

S J P N Trust's

Even Sem. 2017-18 (25-01-2018)

Institute

COE:RV00

Hirasugar Institute of Technology, Nidasoshi. Inculcating Values, Promoting Prosperity Approved by ATCTE New Delhi, Recognized by Govt. of Kamataka and Affiliated to VTU Belagavi.

CALENDAR OF EVENTS FOR THE ACADEMIC YEAR 2017-18 EVEN SEMESTER B.E. II, IV, VI & VIII

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Registration & Commencement of Classes Awareness Program on "Wild Life Conservation" Annual Sports Meet First Internal Assessment Feed Back-1
Awareness Program on "Wild Life Conservation" Annual Sports Meet First Internal Assessment Feed Back-1
Annual Sports Meet First Internal Assessment Feed Back-1
First Internal Assessment
First Internal Assessment
Seed Back-1
Feed Back-1
CON DRAW 1
Display of First Internal Assessment Marks
Submission of Feedback-1 report to office
HIT Quest,
HIT SAMBHRAMA-2018,
Chandramana Ugadi/New Year Celebration
Technical Competitions for Diploma Students
an an air an
Second Internal Assessment
Display of Second Internal Assessment Marks
Feed Back-2
and the state of the state of the
Submission of Feedback-2 Report to Office
Third Internal Assessment
Lab Internal According
Lab Internal Association
Last Working Day
Final Vest Project Exhibition
Geschustion Day
Commencement of Practical Exams
Commencement of Theory Exams(VIII- Sem)
Display of Third Internal Assessment Marks
Display of Final Internal Assessment Marks
Commencement of Theory Exams(II, IV & VI Sem)
Total Number of Working Days- 87

		CAL	END	AR		
Febru	ary					
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8 15 22 29 14-D 18- I May	16 23 30 r. B. R Basava	17 24 Amb	18 25 edluar	19 26 Jayanti	20	21
8 15 22 29 14-D 18-1 May S	16 23 30 r. B. R Basava	17 24 Juyant	18 25 edkar- ti W	19 26 Jayanti T	20 27 F	21 28
8 15 22 29 14-D 18- I May S	16 23 30 r, B, R Basava M	17 24 Ambi Jayant	18 25 edkar- ti W 2	19 26 Jayanti T 3	20 27 F 4	21 28 5 5
8 15 22 29 14-D 18-1 Nay S	10 23 30 r. B. R Basava M 7	17 24 Amb Juyan T 1 8	18 25 edkar- ti W 2 9	19 26 Jayanti T 3 10	20 27 F 4 11	21 28 5 12
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8 15 22 29 14-D 18- I May 5 6 13 20 27 01-1	16 23 30 r, B, R Basava M 7 14 21 28 Labout	17 24 Jayant T 1 8 15 22 29 5 Day	18 25 edikar - fi W 2 9 16 23 30	19 26 Fay anti T 3 10 17 24 31	20 27 F 4 11 18 25	21 28 5 12 19 26
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8 15 22 29 14-D 18-1 8 6 13 20 27 01-1 Juno 8 3	M 16 23 30 r. B. R Rasava M 7 14 21 28 Labour M 4	17 24 Amb Juyani T 1 8 15 22 29 5 Day T 5	18 25 edkar- fi 2 9 16 23 30 W W	19 26 Fay anti 3 10 17 24 31 7 7	20 27 F 4 11 18 25 F 1 8	21 28 5 12 10 26 8 29 9
8 15 22 29 14-D 18-1 8 6 13 20 27 01-1 3 Juno 8 3 10	M 16 23 30 r. B. R Rasava M 7 14 21 28 Labour M 4 11	17 24 Amb Juyani T 1 8 15 22 29 s Day T 5 12	18 25 edkar- fi 23 30 W 6 13	19 26 Jayanti 10 17 28 31 7 7 14	20 27 F 4 11 18 25 F 1 8 8 15	21 28 5 12 10 26 9 9 10
8 15 22 29 14-D 18-1 5 6 13 6 13 20 27 01-1 3 01-1 3 10 17	M 16 23 30 r. B. R Rasava M 7 14 21 28 Labour r M 4 11 18	17 24 Amb Juyani T 1 8 15 22 29 s Day T 5 12 19	18 25 edkar - fi 23 30 W 6 13 20	19 26 Jay anti 10 17 28 31 31 7 7 14 21	20 27 F 4 11 18 25 F 1 8 F 1 8 15 222	21 28 5 12 10 26 8 2 9 16 23



INSTITUTE VISION

"To be a preferred institution in Engineering Education by achieving excellence in teaching and research and to remain as a source of pride for its commitment to holistic development of individual and society"

INSTITUTE MISSION

"To continuously strive for the overall development of students, educating them in a state of the art infrastructure, by retaining the best practices, people and inspire them to imbibe real time problem solving skills, leadership qualities, human values and societal commitments, so that they emerge as competent professionals"

DEPARTMENTAL VISION

"To be the centre of excellence in providing education in the field of Electronics and Communication Engineering to produce technically competent and socially responsible engineering graduates."

DEPARTMENTAL MISSION

"Educating students to prepare them for professional competencies in the broader areas of the Electronics and Communication Engineering field by inculcating analytical skills, research abilities and encouraging culture of continuous learning for solving real time problems using modern tool".

PROGRAM EDUCATIONAL OBJECTIVES(PEOs):

PEO1:

Acquire core competence in Applied Science, Mathematics, and Electronics and Communication Engineering fundamentals to excel in professional carrier and higher study.

PEO2:

Design, Demonstrate and Analyze the Electronic Systems which are useful to society.

PEO3:

Maintain Professional and Ethical values, Employability skills, Multidisciplinary approach and an Ability to realize Engineering issues to broader social contest by engaging in lifelong learning.

PROGRAM OUTCOMES(POs):

- 1. Ability to apply knowledge of mathematics, science and engineering.
- 2. Design system components that meet the requirement of public safety & offer solutions to the social & environmental concerns.
- 3. An ability to demonstrate knowledge and understanding of engineering & management principles & applying these to one's own work, as a member/leader to manage projects.
- 4. Will demonstrate an ability to identify, formulate and electronics and communication engineering problems.
- 5. Graduate will demonstrate an ability to design microcontroller, microprocessor, VLSI and embedded systems and conduct experiments, analyze and interpret data.
- 6. Graduate will demonstrate an ability to design DSP & Communication system and conduct experiments analyze and interpret data.
- 7. Specific, design, prototype, and test electronic systems that perform analog signal conditioning and processing function as per user requirements using currently available electronics components
- 8. Graduate will have knowledge of digital systems.
- 9. Ability to design implement and evaluate computer base system, process, component or programme to meet desired needs.

STUDENT HELP DESK

S.	D	Contact Perso	n
N.	Purpose	Faculty	Staff
1.	Attestations ,Dept & Institute Work	H.O.D	All Instructors
		Smt.S.S.Malaj (IVSem)	Shri.M.A.Attar
2.	EMS Coordinator and Class Teachers In	Shri S S Patil (VI Sem)	Shri A K Talawar
	charges	Shri S S Ittannavar (VIII Sem)	Shri.V.V.Guruwodeyar
3	Mini Project Coordinator	Shri S S Patil	
4	AICTE Coordinator	Shri. N. K. Honnagoudar	
5	LIC Coordinator	Shri D B Madihalli	
6	ISTE Coordinator	Shri.P.V.Patil	
7	IEEE Coordinator	Smt.S.S.Kamate	
8	Seminar Coordinator	Smt.S.S.Kamate	Shri. P .S .Desai
9.	Project Coordinator	Shri S.B.Akkole	Shri.V.V.Guruwodeyar
10.	NBA Coordinator	Shri. M M Gadag & Shri.S.B.Akkole	
11.	HIT Quest &Industry Institute Interaction Coordinator	Shri.V B Dhere	
12.	ECSA & Extra Curricular Coordinator	Shri D M Kumbhar	All Instructors
13	T P Cell & Alumni Coordinator	Shri N M Patel	
14	RoboVidya Coordinator	Smt. B P Khot	
15	I. A. Test Coordinator	Sri.P.V.Patil	Shri.M.A.Attar
16	Department Library Coordinator	Shri A K Talawar	
17	Time Table & Course plan Coordinator	Dr. S B Shrigiri	
18	GATE Coordinator	Shri.S.B.Akkole	Shri.V.V.Guruwodeyar
19	Staff Seminar Coordinator	Shri. M M Gadag	

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Course Plan 2017-18 Even – Semester -4th Electronics and Communication Engineering

S.N.	Category	No. in position	Average experience
1	Teaching faculty.	12	13.82Y
2	Technical supporting staff.	06	12.08Y
3	Helper staff	02	19Y

MAJOR LABORATORIES

S. N.	Name of the laboratory	Area in Sq. Mtrs	Amount Invested in Lakhs	S. N.	Name of the laboratory	Area in Sq. Mtrs	Amount Invested in Lakhs
1	Logic Design Lab	71	02.59	5	VLSI / HDL Lab	71	37.55
2	Analog Electronics Lab	92	08.24	6	Commn + LIC Lab	95	04.68
3	Advanced Commn Lab	92	15.48	7	Power Electronics Lab	71	05.14
4	MC / DSP Lab	71	22.34	8	Microprocessor Lab	70	13.05
	Total Investme		Rs. 100.	99Lakhs			

TEACHING FACULTY

FACULTY DETAILS

S.N.	Name and Designation	Qualification	Specialization	Professional Membership	Teaching Exp.	Contact No.
1	Dr.V.G.Kasabegoudar	M.Tech.Phd	Communication	LMISTE MIE	21Y.00M	9449074094
2	Dr.Shilpa.B. Shrigiri	M.Tech.Phd	VLSI Design	LMISTE	15Y.00M	9844168942
3	Sri M.M.Gadag	M.Tech.	Industrial Electronics	LMISTE	27 Y-11M	9986850734
4	Smt.S.S.Kamate	M.Tech	Digital Electronics	LMISTE	14Y-08M	9008696825
5	Sri S B Akkole	M.Tech.	Communication	LMISTE	21 Y-11M	9480422508
6	Sri.V.B.Dhere	M.E.	E & TC	LMISTE	19Y-10M	9632748604
7	Smt. S. S. Malaj	M.E.	E & TC	LMISTE	20Y-02M	9731795803
8	Sri N K Honnagoudar	M.E.	Electronics	LMISTE	15Y-00M	9449495302
9	Sri. D.M. Kumbhar	M.Tech	Electronics	LMISTE	09Y-10M	09373609880
10	Sri. Sachin .S. Patil	M.Tech	VLSI & Embedded	LMISTE	12Y-00M	9448102010
11	Sri. N .M. Patel	M.Tech	CSE	LMISTE LMISRD	11Y-10M	9739619661
12	Sri .D.B. Madihalli	M.Tech	Industrial Electronics	LMISTE	09Y-11M	9902854324
13	Sri.P.V.Patil	M.Tech	VLSI & Embedded	LMISTE	04Y-09M	9731104059
14	Sri.S.S.Ittannavar	M.Tech	DSP	LMISTE	04Y-05M	9964299498
15	Smt. B. P. Khot	M.Tech	Microelectronics & Control Systems	LMISTE	02Y-00M	9964019501

TECHNICAL SUPPORTING STAFF

S. N	Name	Qualification	Experience (in years)	S. N.	Name	Qualification	Experience (in years)
1.	Sri. P. S. Desai	DEC	17 .01Yrs	4.	Sri.M.A.Attar	DEC	7.11Y
2.	Sri. A. K. Talawar	M.Sc,DEC	16.01 Yrs				
3.	Sri. V. V. Guruwodeyar	DEC	26.06 Yrs				

