics
950.	Visualization in time and frequency domain of standard functions	Mathematics
951.	Computing Laplace transform and inverse Laplace transform of standard functions	Mathematics
952.	Laplace transform of convolution of two functions	Mathematics
953.	Determination of wavelength of LASER using Diffraction Grating.	Physics
954.	Determination of acceptance angle and numerical aperture of the given Optical Fiber.	Physics
955.	Determination of Magnetic Flux Density at any point along the axis of a circular coil.	Physics
956.	Study the I-V Characteristics of the Given Bipolar Junction Transistor.	Physics
957.	Determination of dielectric constant of the material of capacitor by Charging and Discharging method.	Physics
958.	Study the Characteristics of a Photo-Diode and to determine the power responsivity / Verification of Inverse Square Law of Intensity of Light.	Physics
959.	Study the frequency response of Series & Parallel LCR circuits.	Physics
960.	Determination of Planck's Constant using LEDs.	Physics
961.	Determination of Fermi Energy of Copper.	Physics
962.	Determination of Energy gap of the given Semiconductor.	Physics
963.	Determination of Young's modulus of the material of the given bar Uniform Bending.	Physics
964.	Determination of Rigidity modulus of the Material of the wire using Torsional Pendulum.	Physics
965.	Study of Forced Mechanical Oscillations and Resonance.	Physics
966.	Determination of effective spring constant of the given springs in series and parallel combinations.	Physics
967.	Determination of Young's modulus of the material of the given bar Single Cantilever.	Physics
968.	Determination of the Moment of Inertia of the given irregular body using torsional pendulum.	Physics
969.	Determination of the Radius of Curvature of the given Plano Convex Lens by setting Newton's Rings.	Physics
970.	Estimation of total hardness of water by EDTA method.	Chemist

		ry
971.	Conductometric estimation of acids in acid mixture.	Chemistry
972.	Potentiometric estimation of FAS using $K_2Cr_2O_7$	Chemistry
973.	Determination of pKa of vinegar using pH sensor(Glass electrode).	Chemistry
974.	Estimation of iron in TMT bar by external indicator method.	Chemistry
975.	Estimation of Copper present in electroplating effluent by optical sensor.	Chemistry
976.	Determination of Viscosity coefficient of lubricant using Ostwald's Viscometer.	Chemistry
977.	Determination of Chemical oxygen demand ofindustrial waste water sample.	Chemistry
978.	Synthesis of iron oxide nano particles.	Chemistry
979.	Determination of strength of an acid in Pb-acid.	Chemistry
980.	Electrolysis of Water Experiment	Chemistry
981.	Synthesis of polyurethane	Chemistry
982.	Construction of photovoltaic cell	Chemistry
983.	Design an experiment to identify the presence of proteins in given sample	Chemistry
984.	Electroless plating of Nickel on Copper	Chemistry
985.	Synthesis of polyaniline and its conductivity measurement	Chemistry
986.	Electroplating of desired metal on substrate	Chemistry
987.	Synthesis of biodiesel	Chemistry
988.	Analysis of cement for its components	Chemistry
989.	C Program to find Mechanical Energy of a particle using the formula $E = m \times g \times h + {}^1/_2(mv^2)$	EEE
990.	C Program to convert Kilometers into Meters and Centimeters.	EEE
991.	C Program To Check the Given Character is Lowercase or Uppercase or Special Character.	EEE
992.	Program to balance the given Chemical Equation values x, y, p, q of a simple chemical equation of the type: The task is to find the values of constants b1, b2, b3 such that the	EEE

	equation is balanced on both sides and it must be the reduced form. Generic Chemical Equation Form $b_1 * A_x + b_2 * {}_{By} \Rightarrow b_3(A_pB_q)$	
993.	Implement Matrix multiplication and validate the rules of multiplication.	EEE
994.	Compute sin(x)/cos(x) using Taylor series approximation. Compare your result with thebuilt-in library function. Print both the results with appropriate inferences.	EEE
995.	Sort the given set of N numbers using Bubble sort.	EEE
996.	Write functions to implement string operations such as compare, concatenate, string length. Convince the parameter passing techniques.	EEE
997.	Implement structures to read, write and compute average- marks and the students scoringabove and below the average marks for a class of N students.	EEE
998.	Develop a program using pointers to compute the sum, mean and standard deviation of allelements stored in an array of N real numbers.	EEE
999.	Familiarization with computer hardware and programming environment, concept of naming the program files, storing, compilation, execution and debugging, taking any simple C – Code.	CSE
1000	Develop a program to compute the roots of a quadratic equation by accepting the coefficients. (No built-in math function)	CSE
1001	Develop a program to compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages.	CSE
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1004	Introduce 1 D Array manipulation and implement Binary search.	CSE
1005	Implement using functions to check whether the given number is prime and display appropriate messages. (No built-in math function).	CSE
1006	Develop a program to introduce 2D Array manipulation and implement Matrix multiplication and ensure the rules of manipulation are checked.	CSE
1007	Develop a program to compute Sin(x) using Taylor series approximation. Compare your result with the built-in Library function. Print both the results with appropriate messages.	CSE
1008	Write functions to implement string operations such as compare, concatenate, string length. Convince the parameter passing techniques.	CSE
1009	Develop a program to sort the given set of N numbers using Bubble sort.	CSE
1010	Develop a program to find the square root of a given number N and execute for all	CSE

1011	Implement structures to read, write and compute average marks for a class of N students.	CSE
1012	Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of n real numbers.	CSE
1013	Implement Recursive functions for Binary to Decimal Conversion.	CSE
1014	CAED	
1015	Orthographic Projections of Points	ME
1016	Orthographic Projections of Lines	ME
1017	Orthographic Projections of Planes	ME
1018	Orthographic Projections of Solids	ME
1019	Conversion of Orthographic Projections to Isometric Projections	ME
1020	Conversion of Isometric Projections to Orthographic Projections	ME
1021	Development of Lateral Surfaces	ME

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