SCHEME OF TEACHING AND EXAMINATION

IV SEM ECE

SI.			Teaching	Teachi /w	Teaching hours /week		Examination			
No	Sub-Code		Dept.	Theory	Pract. /Project	Duration	I.A. Marks	Theory/ Pract.	Total Marks	
1	15MAT41	Engineering Mathematics-IV	EC	04		03	20	80	100	
2	15EC42	Microprocessors	EC	04		03	20	80	100	
3	15EC43	Control Systems	EC	04		03	20	80	100	
4	15EC44	Signals And Systems	EC	04		03	20	80	100	
5	15EC45	Principles Of Communication Systems	EC	04	06	03	20	80	100	
6	15EC46	Linear Integrated Circuits	EC	04		03	20	80	100	
7	15ECL47	Microprocessor Laboratory	EC		1I+2P	03	20	80	100	
8	15ECL48	Linear Ics And Communication Lab	EC		1I+2P	03	20	80	100	
		TOTAL		24	06	24	160	640	800	

*Additional course for Lateral entry students only:

1	15MATDIP41	Additional Mathematics - II	30		30	80		80	
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15MAT41	Engineering Mathematics-IV	15EC45	Principles Of Communication Systems
15EC42	Microprocessors	15EC46	Linear Integrated Circuits
15EC43	Control Systems	15ECL47	Microprocessor Laboratory
15EC44	Signals And Systems	15ECL48	Linear Ics And Communication Lab

ACADEMIC CALENDER



S J.P. N Trust's Institute of Technology, Nidasoshi. Hirasugar Institute of Technology, Nidasoshi. Inculcating Values, Promoting Prosperity Approved by AICTE New Delhi, Recognized by Govt. of Karnataka and Affiliated to VTU Belagavi. (25-01-2018)

CALENDAR OF EVENTS FOR THE ACADEMIC YEAR 2017-18 EVEN SEMESTER B.E. II, IV, VI & VIII

w.e.f.:01.02.2018

DATE	EVENTS	CALENDAR						
01-02-2018	Registration & Commencement of Classes		_					
09-02-2018	Awareness Program on "Wild Life Conservation"	Febr	цялу				-	
17-02-2018	Annual Sports Meet	8	M	Т		Т	F	8
05-03-2018	and an and a state of the state	-		21	-		2	3
06-03-2018	First Internal Assessment	4	.5	6	T.	8		10
07-03-2018		11	12	13	14	15	16	17
12-03-2018	Faad Back 1	18	19	20	21	22	23	24
13-03-2018	Feed Back-1	25	26	27	28			
13-03-2018	Display of First Internal Assessment Marks	13- N	fahash	ivarat	ri, 14	Maha	Dasoh	CA .
15-03-2018	Submission of Feedback-1 report to office	Mary	th	1		0 10	-	-
16-03-2018	HIT Quest,	\$	M	T	W	T	F	5
17-03-2018	HIT SAMBHRAMA-2018.		-	-		1	2	3
18-03-2018	Chandramana Ugadi/New Year Celebration	4		Û.	75	8	¥.	10
24-03-2018	Technical Competitions for Diploma Students	11	12	13	14	15	16	17
11-04-2018	20	18	19	20	21	22	23	24
12-04-2018	Second Internal Assessment	25	20	21	-28	- 29	.30	34
13-04-2018		18-0	handr	amana	Ugad	10 6	and De	L.A.
21-04-2018	Display of Second Internal Assessment Marks	29-14	anave	er anyi	100	30-0	000 FT	nanž
23-04-2018		Apri	1					
24-04-2018	Feed Back-2	8	M	T	W	T	F	5
26-04-2018	Submission of Feedback-2 Report to Office	1.	2	Э	4	5	6:	7
18-05-2018		8	9	10	н	12	14	14
19-05-2018	Third Internal Assessment	15	16	17	18	19	20	21
20-05-2018		22	23	24	25	26	27	28
22-05-2018		29	.30					
23-05-2018	Lab Internal Assessment	14-Dr. B. R. Ambedkar Jayanti						
24-05-2018		13- 8	SESSIVE.	aayan				_
23-05-2018	Last Working Day	May						
25-05-2018	Final Year Project Exhibition	8	M	T	W	T	F	8
26-05-2018	Graduation Day	-		1	2	3	4	5
28-05-2018	Commencement of Practical Exams	6	7	8	9	10	11	12
28-05-2018	Commencement of Theory Exains(VIII- Sem)	13	14	3.5	16	17	18	. 19
29-05-2018	Display of Third Internal Assessment Marks	20	21	22	23	24	- 25	-26
01-06-2018	Display of Final Internal Assessment Marks	27	28	29	30	31		-
11-06-2018	Commencement of Theory Exams(II, IV & VI Sen)	01-1	abour	s Day				
	Total Number of Working, Days- 87	June		1		1	-	1 m
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	and the of The way	10	11	10	13	14	14	16
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(A)	N IST STATES UNIT	24	25	26	27	28	29	30
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Prof. B.R.Ch Coordinator	narane Dr. S.C.Kainate Principal							

Subject Title	Engineering Mathematics-	IV			
Subject Code	15MAT41	IA Marks	20		
Number of Lecture Hrs / Week	04	Exam Marks	80		
Total Number of Lecture Hrs	50	Exam Hours	03		
			CREDITS – 04		
FACULTY DETAILS:					
Name: Prof S.S.Thabaj	Designation: Asst.Professor	Experience: 07			
No. of times course taught: 05	Specialization: Mathematics				

1.0 Prerequisite Subjects:

Sl. No	Branch	Semester	Subject
01	Electronics & Communication Engineering	III	Engineering Mathematics-III

2.0 Course Objectives

The purpose of this course is to make students well conversant with numerical methods to solve ordinary differential equations, complex analysis, sampling theory and joint probability distribution and stochastic processes arising in science and engineering.

3.0 Course Outcomes

Having successfully completed this course, the student will be able to draw and use modeling software's to generate

	Course Outcome	RBT Level	POs
C209.1	Solve first and second order ordinary differential equations by using appropriate numerical methods.	L3	PO1, PO2, PO3
C209.2	Explain the idea of analyticity, potential field's residues and poles of complex potentials in field theory and electromagnetic theory.	L2	PO1, PO2,PO3
C209.3	Solve Engineering problems using complex variable techniques	L3	PO1,PO2,
C209.4	Explain the basic concepts of probability, random variables, probability distribution and joint probability distribution.	L2	PO1, PO2.
C209.5	Analyze and Evaluate scientific hypotheses using rigorous statistical methods.	L3,L5	PO1,PO2,

4.0 Course Content

Modules	Teaching Hours	Bloom's Taxonomy (RBT) level
Module 1	10	L1, L2
Numerical Methods: Numerical solution of ordinary differential equations of first order and first degree, Taylor's series method, modified Euler's method, Runge - Kutta method of fourth order. Milne's and Adams-Bashforth predictor and corrector methods (No derivations of formulae).		

Numerical Methods: Numerical solution of second order ordinary differential equations, Runge-Kutta method and Milne's method.Special Functions: Series solution-Frobenious method. Series solution of Bessel's differential equation leading to $Jn(x)$ -Bessel's function of first kind. Basic properties and orthogonality. Series solution of Legendre's differential equation leading to $Pn(x)$ -Legendre polynomials. Rodrigue's formula, problems10L1,L3Module-310L1,L3Complex Variables: Review of a function of a complex variable, limits, continuity, and differentiability. Analytic functions-Cauchy-Riemann equations in cartesian and polar forms. Properties and construction of analytic functions. Complex line integrals-Cauchy's theorem and Cauchy's integral formula, Residue, poles, Cauchy's Residue theorem (Without proof) and problems. Transformations: Conformal transformations, discussion of transformations: w = z ² , w = e ^x , w = z + 1/z and bilinear transformations- problems.10L3Module-410L3Probability Distributions, problems. Joint probability distribution, poisson distribution. Exponential and normal distributions, problems. Joint probability distribution; Joint Probability distribution; Joint Probability distribution; Joint Probability distribution; Joint Probability distribution; for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit.10L1,L3	Module -2	10	L3
Numerical Methods: Numerical solution of second order ordinary differential equations, Runge-Kutta method and Milne's method.Special Functions: Series solution-Frobenious method. Series solution of Bessel's differential equation leading to $Jn(x)$ -Bessel's function of first kind. Basic properties and orthogonality. Series solution of Legendre's differential equation leading to $Pn(x)$ -Legendre polynomials. Rodrigue's formula, problems10L1,L3Module-310L1,L3Complex Variables: Review of a function of a complex variable, limits, continuity, and differentiability. Analytic functions-Cauchy-Riemann equations in cartesian and polar forms. Properties and construction of analytic functions. Complex line integrals-Cauchy's theorem and Cauchy's integral formula, Residue, poles, Cauchy's Residue theorem (Without proof) and problems. Transformations: Conformal transformations, discussion of transformations: w = z ² , w = e ^z , w = z + 1/z and bilinear transformations- problems.10L3Module-410L3Probability Distributions: Random variables (discrete and continuous), probability mass/density functions. Binomial distribution, Poisson distribution. Exponential and normal distributions, problems.10L1,L3Joint probability distribution: Joint Probability distribution for two discrete random variables, expectation, covariance, correlation coefficient.10L1,L3Module-510L1,L3Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit.10L1,L3			
equations, Runge-Kutta method and Milne's method. Special Functions: Series solution-Frobenious method. Series solution of Bessel's differential equation leading to <i>Jn(x)</i> -Bessel's function of first kind. Basic properties and orthogonality. Series solution of Legendre's differential equation leading to <i>Pn(x)</i> -Legendre polynomials. Rodrigue's formula, problems Module-3 10 L1,L3 Complex Variables: Review of a function of a complex variable, limits, continuity, and differentiability. Analytic functions-Cauchy-Riemann equations in cartesian and polar forms. Properties and construction of analytic functions. Complex line integrals-Cauchy's theorem and Cauchy's integral formula, Residue, poles, Cauchy's Residue theorem (Without proof) and problems. 10 L1,L3 Transformations: Conformal transformations, discussion of transformations: w = z ² , w = e ^z , w = z + 1/z and bilinear transformations-problems. 10 L3 Probability Distributions: Random variables (discrete and continuous), probability mass/density functions. Binomial distribution for two discrete random variables, expectation, covariance, correlation coefficient. 10 L3 Module-5 10 L1,L3 Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi-square distribution as a test of goodness of fit. 10 L1,L3	Numerical Methods: Numerical solution of second order ordinary differential		
Special Functions: Series solution-Frobenious method. Series solution of Bessel's differential equation leading to $Jn(x)$ -Bessel's function of first kind. Basic properties and orthogonality. Series solution of Legendre's differential equation leading to $Pn(x)$ -Legendre polynomials. Rodrigue's formula, problems10L1,L3Module-310L1,L3Complex Variables: Review of a function of a complex variable, limits, continuity, and differentiability. Analytic functions-Cauchy-Riemann equations in cartesian and polar forms. Properties and construction of analytic functions. Complex line integrals-Cauchy's theorem and Cauchy's integral formula, Residue, poles, Cauchy's Residue theorem (Without proof) and problems. Transformations: Conformal transformations, discussion of transformations: w = z^2 , w = e^x , w = $z + 1/z$ and bilinear transformations- problems.10L3Module-410L3Probability Distributions: Random variables (discrete and continuous), probability mass/density functions. Binomial distribution, Poisson distribution. Exponential and normal distributions, problems.10L1,L3Module-510L1,L3Sampling Theory: Sampling. Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit. Strokentia meanset.10L1,L3	equations, Runge-Kutta method and Milne's method.		
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and orthogonality. Series solution of Legendre's differential equation leading to $Pn(x)$ -Legendre polynomials. Rodrigue's formula, problems10L1,L3Module-310L1,L3Complex Variables: Review of a function of a complex variable, limits, continuity, and differentiability. Analytic functions-Cauchy-Riemann equations in cartesian and polar forms. Properties and construction of analytic functions. Complex line integrals-Cauchy's theorem and Cauchy's integral formula, Residue, poles, Cauchy's Residue theorem (Without proof) and problems.10L1Transformations: Conformal transformations, discussion of transformations: w = z ² , w = e ^z , w = z + 1/z and bilinear transformations- problems.10L3Module-410L3Probability Distributions: Random variables (discrete and continuous), probability distribution: Joint Probability distribution for two discrete random variables, expectation, covariance, correlation coefficient.10L1,L3Module-510L1,L3Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit.10L1,L3	differential equation leading to $Jn(x)$ -Bessel's function of first kind. Basic properties		
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Complex Variables: Review of a function of a complex variable, limits, continuity, and differentiability. Analytic functions-Cauchy-Riemann equations in cartesian and polar forms. Properties and construction of analytic functions. Complex line integrals-Cauchy's theorem and Cauchy's integral formula, Residue, poles, Cauchy's Residue theorem (Without proof) and problems. Transformations: Conformal transformations, discussion of transformations: w = z^2 , w = e^z , w = $z + 1/z$ and bilinear transformations- problems.10L3Module-410L3Probability Distributions: Random variables (discrete and continuous), probability mass/density functions. Binomial distribution, Poisson distribution. Exponential and normal distributions, problems.10L1,L3Module-510L1,L3Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit.10L1,L3	Module-3	10	L1,L3
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Module-410L3Probability Distributions: Random variables (discrete and continuous), probability mass/density functions. Binomial distribution, Poisson distribution. Exponential and normal distributions, problems. Joint probability distribution: Joint Probability distribution for two discrete random variables, expectation, covariance, correlation coefficient.10L3Module-510L1,L3Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit.10L1,L3	problems.		
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Exponential and normal distributions, problems. Joint probability distribution: Joint Probability distribution for two discrete random variables, expectation, covariance, correlation coefficient. Module-5 10 Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi-square distribution as a test of goodness of fit. Stochastic processes	probability mass/density functions. Binomial distribution, Poisson distribution.		
Joint probability distribution: Joint Probability distribution for two discrete random variables, expectation, covariance, correlation coefficient. Module-5 10 Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit. Stochastic processes	Exponential and normal distributions, problems.		
random variables, expectation, covariance, correlation coefficient. 10 L1,L3 Module-5 10 L1,L3 Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis 10 L1,L3 Square distribution as a test of goodness of fit. 5 5 Stochastic processes 6 6	Joint probability distribution: Joint Probability distribution for two discrete		
Module-5 10 L1,L3 Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis 10 L1,L3 Square distribution as a test of goodness of fit. 5 10 L1,L3	random variables, expectation, covariance, correlation coefficient.		
Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit.	Module-5	10	L1,L3
for means and proportions, confidence limits for means, student's t-distribution, Chi- square distribution as a test of goodness of fit.	Sampling Theory: Sampling, Sampling distributions, standard error, test of hypothesis		
square distribution as a test of goodness of fit.	for means and proportions, confidence limits for means, student's t-distribution, Chi-		
Ntophastia propossi	square distribution as a test of goodness of fit.		
	Stochastic process:		
Stochastic processes, probability vector, stochastic matrices, fixed points, regular	Stochastic processes, probability vector, stochastic matrices, fixed points, regular		

5.0 Gap Analysis and Mitigation

Sl. No	Delivery Type	Details
01	Tutorial	Topic: Sampling Theory

6.0 Books Used and Recommended to Students

Text Books

7.0

- 1. B.S. Grewal: Higher Engineering Mathematics, Khanna Publishers, 43rd Ed., 2015.
- 2. E. Kreyszig: Advanced Engineering Mathematics, John Wiley & Sons, 10th Ed., 2015.

Reference Books

1. N.P.Bali and Manish Goyal: A Text Book of Engineering Mathematics, Laxmi

Publishers,7th Ed., 2010.

- 2. B.V.Ramana: "Higher Engineering M athematics" Tata McGraw-Hill, 2006.
- 3. H. K. Dass and Er. RajnishVerma: "Higher Engineerig Mathematics", S. Chand publishing, 1st edition, 2011.

Additional Study material & e-Books

1. N.P.Bali & Manish.Goyal, A Text book of Engineering Mathematics, 7th edition, Laxmi Publications.

Relevant Websites (Reputed Universities and Others) for Notes/Animation/Videos Recommended

Website and Internet Contents References

- 1. http://nptel.ac.in/courses.php?disciplineID=111
- 2. http://www.khanacademy.org/
- 3. http://www.class-central.com/subject/math

8.0 Magazines/Journals Used and Recommended to Students

Sl.No	Magazines/Journals	website
1	+ Plus Magazine	https://plus.maths.org/issue44.
2	Mathematics Magazine	www.mathematicsmagazine.com
3		http://www.math.com/
4		https:// www.math.umn.edu/~olver/pdn.html,

9.0 Examination Note

Internal Assessment: 20 Marks

Theoretical aspects as well as relevant sketches should be drawn neatly.

Scheme of Evaluation for Internal Assessment (20 Marks)

- (a) Internal Assessment test in the same pattern as that of the main examination (Better of the two Tests): 15 Marks.
- (b) Assignments: 05 Marks

SCHEME OF EXAMINATION:

Question paper pattern:

The question paper will have ten full questions carrying equal marks.

- 2. Each full question consisting of **16** marks.
- 3. There will be **two** full questions (with a **maximum** of **four** sub questions) from each module.
- 4. Each full question will have sub question covering all the topics under a module.
- 5. The students will have to answer **five** full questions, selecting **one** full question from each module.

10.0	Course	Delivery Plan	
Module	Lecture No.	Content of Lecturer	% of Portion
	1	Numerical solution of ordinary differential equations of first order & first degree	
	2	Taylor's series method & Problems.	
	3	Modified Euler's method	
	4	Problems	
MODULE 1	5	Runge -Kutta method of fourth order	20
MODULLI	6	Problems	20
	7	Milne's predictor and corrector method	
	8	Problems	
	9	Adams-Bashforth predictor and corrector method	
	10	Problems.	
	11	Numerical solution of second order ordinary differential equations	
	12	Runge -Kutta method	
	13	Milne's method	
	14	Problems.	
	15	Series solution of Bessel's differential equation leading to Jn(x)	
MODULE 2	16	Properties of Bessel's functions.	20
	17	$J_{\frac{1}{2}}(x) = \sqrt{\frac{2}{\pi x}} \sin x \& J_{-\frac{1}{2}}(x) = \sqrt{\frac{2}{\pi x}} \cos x$	
	18	Orthogonality of Bessel's functions.	
	19	Series solution of Legendre differential equation leading to Jn(x)-Legendre polynomials	
	20	Rodrigue's formula, problems	

Course Plan 2017-18 Even – Semester -4th Electronics and Communication Engineering

Г Т	21		
	21	Review of a function of a complex variable, limits, continuity, differentiability	-
	22	Analytic functions-Cauchy-Riemann equation in Cartesian form	-
_	23	Cauchy-Riemann equation in Polar form	-
	24	Properties and construction of analytic functions	
MODULE 3	25	Complex line integrals-Cauchy's theorem	20
MODOLL 5	26	Cauchy's integral formula	20
	27	Residue, poles, Cauchy's Residue theorem	
	28	Conformal Transformations and discussion of transformations of $w = z^2$, $w = e^z$	
	29	Discussion of Transformations: $w = z + (1 / z)$.	
	30	Bilinear transformations & Problems	
	31	Random variables (discrete and continuous)	
	32	Probability mass/density functions	
	33	Binomial distribution.	
	34	Poisson distribution.	
MODULE 4	35	Exponential distribution.	20
	36	Normal distributions.	20
	37	Problems.	
	38	Joint Probability distribution for two discrete random variables	
	39	Expectation, covariance.	
	40	Correlation coefficient	
	41	Sampling & Sampling distributions	
	42	standard error, test of hypothesis for means and proportions	
	43	confidence limits for means	
	44	student's t-distribution	
MODULE 5	45	Chi-square distribution as a test of goodness of fit.	
	46	Stochastic processes, probability vector	20
	47	stochastic matrices, fixed points,	20
	48	regular stochastic matrices	
Γ	49	Markov chains	1
	50	higher transition probability simple problems	

11.0 University Result

Examination	S+	S	Α	В	С	D	Е	% Passing
July 2017	3	12	8	10	8	9	7	86.15

Prepared by	Checked by		
Prof.S.S.Thabaj	Prof.(Smt)J B Patil	HOD	Principal

Course Plan 2017-18 Even – Semester -4th Electronics and Communication Engineering

Subject Title	MICROPROCESSORS		
Subject Code	15EC42	IA Marks	20
Number of Lecture Hrs / Week	04 L	Exam Marks	80
Total Number of Lecture Hrs	50	Exam Hours	03
		(CREDITS – 04

FACULTY DETAILS:

Name: Prof. Pramod Patil	Designation: Asst. Professor	Experience: 5.04Years
No. of times course taught: 03	Spec	ialization: VLSI & Embedded System Design

1.0 Prerequisite Subjects:

Sl. No	Branch	Semester	Subject
01	Electronics & Communication Engineering	I/II	Basic Electronics
02	Electronics & Communication Engineering	III	Digital Electronics

2.0 Course Objectives

- 1. Familiarize basic architecture of 8086 microprocessor.
- 2. Program 8086 Microprocessor using Assembly Level Language
- 3. Use Macros and Procedures in 8086 Programs
- 4. Understand interfacing of 16 bit microprocessor with memory and peripheral chips involving system design.
- 5. Understand the architecture of 8088, 8087 Coprocessor and other CPU architectures

3.0 Course Outcomes

At the end of the course students will be able to:

	Course Outcome	Cognitive Level	POs
CO1	Explain the History of evaluation of Microprocessors, Architecture and instruction set of 8086, 8088, 8087, CISC & RISC, Von-Neumann & Harvard CPU Architecture, Configuration & Timing diagrams of 8086 and Instruction set of 8086.	L1, L2, L3	PO1 to PO12
CO2	Write8086 Assembly level programs using the 8086 instruction set	L1, L2, L3	PO1 to PO12
CO3	Write modular programs using procedures and macros.	L1, L2, L3	PO1 to PO12
CO4	Write 8086 Stack and Interrupts programming	L1, L2, L3	PO1 to PO12
CO5	Interface 8086 to Static memory chips and 8255, 8254, 0808 ADC, 0800 DAC, Keyboard, Display and Stepper motors.	L1, L2, L3	PO1 to PO12
CO6	Use INT 21 DOS interrupt function calls to handle Keyboard and Display.	L1, L2, L3	PO1 to PO12
	Total Hours of instruction	5	0

4.0 Course Content

Modules	Teaching Hours	Bloom's Taxonomy (RBT) level
Module 1	10	L1, L2, L3
 8086 PROCESSOR: Historical background (refer Reference Book 1), 8086 CPU Architecture (1.1 – 1.3 of Text).Addressing modes, Machine language instruction formats, Machine coding the program (2.2, 2.1, 3.2 of Text). INSTRUCTION SET OF 8086: Data transfer and arithmetic instructions. Control/Branch Instructions, Illustration of these instructions with 		
example programs (2.3 of Text).		
Module -2 Logical Instructions, String manipulation instructions, Flag manipulation and Processor control instructions, Illustration of these instructions with example programs. Assembler Directives and Operators, Assembly Language Programming and example programs (2.3, 2.4, 3.4 of Text).	10	L1, L2, L3
Module-3	10	L1, L2, L3
Stack and Interrupts: Introduction to stack, Stack structure of 8086, Programming for Stack. Interrupts and Interrupt Service routines, Interrupt cycle of 8086, NMI, INTR, Interrupt programming, Passing parameters to procedures, Macros, Timing and Delays. (Chap. 4 of Text).		
Module-4	10	L1, L2, L3
 8086 Bus Configuration and Timings: Physical memory Organization, General Bus operation cycle, I/O addressing capability, Special processor activities, Minimum mode 8086 system and Timing diagrams, Maximum Mode 8086 system and Timing diagrams. (1.4 to 1.9 of Text). Basic Peripherals and their Interfacing with 8086 (Part 1): Static RAM Interfacing with 8086 (5.1.1), Interfacing I/O ports, PIO 8255, Modes of operation – Mode-0 and BSR Mode, Interfacing Keyboard and 7-Segment digits using 8255 (Refer 5.3, 5.4, 5.5 of Text). 		
Module-5	10	L1,L2,L3
 Basic Peripherals and their Interfacing with 8086 (Part 2): Interfacing ADC-0808/0809, DAC-0800, Stepper Motor using 8255 (5.6.1, 5.7.2, 5.8). Timer 8254 – Mode 0, 1, 2 & 3 and Interfacing programmes for these modes (refer 6.1 of Text). INT 21H DOS Function calls - for handling Keyboard and Display (refer Appendix-B of Text). Other Architectures: Architecture of 8088 (refer 1.10 up to 1.10.1 of Text) and Architecture of NDP 8087 (refer 8.3.1, 8.3.5 of Text).Von-Neumann & Harvard CPU architecture and CISC & RISC CPU architecture (refer Reference Book 1). 		

5.0 Relevance to future subjects

Sl No	Semester	Subject	Topics
01	VIII	Project work	Microprocessor based projects
02	Higher	Microcontroller	Instruction set, Addressing modes, Interrupts, Interfacing

6.0 Relevance to Real World

SL.No	Real World Mapping
01	Microprocessor based components
02	Model creation for analysis
03	Development of a software applications

7.0 Gap Analysis and Mitigation

SL. No	Delivery Type	Details
01	Tutorial	Topic: Lettering, Line, Methods of dimensioning
02	NPTEL	Assembly Application

8.0 Books Used and Recommended to Students

Text Books

1 CAT DOOKS
1. Advanced Microprocessors and Peripherals - A.K. Ray and K.M. Bhurchandi,
TMH,3rd Edition, 2012, ISBN 978-1-25-900613-5.
Reference Books
Nieronroeggor and Intertacing, Programming & Hardward Douglas V Hall 2nd

- 1. Microprocessor and Interfacing- Programming & Hardware, Douglas V Hall, 2nd edition TMH, 2006.
- 2. The 8086 Microprocessor: Programming & Interfacing The PC Kenneth J. Ayala, Cengage Learning, Indian Edition, 2011, ISBN-13:978-81-315-0180-1.
- 3. Microcomputer systems-The 8086 / 8088 Family Y.C. Liu and A. Gibson, 2nd edition, PHI -2003.
- 4. The Intel Microprocessor, Architecture, Programming and Interfacing Barry B. Brey, 6e, Pearson Education / PHI, 2003.

Additional Study material & e-Books

1. https://vtusolution.in/uploads/9/9/3/99939970/cse-iv-microprocessors_and_microcontrollers_[15cs44]-notes_unlocked.pdf

9.0

Relevant Websites (Reputed Universities and Others) for Notes /Animation / Videos Recommended

Website and Internet Contents References

- 1) https://vtu.ac.in
- 2) http://www.bookspar.com/engineering-vtu
- 3) http://www.rejinpaul.com/2014/10/vtu-ece-notes-vtu-ece-1st-2nd-3rd-4th-5th-6th-7th-8th-semester-lecture-notes-download-link.htmlhttp://www.vlab.co.in/
- 4) https://www.youtube.com/results?search_query=microprocessor

10.0 Magazines/Journals Used and Recommended to Students

Sl.No	Magazines/Journals	website
1	IEEE	http://ieeexplore.ieee.org/Xplore/home.jsp
2	PC World	http://www.pcworld.com/article/146957/components/article.html

11.0 Examination Note

Scheme of Evaluation for Internal Assessment (20 Marks)

(c) Class work, Assignment, Technical quiz : 5Marks.

(d) Internal Assessment test Average of two Tests out of Three tests): 15marks.

SCHEME OF EXAMINATION:

Two questions to be set from each Module (Module1 to Module5).

Student has to answer one full question each from five modules 20 marks each of Total 100 marks.

12.0 Course Delivery Plan

Module	Lecture No.	Content of Lecturer	% of Portion
	1	8086 PROCESSORS: Historical background	
	2	Historical background	
	3	8086 CPU Architecture	
	4	Addressing modes,	
Module 1:	5	Machine language instruction formats, Machine coding the program	20
	6	Data transfer and arithmetic instructions.	20
	7	Control Instructions	
	8	Branch Instructions	
	9	Illustration of these instructions with example programs	
	10	Illustration of these instructions with example programs	
	11	Logical Instructions	
	12	String manipulation instructions	
	13	Flag manipulation	•
	14	Processor control instructions	
	15	Illustration of these instructions with example programs	•
Module 2:	16	Assembler Directives	20
	17	Operators	
	18	Assembly Language Programming.	•
	19	Example programs	
	20	Example programs	•
	21	Stack and Interrupts:	
	22	Introduction to stack	•
	23	Stack structure of 8086	•
	24	Programming for Stack	•
	25	Interrupts	• •
Module 3:	26	Interrupt Service routines	20
	27	Interrupt cycle of 8086	
	28	NMI, INTR, Interrupt programming	•
	29	Passing parameters to procedures	
	30	Macros, Timing and Delays	
	31	8086 Bus Configuration and Timings	
	32	Physical memory Organization	•
	33	General Bus operation cycle	
	34	I/O addressing capability	
	35	Special processor activities, and	
	36	Minimum mode 8086 system	
Module 4:	37	Timing diagrams, Maximum Mode 8086 system and Timing diagrams.	20
	20	Basic Peripherals and their Interfacing with 8086	
	38	Static RAM Interfacing with 8086	
	39	Interfacing I/O ports, PIO 8255, Modes of operation – Mode-0 and BSR Mode	
	40	Interfacing Keyboard and 7-Segment digits using 8255.	
	41	Basic Peripherals and their Interfacing with 8086	

	42	Interfacing ADC-0808/0809, DAC-0800, Stepper Motor using 8255			
	43	Timer 8254 – Mode 0, 1, 2 & 3 and Interfacing programmes for these modes			
	44 INT 21H DOS Function calls - for and				
Module 5:	45	handling Keyboard	20		
	46	handling Display			
	47	Other Architectures			
	48	Architecture of 8088			
	49	Architecture of NDP 8087			
	50	Von-Neumann & Harvard CPU architecture and CISC & RISC CPU			
	30	architecture			

13.0 Assignments, Pop Quiz, Mini Project, Seminars

Sl. No.	Title	Outcome expected	Allied study	Week No.	Individual / Group activity	Reference: book/website /Paper
1	Assignment 1: University Questions on Section of solids and Orthographic views	Students study the Topics and write the Answers. Get practice to solve university questions.	Module 1,2 of the syllabus	4	Individual Activity. Printed solution expected.	Book 1, 2 of the reference list. Website of the Reference list
2	Assignment 2: University Questions on Thread forms and fasteners	Students study the Topics and write the Answers. Get practice to solve university questions.	Module 3,4 of the syllabus	8	Individual Activity. Printed solution expected.	Book 1, 2 of the reference list. Website of the Reference list
3	Assignment 3: University Questions on Keys, Joints and Riveted joints	Students study the Topics and write the Answers. Get practice to solve university questions.	Module 3,4 of the syllabus	12	Individual Activity. Printed solution expected.	Book 1, 2 of the reference list. Website of the Reference list
4	Mini Project Rivets based for the students groups	Students study the Rivets applications from Real World Example view. Gain Knowledge of Rivets Applications.	Syllabus with Real World Mapping	12	Group Activity. Student Group need to perform Project and do a brief Report	All Books / paper Resources / Study Material. All Internet / Web resources.

1 4.0 University Result

Examination	FCD	FC	SC	% Passing
JUN/JULY-2017	-	-	-	87.6.%

Prepared by	Checked by		
Prof Pramod V Patil	Prof. Sachin S Patil	HOD	Principal

Subject Title	CONTROL SYSTEMS		
Subject Code	15EC43	IA Marks	20
Number of Lecture Hrs / Week	04 P	Exam Marks	80
Total Number of Lecture Hrs	50	Exam Hours	03
		CREDITS - 04	•

FACULTY DETAILS:		
Name: Prof. S.S.Malaj	Designation: Asst. Professor	Experience: 21
No. of times course taught: 01	Specializa	tion: E & TC

1.0 Prerequisite Subjects:

Sl. No	Branch	Semester	Subject
01	Electronics and communication Engineering	III	Network analysis
02	Electronics and communication Engineering	Ι	Elements of Mechanical Engineering

2.0 Course Objectives

- 1. Describe the basic features, configurations,& application of control systems.
- 2. Study the knowledge & terminologies and definitions for the control systems.
- 3. Determine a mathematical model of electrical, mechanical & electromechanical systems.
- 4. Find time response of the systems from the transfer functions.
- 5. Find the transfer function by applying masons rule.
- 6. Analyze the stability of the system from the transfer function.

3.0 Course Outcomes

Having successfully completed this course, the student will be able to draw and use modeling to generate

	Course Outcome	RBT Level	POs
C211.1	Develop the mathematical model of mechanical and electrical systems .	L2,L3,L4	1,2,3,4,5,12
C211.2	Determine time domain specifications for first and second order systems.	L2,L3,L4	1,2,3,4,5,12
C211.3	Determine the stability of a system in the time domain using Routz Hurwitz criteria and root locus technique.	L1,L2,L3,L4	1,2,3,4,5,12
C211.4	Determine the stability of a system in the frequency domain using Nyquist and bode plots L1,L2,L3,L4	L1,L2,L3,L4	1,2,3,4,5,12
C211.5	Model a control system in continuous and discrete time system using state variable techniques L1,L2,L3,L4	L1,L2,L3	1,2,3,4,5,12
	Total Hours of instruction	50	

4.0 Course Content

Module 1	Teaching Hours	Bloom's Taxonomy (RBT) level
Introduction to Control Systems: Types of Control Systems, Effect of Feedback Systems, Differential equation of Physical Systems -Mechanical systems, Electrical systems, Analogous systems. Analogous systems., Block diagrams and Signal Flow graphs: transfer functions, Block diagram algebra and signal flow graphs.	10	L2, L3,L4
Module -2 Time Response of feedback control systems: Standard test signals, Unit step response of First and second order systems, Time response specifications, Time response specifications of second order systems, steady – state errors and error constants. Introduction to PI,PD & PID Controllers(excluding Design)	10	L2, L3,L4
Module-3 Stability analysis: Concepts of stability, Necessary conditions for Stability, Routh- stability criterion, Relative stability analysis; More on the Routh stability criterion. Introduction to root locus techniques, the root locus concepts, Construction of root loci.	10	L1.L2,L3,L4
Module-4 Frequency domain analysis & Stability : Correlation between time and frequency response, Bode plots, Experimental determination of transfer functions, Introduction to Polar Plots, (Inverse Polar Plots excluded) Mathematical preliminaries, Nyquist Stability criterion (Systems with transportation lag excluded).Introduction to lead, lag &lead –lag compensating networks (excluding designs)	10	L1,L2,L3,L4
Module-5 Introduction to Digital control systems: Introduction, spectrum analysis of sampling process, signal reconstruction, difference equations, introduction to state variable analysis : Introduction concept of state, state variable & state model, state model for linear continuous & discrete time systems. Diagonalistaion	10	L1,L2,L3

5.0 Relevance to future subjects

Sl No	Semester	Subject	Topics
01	VIII	Project work	Various process control systems.
02	IV	Microcontrollers.	Motor controllers
03	VI	Digital Communication	Sampling process & Signal reconstruction

6.0 Relevance to Real World

SL.No	Real World Mapping
01	Industrial drawings and design of various components
02	Model creation for analysis
03	Development of a mathematical models through software applications

7.0 Gap Analysis and Mitigation

Sl. No	Delivery Type	Details
01	Tutorial	Topic: control systems and types of control system.
02	NPTEL	Assembly Application

8.0 Books Used and Recommended to Students

Text Books

1 J. Nagarath and M.Gopal, "Control Systems Engineering", New Age International (P) Limited, Publishers, Fourth edition

- 2005,ISBN:81-224-2008-7

Reference Books

1. "Modern Control Engineering ", K. Ogata, Pearson Education Asia/ PHI, 4th Edition, 2002.

2. "Automatic Control Systems", Benjamin C. Kuo, John Wiley India Pvt. Ltd., 8th Edition, 2008.

3. "Feedback and Control System", Joseph J Distefano III et al., Schaum's Outlines, TMH, 2nd Edition 2007.

Additional Study material & e-Books

1. Control systems: Ganesh Rao

2. A.P.Godse & U.A.Bakshi, "control systems", Technical Publications

3. Control systems by A.K.Jairath

9.0 Relevant Websites (Reputed Universities and Others) for Notes/Animation/Videos Recommended

Website and Internet Contents References

3) https://hareeshang.wordpress.com/tutorials/camd/

4) http://m.noteboy.in/vtuflies/machine%20drawing.pdf

5) https://www.edx.org/school/iitbombayx?utm_source=bing&utm_medium=cpc&utm_term=iitbombay&utm_campaign=partner-iit-bombay

6) http://www.vlab.co.in/

10.0 Magazines/Journals Used and Recommended to Students

Sl. No	Magazines/Journals	website
1	Journal of Aircraft	http://arc.aiaa.org/loi/ja
2	International Journal of Solids	http://www.sciencedirect.com/science/journal/00207683
	and Structures	
3	Journal of Manufacturing	http://manufacturingscience.asmedigitalcollection.asme.org/issue.aspx?journ
	Science and Engineering	alid=125&issueid=27340
4	American Fastener Journal	http://www.fastenerjournal.com/

11.0 Examination Note

Internal Assessment: 20 Marks

Conducting 3 I.A tests and select best of 2 results and average of the same.5 marks for assignments &quiz.

Scheme of Evaluation for Internal Assessment (20 Marks)

(e) Class work, assignment: 05 Marks.

(f) Internal Assessment test in the same pattern as that of the main examination (Best of the two Tests):15marks.

SCHEME OF EXAMINATION:

5 models each module has 1 question of 16 marks each Total marks=5X16=80.

Total = 80Marks

INSTRUCTION FOR Control System (15EC43) EXAMINATION

- 1. No restriction of timing for sketching and solving different problems and solutions. Duration is 3 hours.
- 2. It is desirable to do sketching of all the solutions
- 3. Drawing instruments may be used for sketching.

Module	Lecture No.	Content of Lecturer	% of Portion
	1	Introduction, Discuss Open loop & Closed loop systems, Types of Control Systems.	
	2	Effect of Feedback Systems.	
	3	Differential equation of Physical Systems.	
	4	Mechanical systems, Electrical systems.	
1	5	Analogous systems.	20
1	6	Block diagrams.	20
	7	Signal Flow graphs.	
	8	Transfer functions.	
	9	Block diagram algebra and signal flow graphs.	
	10	Relevant Problems.	
	11	Time Response of feedback control systems.	
	12	Standard test signals.	
	13	Unit step response of First and second order systems.	
	14	Time response specifications.	
2	15	Time response specifications of second order systems.	20
	16	steady – state errors.	20
	17	error constants.	
	18	Introduction to PI and PD control systems.	
	19	PID Controllers(excluding Design).	
	20	Relevant problems.	
	21	Concepts of stability, Stability analysis.	
	22	Necessary conditions for Stability.	
	23	Routh- stability criterion.	
	24	Relative stability analysis.	
3	25	More on the Routh stability criterion.	-
_	26	Introduction to root locus techniques.	20
	27	Root locus concepts.	
	28	Construction of root loci.	
	29	Relevant problems.	
	30	Relevant problems.	
	21		
	51	Correlation between time and frequency response	
	32	Bode plots,	
	33	Experimental determination of transfer functions	
	34	Introduction to Polar Plots, (Inverse Polar Plots excluded)	20
4	35	Mathematical preliminaries	
	20		
	30	The stability chief on (Systems with transportation fag excluded)	
	3/	Introduction to lead, lag & lead – lag compensating networks (excluding designs)	
	38	Relevant problems	
	39	Relevant problems	
	40	Delevent mehleme	
	41	Introduction to Digital control systems	
	42	Introduction spectrum analysis of sampling process	
	43	Signal reconstruction	20
	44	Difference equations	20
5	45	Introduction to state variable analysis	
	46	Introduction to concept of state	
	47	State variable & state model	
	48	State model for linear continuous & discrete time systems	
	40	Diagonalisation	
	50	Relevant problems.	

12.0 Course Delivery Plan

13.0 Assignments, Pop Quiz, Mini Project, Seminar	S
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Sl. No.	Title	Outcome expected	Allied study	Week No.	Individual / Group activity	Reference: book/website /Paper
1	Assignment 1:	Students study the	Module	2	Individual Activity.	Book 1, 2 of the
	University Questions on	Topics and write the	1,2,3		Printed solution	reference list.
	Control systems	Answers. Get practice			expected.	Website of the
	-	to solve university			<u>^</u>	Reference list
		questions.				
2	Assignment 2:	Students study the	Module	4	Individual Activity.	Book 1, 2 of the
	University Questions on	Topics and write the	3,4,5		Printed solution	reference list.
	Time response of	Answers. Get practice			expected.	Website of the
	feedback control	to solve university			-	Reference list
	systems & stability	questions.				
	analysis.	^				

14.0 University Result

Examination	FCD	FC	SC	% Passing
MAY- 2017				77.78%
MAY- 2016	7	15	49	100

Prepared by	Checked by		
	Prof.		
Prof. S.S.Malaj	N.K.Honnagoudar	HOD	Principal

10Hrs

Subject Title	SIGNALS AND SYSTEM	S	
Subject Code	15EC44	IA Marks	20
Number of Lecture Hrs / Week	04 L	Exam Marks	80
Total Number of Lecture Hrs	50	Exam Hours	03

FACULTY DETAILS:		
Name: Dr. Shilpa Shrigiri	Designation: Associate Professor	Experience:15yrs
No. of times course taught: 05	Specializat	ion: VLSI Design

1.0 Prerequisite Subjects:

Sl. No	Branch	Semester	Subject
01	ECE	I, II & III	Engg. Mathematics
2.0	Course Objectives		

1. Understand the mathematical description of continuous and discrete time signals and systems.

2. Analyze the signals in time domain using convolution difference/differential equations

3. Classify signals into different categories based on their properties.

4. Analyze Linear Time Invariant (LTI) systems in time and transform domains.

5. Build basics for understanding of courses such as signal processing, control

3.0 Course Outcomes

Having successfully completed this course, the student will be able to draw and analyze.

	Course Outcome	Cognitive Level	POs
C212.1	Classify signals and systems.	L1,L2	PO1-PO4, P12
C212.2	Determine performance of a system in time-domain.	L1,L2,L3	PO1-PO4, P12
C212.3	Determine frequency components of a given arbitrary periodic analog and discrete signal using Fourier methods.	L1,L2,L3	PO1-PO4, P12
C212.4	Determine frequency components of a given arbitrary aperiodic analog and discrete signal using Fourier methods and sampling of analog	L1,L2,L3	PO1-PO4, P12
C212.5	Determine stability of a system using Z-Transforms	L1,L2,L3	PO1-PO4, P12
	Total Hours of instruction		100

4.0 Course Content

Course Content:

MODULE -1: INTRODUCTION AND CLASSIFICATION OF SIGNALS:

Definition of signal and systems, communication and control systems as examples. Sampling of analog signals, Continuous time and discrete time signal, Classification of signals as even, odd, periodic and non-periodic, eterministic and non-deterministic, energy and power.

Elementary signals/Functions: exponential, sine, impulse, step and its properties, ramp, rectangular, triangular, signum, sync functions.

Operations on signals: Amplitude scaling, addition, multiplication, differentiation, integration (Accumulator for DT), time scaling, time shifting and time folding.

Systems: Definition, Classification: linear and nonlinear, time variant and invariant, causal and non causal, static and dynamic, stable and unstable, invertible.

MODULE 2: TIME DIMAIN REPRESENTATION OF LTI

System modeling: Input-output relation, definition of impulse response, convolution sum, convolution integral, computation of convolution integral and convolution sum using graphical method for unit step to unit step, unit step to exponential, exponential, unit step to rectangular and rectangular to rectangular only. Properties of convolution.

MODULE 3: FOURIER SERIES

System interconnection, system properties in terms of impulse response, step response in terms of impulse response.

Fourier Representation of Periodic Signals:

Introduction to CTFS and DTFS, definition, properties (No derivation) and basic problems (inverse Fourier series is excluded). (04+06 Hours)

MODULE 4: FOURIER TRANSFORM

Fourier Representation of aperiodic Signals: FT representation of aperiodic CT signals - FT, definition, FT of standard CT signals, Properties and their significance.

FT representation of aperiodic discrete signals- DTFT, definition, DTFT of standard discrete signals, Properties and their significance,

Impulse sampling and reconstruction: Sampling theorem (only statement) and reconstruction of signals.

MODULE 5: Z – TRANSFORM

Z-Transforms: Introduction, the Z-transform, properties of the Region of convergence, Properties of the Z-Transform, Inversion of the Z-Transform, Transform analysis of LTI systems. 10Hrs

5.0 Relevance to future subjects

Sl No	Semester	Subject	Topics
01	VIII	Project work	DSP, Image processing and Communication
02	V/VI	Digital Signal Processing, Digital communication.	Projects and Research

6.0 Relevance to Real World

SL. No	Real World Mapping
01	Analyze different types of signals.
02	Design of different types of systems for better the communication

7.0 Gap Analysis and Mitigation

Sl. No	Delivery Type	Details
01	Tutorial	Topic: Simulation using cadence design lab
02	NPTEL	Assembly Application

8.0 Books Used and Recommended to Students

Text Books

1. Simon Haykins and Barry Van Veen, "Signals and Systems", 2nd Edition, 2008, Wiley India. ISBN 9971-51-239-4.

Reference Books

- 1. Michael Roberts, "Fundamentals of Signals & Systems", 2nd edition, Tata McGraw-Hill, 2010, ISBN 978-0-07-070221-9.
- 2. Alan V Oppenheim, Alan S, Willsky and A Hamid Nawab, "Signals and Systems" Pearson Education Asia / PHI, 2nd edition, 1997. Indian Reprint 2002.
- 3. H. P Hsu, R. Ranjan, "Signals and Systems", Scham's outlines, TMH, 2006.
- 4. B. P. Lathi, "Linear Systems and Signals", Oxford University Press, 2005.
- 5. Ganesh Rao and Satish Tunga, "Signals and Systems", Pearson/Sanguine Technical Publishers.

Additional Study material & e-Books

2. NPTEL notes and Videos

10Hrs

10Hrs

10Hrs

3. VTU on line notes.

4. MAT LAB

9.0 Relevant Websites (Reputed Universities and Others) for Notes/Animation/Videos Recommended

Website and Internet Contents References

01) <u>https://nptel.co.in</u>

- 02) nptel.ac.in/downloads/117101055/
- 03) www.nptelvideos.in/2012/12/signals-and-system.html

10.0 Magazines/Journals Used and Recommended to Students

Sl. No	Magazines/Journals	Website
1	IEEE Xplorer	http://ieee.com
2	International Journal of Science and Technology	http://www.sciencedirect.com/science/journal/

11.0 Examination Note

Internal Assessment: 20 Marks

Three IA will be conducted and average of best of two will be accounted.

Scheme of Evaluation for Internal Assessment (20 Marks)

(g) Internal Assessment test in the same pattern as the of the main examination. (25marks.)

SCHEME OF EXAMINATION:

Two questions to be set from the syllabus covered.

Student has to answer one part each from each question.

Question 1 1x10 = 10Marks

Question 2 $1 \times 10 = 10$ Marks

Total = 20Marks

INSTRUCTION FOR SIGNALS AND SYSTEMS (15EC44) EXAMINATION

- 1. Four full questions will be given which consists of a,b,c,d sub sections.
- 2. Students have to answer either Q :1 or 2 and Q 3 or 4 completely.

12.0 Course Delivery Plan

Course Delivery Plan:

MODULE	LECTUR E NO.	CONTENT OF LECTURE	
	1	Definitions of a signal and a system	
	2	Examples of signals and system	
	3	Classification of signals- Continuous time and discrete time signals	
	4	Classification of signals as even, odd	
1	5	Basic Operations on signals	20
	6	Periodic and non-periodic, deterministic and non-deterministic	
	7	Energy and power	
8 Elementary signal s- Continuous time		Elementary signal s- Continuous time	
	9	Elementary signals- Discrete time	

	10	10 Properties of systems		
	11	Problems on system properties		
	12	Definition of impulse response		
	13	Convolution sum and convolution integral		
	16	Convolution sum using graphical method		
	17	Problems	20	
2	18	Computation of convolution integral using graphical method		
	19	Problems		
	20	Properties of convolution		
	21	Problems		
	22	System interconnection		
	23	Problems on continuous time signals		
	24	Problems on discrete time signals		
	25	system properties in terms of impulse response,		
2	26	step response in terms of impulse response		
3	27	Introduction DTFS	20	
	28	Properties DTFS	20	
	29	Basic problems on DTFS		
	30	Introduction to CTFS		
	31	Properties CTFS		
	32	Basic problems on DTFS		
	33	Fourier Transform - definition		
	34	FT of standard CT signals		
	35	Properties and their significance		
4	36	DTFT- definition	20	
-	37	DTFT of standard discrete signals	20	
	38	Properties and their significance,		
	39	Sampling theorem		
	40	and reconstruction of signals		
	41	Introduction to Z-transform,		
	42	properties of the Region of convergence		
	43	Problems on Z- transorm		
	44	Properties of the Z-Transform		
5	45	Problems on Z- transorm	20	
5	46	Properties of the Z-Transform	20	
	47	Inverse of the Z-Transform		
	48	Transform analysis of LTI systems		
	49	Problems		
	50	Problems	1	

13.0 Assignments, Pop Quiz, Mini Project, Seminars

SI. No.	Title	TitleOutcome expectedAllied studyWeek No.Indi		Individual / Group activity	Reference: book/website /Paper	
1	Assignment 1:	Students study the	Module 1	2	Individual Activity.	Book 1, 2, 3, 4
	University Questions	Topics and write the	of the		Printed solution	& 5 of the
	on Classification and	Answers. Get practice	syllabus		expected.	reference list.
	operations on signals	to solve university				Website of the
	and systems	questions.				Reference list
2	Assignment 2:	Students study the	Module 2	4	Individual Activity.	Book 1, 2, 3, 4
	University Questions	Topics and write the	of the		Printed solution	& 5 of the
	on LTI systems	Answers. Get practice	syllabus		expected.	reference list.
		to solve university				Website of the
-		questions.				Reference list
3	Assignment 3:	Students study the	Module 3	6	Individual Activity.	Book 1, 2, 3, 4
	University Questions	Topics and write the	of the		Printed solution	& 5 of the
	on DTFS &CTFS	Answers. Get practice	syllabus		expected.	reference list.
		to solve university				Website of the
		questions.				Reference list
4	Assignment 4:	Students study the	Module 4	8	Individual Activity.	Book 1, 2, 3, 4
	University Questions	Topics and write the	of the		Printed solution	& 5 of the
	on DTFT & CTFT	Answers. Get practice	syllabus		expected.	reference list.
		to solve university				Website of the
		questions.				Reference list
5	Assignment 5:	Students study the	Module 5	10	Individual Activity.	Book 1, 2, 3, 4
	University Questions	Topics and write the	of the		Printed solution	& 5 of the
	on Z-Transforms	Answers. Get practice	syllabus		expected.	reference list.
		to solve university				Website of the
		questions.				Reference list

14.0 University Result

Examination	FCD	FC	SC	% Passing
July- 2017				69.67
July- 2016	01	02	36	55.71
July- 2015	01	06	33	60.56

Prepared by	Checked by		
Dr. Shilpa Shrigiri	Dr. Shilpa Shrigiri	HOD	Principal

Subject Title	PRINCIPLES OF COMMUNICATION SYSTEMS			
Subject Code	15EC45	IA Marks	20	
Number of Lecture Hrs / Week	04	Exam Marks	80	
Total Number of Lecture Hrs	50	Exam Hours	03	
	•	CREDITS – 04		

FACULTY DETAILS:		
Name: Dr. Veeresh G. Kasabegoudar	Designation: Professor	Experience: 21 Years, 04 Months
No. of times course taught: 10		Specialization: Communication System

1.0	Prerequisite Subjects:				
Sl. No	Branch	Semester	Subject		
01	Electronics and Communication Engineering	Ι	Basic Electronics		
02	Electronics and Communication Engineering	III	Electromagnetic Engineering		

2.0 Course Objectives

This course will enable students to:

- 1 Explain the functions of random variables.
- 2) Explain modulation and demodulation techniques used in AM & FM.
- 3) Describe the generation, Detection of SSB, DSBSC & VSB.
- 4) Define FM & explain the generation & detection of FM waves.
- 5) Explain the various types of noise exists in communication system.
- 6) Analyze the noise in communication receivers.
- 7) Explain pulse modulation schemes

3.0 Course Outcomes

Having successfully completed this course, the student will be able to draw and use modeling to generate

COs	Course Outcome	RBT Level	POs		
CO213.1	Determine the performance of analog modulation schemes in time and frequency domains.	L1, L2, L3	PO1-PO5, PO8,		
CO213.2	Determine the performance of systems for generation and detection of AM and FM signals.	L1, L2, L3	PO1-PO5, PO8,		
CO213.3	Characterize various types of noises and analysis of random variables and processes.	L1, L2, L3	PO1-PO4, PO8,		
CO213.4	Determine the performance of AM and FM system in the presence of noise.	L1, L2, L3	PO1-PO4, PO8,		
CO213.5	Understand the characteristics of pulse amplitude modulation, pulse position modulation and pulse code modulation systems.	L1, L2, L3	PO1-PO4, PO8,		
	Total Hours of instruction 50				

4.0 Course Content

Module 1	Teaching Hours	Bloom's Taxonomy (RBT) level
Module 1: RANDOM PROCESS: Random variables: Several random variables. Statistical averages: Function of Random variables, moments, Mean, Correlation and Covariance function: Principles of autocorrelation function, cross – correlation functions. NOISE: Introduction, shot noise, thermal noise, white noise, Noise equivalent bandwidth, Narrow bandwidth, Noise Figure, Equivalent noise temperature, cascade connection of two-port networks.	10	L1, L2, L3
 Module 2: AMPLITUDE MODULATION: Introduction AM: Time-Domain description, Frequency – Domain description. Generation of AM wave: square law modulator, switching modulator. Detection of AM waves: square law detector, envelop detector. DOUBLE SIDE BAND SUPPRESSED CARRIER MODULATION (DSBSC): Time and Frequency Domain description, Generation of DSBSC waves: balanced modulator, ring modulator. Coherent detection of DSBSC modulated waves. SINGLE SIDE-BAND MODULATION (SSB): Quadrature carrier multiplexing, Hilbert Transform and Properties, Single side-band modulation, Frequency and Time Domain description of SSB wave, Phase discrimination method for generating an SSB modulated wave. Demodulation of SSB waves, Radio broadcasting, AM radio. 	10	L1, L2, L3
Module 3: ANGLE MODULATION: Basic definitions, FM, narrow band FM, wide band FM, transmission bandwidth of FM waves, generation of FM waves: indirect FM and direct FM. Demodulation of FM waves, Phase-locked loop, Nonlinear model of the phase – locked loop, Linear model of the phase – locked loop.	10	L1, L2, L3
Module 4: NOISE IN CONTINUOUS WAVE MODULATION SYSTEMS: Introduction, Receiver model, Noise in DSBSC receivers, Noise in SSB receivers, Noise in AM receivers, Threshold effect. Noise in FM receivers, FM threshold effect, Pre-emphasis and De-emphasis in FM	10	L1, L2, L3
Module 5: PULSE MODULATION: Sampling process: Low pass impulse sampling and reconstruction; PAM: Pulse sampling, Flat top sampling; other forms of pulse modulation: PDM and PWM, Quantization process: PCM, Application to VOCODERS.	10	L1, L2, L3

5.0 Relevance to future subjects

Sl No	Semester	Subject	Topics
01	VIII	Project work	Modulation Purposes
02	IV	Wireless Communication	Various Modulation Schemes used in Communication

6.0 Relevance to Real World

SL.No	Real World Mapping
01	Noise calculation in communications
02	Various types of modulation schemes used in communication
03	Various types of demodulation schemes used in communication

7.0 Gap Analysis and Mitigation

Sl. No	Delivery Type	Details
01	Tutorial	Topic: Noise Calculation
02	NPTEL	Various Modulation Schemes

8.0 Books Used and Recommended to Students

Text Books

1. Communication Systems, Simon Haykins & Moher, 5th Edition, John Willey, India Pvt. Ltd, 2010 ISBN 978-81-265-3653-5

2. An Introduction to Analog and Digital Communication, Simon Haykins & Moher, John Wiley India Pvt. Ltd., 2012. ISBN 978-81-265-3653-5

Reference Books

1. Principles of Communications by Taub & Schilling

2. Modern digital and analog Communication systems B. P. Lathi, Oxford University Press., 4th Edition, 2010.

3. Communication Systems, Harold P.E, Stern Samy and A Mahmond, Pearson Education, 2004 ISBN 81-297-0686-5.

4. Communication Systems: Singh and Sapre: Analog and digital TMH 2nd Edition, 2007.

9.0 Relevant Websites (Reputed Universities and Others) for Notes/Animation/Videos Recommended

Website and Internet Contents References

www.nptel.com

10.0 Magazines/Journals Used and Recommended to Students

Sl.No	Magazines/Journals	website
1	IEEE Antennas and Propagation	www.ieeeexplorere.org
2	Microwave and Optical Technology Letters	onlinelibrary.wiley.com
3	IEEE Communication Magazine	www.comsoc.org

11.0 Examination Note

Internal Assessment: 20 Marks

Three internal assessment tests will be conducted. Among three, average of best two IAs will be taken. And, 5 marks are evaluated based on assignments and/or quiz.

Scheme of Evaluation for Internal Assessment (20 Marks)

(h) Class work, assignment, quiz: 05 Marks.

(i) Internal Assessment test in the same pattern as that of the main examination (avg.):15marks.

SCHEME OF EXAMINATION:

5 models and each module has 1 question of 16 marks each

Total marks= $5 \times 16 = 80$.

Total = 80 Marks

INSTRUCTIONS FOR PRINCIPLE OF COMMUNICATION SYSTEM (15EC45) EXAMINATION

- 1. Four full questions will be given which consist of a, b, c, and/or d sub sections.
- 2. Students have to answer either Q. 1 or Q. 2 AND Q 3 or Q. 4 completely.

12.0 Course Delivery Plan

Module	Lecture No.	Content of Lecturer				
	RANDOM PROCESS					
	1	Random variables Statistical averages				
	2	Several random variables.				
	3 4 5	Function of Random variables, moments	20			
		Mean, Correlation and Covariance function:				
Module 1:		Principles of autocorrelation function				
	6	cross – correlation functions				
	7	Introduction to Noise, shot noise, thermal noise				
	8	White noise, Noise equivalent bandwidth, Narrow bandwidth				
	9	Noise Figure, Equivalent noise temperature				
	10	Cascade connection of two-port networks.				

	11	AMPLITUDE MODULATION: Introduction, AM: Time-Domain description,						
	11	Frequency – Domain description						
	12	Generation of AM wave: square law modulator& Switching modulator						
	13	Detection of AM waves: square law detector, envelop detector	20					
	14	Double side band suppressed carrier Modulation (DSBSC):						
	17	Time and frequency domain Description,						
Module 2:	15 Generation of DSBSC waves: balanced modulator, ring modulator							
	16 Coherent detection of DSBSC modulated waves							
	17	Single side-band modulation(SSB): Quadrature carrier multiplexing and Hilbert						
	17	Transform and Properties						
	18	Single side-band modulation, Frequency and Time Domain description of SSB wave						
	19 Phase discrimination method for generating an SSB modulated wave.							
	20	Demodulation of SSB waves, Radio broadcasting, AM radio.						
	21	ANGLE MODULATION: Basic definitions						
	22	FM, narrow band FM, wide band FM						
	23	transmission bandwidth of FM waves						
	24	Problems						
Modulo 2.	25	generation of FM waves: indirect FM and direct FM	20					
Wiodule 5.	26	Problems						
	27	Demodulation of FM waves, Phase-locked loop						
	28	model of the phase – locked loop.						
	29	Nonlinear model of the phase – locked loop, Linear						
	30	Problems						
	Noise in continuous wave modulation systems:							
	51	Introduction						
	32	Receiver model						
	33	Noise in DSBSC receivers						
	34	Noise in SSB receivers						
Module 4:	35	Noise in SSB receivers						
infound in	36	Noise in AM receivers and threshold effect.						
	37	Problems						
	38	Noise in FM receivers, FM threshold effect						
	39	Pre-emphasis and De-emphasis in FM						
	40	Problems						
	41	Sampling process: Low pass impulse sampling and reconstruction						
	42	Problems						
	43	PAM						
Module 5.	44	Pulse sampling ,Flat top sampling;						
Moune 5.	45	Problems	20					
	46	Other forms of pulse modulation: PDM and PWM,						
	47	Quantization process						
	48	PCM,						
	49	Application to Vocoders.						
120	• •	Assistante Oriz Mini Dusiest and Seminary						

13.0 Assignments, Quiz, Mini Project and Seminars

SI. No.	Title	Outcome expected	Allied study	Week No.	Individual / Group activity	Reference: book/website /Paper
1	Assignment 1:	Students study the	Module 1	2	Individual Activity.	Book 1, 2 of the
	University Questions	Topics and write the	of the		Printed solution	reference list.
	on random process	Answers. Get practice	syllabus		expected.	Website of the
	and Amplitude	to solve university				Reference list
	modulation	questions.				
2	Assignment 2:	Students study the	Module 2	4	Individual Activity.	Book 1, 2 of the
	University Questions	Topics and write the	of the		Printed solution	reference list.
	on module Angle	Answers. Get practice	syllabus		expected.	Website of the
	Modulation and	to solve university				Reference list
	Noise in	questions.				

Course Plan 2017-18 Even – Semester -4th Electronics and Communication Engineering

		1	-		1	
	communication					
	system					
3	Assignment 3:	Students study the	Module 3	6	Individual Activity.	Book 1, 2 of the
	University Questions	Topics and write the	of the		Printed solution	reference list.
	on digital modulation	Answers. Get practice	syllabus		expected.	Website of the
	schemes	to solve university	5		1	Reference list
		questions.				
4	Assignment 4:	Students study the	Module 4	8	Individual Activity.	Book 1, 2 of the
	University Questions	Topics and write the	of the		Printed solution	reference list.
	on noise in	Answers. Get practice	syllabus		expected.	Website of the
	continuous wave	to solve university	-		-	Reference list
	modulation schemes	questions.				
5	Assignment 5:	Students study the	Module 5	10	Individual Activity.	Book 1, 2 of the
	University Questions	Topics and write the	of the		Printed solution	reference list.
	on pulse modulation	Answers. Get practice	syllabus		expected.	Website of the
	schemes	to solve university			_	Reference list
		questions.				

14.0 University Result

Examination	FCD	FC	SC	% Passing
Dec- 2013 (Analog Communication)	17	08	23	94.11
DEC- 2014 (Analog Communication)	10	22	40	91.25

Prepared by	Checked by		
Prof. V. G. Kasabegoudar	Prof. S. S.Malaj	HOD	Principal

Subject Title	LINEAR INTEGRATED CIRCUITS			
Subject Code	15EC46	IA Marks	20	
Number of Lecture Hrs / Week	04 L	Exam Marks	80	
Total Number of Lecture Hrs	50	Exam Hours	03	
		CREDITS – 04		

FACULTY DETAILS:		
Name: Prof. D B Madihalli	Designation: AP	Experience: 10.9 Years
No. of times course taught:01		Specialization: Industrial Electronics

1.0 Prerequisite Subjects:

Sl. No	Branch	Semester	Subject
01	Electronics and Communication Engineering	I/II	Basic Electronics
02	Electronics and Communication Engineering	III	Analog Electronics

2.0 Course Objectives

This course will enable students to:

- 1. Define the basic concepts of OP-Amp.
- 2. Define and describe various parameters of Op-Amp, its characteristics and specifications.
- 3. Discuss the effects of Input and Output voltage ranges upon Op-Amp circuits.
- 4. Sketch and Analyze Op-Amp circuits to determine Input Impedances, output Impedances and other performance parameters.
- 5. Sketch and Explain typical Frequency Response graphs for each of the Filter circuits showing Butterworth and Chebyshev responses where ever appropriate.
- 6. Describe and Sketch the various switching circuits of Op-Amps and analyze its operations.
- 7. Differentiate between various types of DACs and ADCs and evaluate the performance of each with neat circuit diagrams and assuming suitable inputs.

3.0 Course Outcomes

After studying this course, students will be able to:

	Course Outcome	RBT Level	Pos
C214.1	Analyze and design Op-Amp circuit parameters and DC amplifiers.	L1,L2,L3	PO1 to PO4, PO6, PO12
C214.2	Design Op-Amp based AC Amplifiers.	L1,L2,L3	PO1 to PO4, PO6, PO12
C214.3	Develop circuits for Op-Amp based Voltage / Current Sources & Sinks, Current, Instrumentation and Precision Amplifiers.	L1,L2,L3	PO1 to PO4, PO6, PO12
C214.4	Develop circuits for Op-Amp based linear and non-linear circuits and Analyze first & Second Order active filters and Voltage Regulators.	L1,L2,L3	PO1 to PO4, PO6, PO12
C214.5	Outline applications of linear ICs in PLL, Timer and data converters	L1,L2,L3	PO1 to PO4, PO6, PO12
Total Hours of instruction			50

4.0 **Course Content**

Module 1

Operational Amplifier Fundamentals:

Basic Op-amp circuit, Op-Amp parameters - Input and output voltage, CMRR and PSRR, offset voltages and currents, Input and output impedances, Slew rate and Frequency limitations.

OP-Amps as DC Amplifiers - Biasing OP-amps, Direct coupled voltage followers, Non-inverting amplifiers, inverting amplifiers, Summing amplifiers, and Difference amplifiers. Interpretation of OP-amp LM741 & TL081 datasheet. (Text1)

Module 2

Op-Amps as AC Amplifiers: Capacitor coupled voltage follower, High input impedance - Capacitor coupled voltage follower, Capacitor coupled non inverting amplifiers, High input impedance - Capacitor coupled Non inverting amplifiers, Capacitor coupled inverting amplifiers, setting the upper cut-off frequency, Capacitor coupled difference amplifier. OP-amp Applications: Voltage sources, current sources and current sinks, current amplifiers, instrumentation amplifier, precision rectifiers. (Text1)

Module 3:

More Applications : Limiting circuits, Clamping circuits, Peak detectors, Sample and hold circuits, V to I and I to V converters, Differentiating Circuit, Integrator Circuit, Phase shift oscillator, Wein bridge oscillator, Crossing detectors, inverting Schmitt trigger. (Text 1). Log and antilog amplifiers, Multiplier and divider. (Text2)

Module 4:

Active Filters: First order and second order active Low-pass and high pass filters, Bandpass Filter, Bandstop Filter. (Text 1)

Voltage Regulators: Introduction, Series Op-amp regulator, IC voltage regulators. 723 general purpose regulators. (Text 2)

Module 5:

Phase locked loop: Basic Principles, Phase detector/comparator, VCO.

DAC and ADC convertor: DAC using R-2R, ADC using Successive approximation.

Other IC Application: 555 timer, Basic timer circuit, 555 timer used as astable and monostable multivibrator. (Text 2)

5.0 **Relevance to future subjects**

Sl No	Semester	Subject	Topics
01	VIII	Project work	Op-amp applications, Active filters, Voltage regulators, PLL, ADC & DAC, 555 Timer etc.
02	VI	Microelectronics	Op-amp as DC amplifiers, Op-amp as AC amplifiers, Op-amp applications.

Relevance to Real World 6.0

SL. No	Real World Mapping
01	Signal conditioning stages.
02	Domestic applications.
03	Industrial atomization.

7.0 **Gap Analysis and Mitigation**

Sl. No	Delivery Type	Details
01	Tutorial	Topic: Lettering, Line, Methods of dimensioning
02	NPTEL	Assembly Application

8.0 Books Used and Recommended to Students

Text Books

9.0

- 1. "Operational Amplifiers and Linear IC's", David A. Bell, 2nd edition, PHI/Pearson, 2004. ISBN 978-81-203-2359-9.
- 2. "Linear Integrated Circuits", D. Roy Choudhury and Shail B. Jain, 4nd edition, Reprint 2006, New Age International ISBN 978-81-224-3098-1.

Reference Books

 Ramakant A Gayakwad, "Op-Amps and Linear Integrated Circuits," Pearson, 4th Ed, 2015. ISBN 81-7808-501-1. Somanathan Nair, "Linear Integrated Circuits: Analysis, Design & Applications," Wiley India, 1st Edition, 2015.
 Additional Study material & e-Books

1. Data Sheet: <u>http://www.ti.com/lit/ds/symlink/tl081.pdf</u>

Relevant Websites (Reputed Universities and Others) for Notes/Animation/Videos Recommended

Website and Internet Contents References

- 1) <u>https://ocw.mit.edu/</u>
- 2) https://www.smartzworld.com/notes
- 3) https://www.annauniversityplus.com/
- 4) http://www.vidyarthiplus.in/
- 5) http://jntuk.edu.in

10.0 Magazines/Journals Used and Recommended to Students

Sl.No	Magazines/Journals	Website
1	Electronics For You	http://www.efymag.com/
2	Planet analog	http://www.planetanalog.com/
3	EE times	http://www.eetimes.com/
4	<u>IEE</u> E spectrum	http://spectrum.ieee.org/

11.0 Examination Note

Internal Assessment: 20 Marks

There are four questions of 10 marks, each question having two sub questions. Students have to solve any two questions by selecting any one from first two (Q.1 or Q.2) and any one from last two (Q.3 or Q.4).

Scheme of Evaluation for Internal Assessment (20 Marks)

Internal assessment booklet will be evaluated for 20 marks and they will converted to 15 marks. Average of best of two IA marks will be considered for final marks pulse 5 marks from assignments/ pop quiz/ mini projects/ seminar.

SCHEME OF EXAMINATION:

- The question paper will have ten questions.
- Each full Question consisting of 16marks.
- There will be 2 full questions (with a maximum of four sub questions) from each module.
- Each full question will have sub questions covering all the topics under a module.
- The students will have to answer 5 full questions, selecting one full question from each module.

12.0 Course Delivery Plan

Module	Lecture No.	Content of Lecturer	% of Portion
		PART - A	
Module 1:	1	Basic Op -Amp circuit	
	2	Op-Amp parameters – Input and output voltage	20
	3	CMRR and PSRR, offset voltages and currents	
	4	Input and output impedances, Slew rate and Frequency limitations	
	5	Biasing Op-Amps, Direct coupled –Voltage Followers	
	6	Non-inverting Amplifiers	
	7	Inverting amplifiers	
	8	Summing amplifiers	
	9	Difference amplifier	
	10	Interpretation of OP-amp LM741 & TL081 datasheet.	
	11	Capacitor coupled Voltage Follower	
	12	High input impedance - Capacitor coupled Voltage Follower	
	13	Capacitor coupled Non-inverting Amplifiers	
	14	High input impedance - Capacitor coupled non inverting Amplifiers	20
Module 2:	15	Capacitor coupled Inverting amplifiers, setting the upper cut-off frequency	
	16	Canacitor counled difference amplifier. Voltage sources	
	17	Current sources and current sinks	
	18	Current amplifiers	
	19	Instrumentation amplifier	
	20	Precision rectifiers.	
	21	Limiting circuits	
	22	Clamping circuits, Peak detectors	
	23	Sample and hold circuits	
	24	V to I and I to V converters	
Module 3.	25	Differentiating Circuit, Integrator Circuit,	
moune 5.	26	Phase shift oscillator, Wein bridge oscillator	20
	27	Crossing detectors	
	28	Inverting Schmitt trigger	
	29	Log and antilog amplifiers	
	30	Multiplier and divider.	
	22	First order and second order active Low-pass filters	
	32	Pand page Filter	
	33	Band-ton Filter	
	35	Voltage Regulators: Introduction	
Module 4:	36	Series On-amp regulator	
	37	IC voltage regulators	
	38	Current boosting of fixed IC voltage regulators	20
	39	723 general purpose regulators introduction	
	40	Low voltage and high voltage regulator using IC 723	
	41	Phase locked loop: Basic Principles	
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	42	Phase detector/comparator	
	43	Phase detector/comparator	
	44	VCO	20
Module 5	45	DAC using R-2R	20
Module 5.	46	DAC using R-2R	
	47ADC using Successive approximation48555 timer, Basic timer circuit	ADC using Successive approximation	
		555 timer, Basic timer circuit	
	49	555 used as astable multivibrator	
	50	555 used as monostable multivibrator	
13.0	Assi	gnments, Pop Quiz, Mini Project, Seminars	

	0	Assignments,	Pop	Ouiz ,	Mini]	Project.	Seminars
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Sl.No.	Title	Outcome expected	Allied study	Week No.	Individual / Group activity	Reference: book/website /Paper
1	Assignment 1: University Questions on Basics of op-amp and op-amp as dc amplifiers.	Students study the Topics and write the Answers. Get practice to solve university questions.	Module 1 of the syllabus.	2	Individual Activity. Written solution expected.	Book 1, 2 of the reference list. Website of the Reference list.
2	Assignment 2: University Questions on Basics of op-amp and op-amp as ac amplifiers & applications.	Students study the Topics and write the Answers. Get practice to solve university questions.	Module 2 of the syllabus.	4	Individual Activity. Written solution expected.	Book 1, 2 of the reference list. Website of the Reference list.
3	Assignment 3: University Questions on op-amp applications.	Students study the Topics and write the Answers. Get practice to solve university questions.	Module 3 of the syllabus.	6	Individual Activity. Written solution expected.	Book 1, 2 of the reference list. Website of the Reference list.
4	Assignment 4: University Questions on active filters and voltage regulators .	Students study the Topics and write the Answers. Get practice to solve university questions.	Module 4 of the syllabus.	8	Individual Activity. Written solution expected.	Book 1, 2 of the reference list. Website of the Reference list.
5	Assignment 5: University Questions on PLL, ADC, DAC and 555 timer.	Students study the Topics and write the Answers. Get practice to solve university questions.	Module 5 of the syllabus.	10	Individual Activity. Written solution expected.	Book 1, 2 of the reference list. Website of the Reference list.

14.0 University Result

Examination	FCD	FC	SC	% Passing
July 2016	05	03	54	88.57

Examination	S+	S	Α	В	С	D	Е	F	% Passing
July 2017	-	-	-	-	-	-	-	04	93.85

Prepared by	Checked by		
Prof. D. B.Madihalli	Prof. D. M. Kumbhar	HOD	Principal

Subject Title	MICROPROCESSOR L	ABORATORY	
Subject Code	15ECL47	IA Marks	20
Number of Lecture Hrs / Week	1 Hr Tutorial + 2 Hrs Lab	Exam Marks	80
Total Number of Lecture Hrs	50	Exam Hours	03
	·		CREDITS – 04

FACULTY DETAILS:		
Name: Prof. Pramod V Patil	Designation: Asst. Professor	Experience: 5.04Years
No. of times course taught: 03	Specializat	tion: VLSI & Embedded System Design

1.0 Prerequisite Subjects:

Sl. No	Branch	Semester	Subject
01	Electronics & Communication Engineering	I/II	Basic Electronics
02	Electronics & Communication Engineering	III	Digital Electronics

2.0 Course Objectives

This course will enable students to:

- Get familiarize with 8086 instructions and DOS 21H interrupts and function calls.
- Develop and test assembly language programs to use instructions of 8086.
- Get familiarize with interfacing of various peripheral devices with 8086 microprocessor for simple applications.

3.0 Course Outcomes

At the end of the course students will be able to:

	Course Outcome	Cognitive Level	POs
C215.1	Program a microprocessor to perform arithmetic, logical and data transfer applications.	L1,L2,l3	PO1 to PO12
C215.2	Understand assembler directives, DOS Interrupts, branch and loop operations.	L1,L2,l3	PO1 to PO12
C215.3	Interface a microprocessor to various devices for simple applications.	L1,L2,l3	PO1 to PO12
C215.4	Effectively utilize microprocessor peripherals.	L1,L2,l3	PO1 to PO12
C215.5	Utilize procedures and macros for modular programming.	L1,L2,l3	PO1 to PO12
	Total Hours of instruction		50

4.0 Course Content

Laboratory Experiments:

1. Programs involving:

Data transfer instructions like:

- i) Byte and word data transfer indifferent addressing Modes
- ii) Block move (with and without overlap)
- iii) Block interchange

2. Programs involving:

Arithmetic & logical operations like:

i) Addition and Subtraction of multi precision nos.

- ii) Multiplication and Division of signed and unsigned Hexadecimal nos.
- iii) ASCII adjustment instructions
- iv) Code conversions
- 3. Programs involving:
- Bit manipulation instructions like checking:

i) Whether given data is positive or negative

- ii) Whether given data is odd or even
- iii) Logical 1"s and 0"s in a given data
- iv) 2 out 5 code

v) Bit wise and nibble wise palindrome

4. Programs involving:

Branch/L Loop instructions like

- i) Arrays: addition/subtraction of N nos., Finding largest and smallest nos., Ascending and descending order
- ii) Two application programs using Procedures and Macros (Subroutines)

5. Programs involving

String manipulation like string transfer, string reversing, searching for a string

6. Programs involving

Programs to use DOS interrupt INT 21h Function calls for Reading a Character from keyboard, Buffered Keyboard input, Display of character/ String on console

7. Interfacing Experiments:

Experiments on interfacing 8086 with the following interfacing modules through DIO (Digital Input/ Output - PCI bus compatible card/ 8086 Trainer)

- 1. Matrix keyboard interfacing
- 2. Seven segment display interface
- 3. Logical controller interface
- 4. Stepper motor interface
- 5. Analog to Digital Converter Interface (8 bit)
- 6. Light dependent resistor (LDR), Relay and Buzzer Interface to make light operated switches

5.0 **Relevance to future subjects**

Sl No	Semester	Subject	Topics
01	VIII	Project work	Microprocessor based projects
02	Higher	Microcontroller	Instruction set, Addressing modes, Interrupts, Interfacing

6.0 Relevance to Real World

SL. No	Real World Mapping	
01	Microprocessor based components	
02	Model creation for analysis	
03	Development of a software applications	

7.0 Gap Analysis and Mitigation

SL. No	Delivery Type	Details
01	Tutorial	Topic: Lettering, Line, Methods of dimensioning
02	NPTEL	Assembly Application

8.0 Books Used and Recommended to Students

Text Books

1. Advanced Microprocessors and Peripherals - A.K. Ray and K.M. Bhurchandi, TMH, 3rd Edition, 2012, ISBN 978-1-25-900613-5.

9.0 Relevant Websites (Reputed Universities and Others) for Notes /Animation / Videos Recommended

Website and Internet Contents References

1) https://vtu.ac.in

- 2) http://www.bookspar.com/engineering-vtu
- 3) http://www.slideshare.net/farohalolya/8086-microprocessor-lab-manual

4) https://www.youtube.com/results?search_query=microprocessor

10.0 Magazines/Journals Used and Recommended to Students

Sl.No	Magazines/Journals	website
1	IEEE	http://ieeexplore.ieee.org/Xplore/home.jsp
2	PC World	http://www.pcworld.com/article/146957/components/article.html

11.0 Examination Note

Scheme of Evaluation for Internal Assessment (20 Marks)

- (a) Lab work, Assignment, Technical quiz : 5Marks.
- (b) Internal Assessment test Average of two Tests out of Three tests): 15marks.

SCHEME OF EXAMINATION:

Two questions to be set each from Module.

Student has to answer both full questions. 80marks Marks divided in three parts Write up 12marks, Conduction 56marks & Viva 12marks.

12.0 Course Delivery Plan

Experiment	Lecture No.	Content	% of Portion			
1	1	 Programs involving: Data transfer instructions like: Byte and word data transfer indifferent addressing Modes Block move (with and without overlap) Block interchange 	14			
2	2	ograms involving: metic & logical operations like: dition and Subtraction of multi precision nos. ultiplication and Division of signed and unsigned Hexadecimal nos. SCII adjustment instructions ode conversions				
3	3	 3. Programs involving: Bit manipulation instructions like checking: i) Whether given data is positive or negative ii) Whether given data is odd or even iii) Logical 1"s and 0"s in a given data iv) 2 out 5 code v) Bit wise and nibble wise palindrome 	42			
4	4	 4. Programs involving: Branch/L Loop instructions like i) Arrays: addition/subtraction of N nos., Finding largest and smallest nos., Ascending and descending order ii) Two application programs using Procedures and Macros (Subroutines) 	56			
5	5	5 5. Programs involving String manipulation like string transfer, string reversing, searching for a string				
6	6	6. Programs involving Programs to use DOS interrupt INT 21h Function calls for Reading a Character from keyboard, Buffered Keyboard input, Display of character/ String on console				

		7. Interfacing Experiments:	
7		Experiments on interfacing 8086 with the following interfacing modules through DIO	
	 7 7 7 7 7 7 7 7 1. Matrix keyboard interfacing 2. Seven segment display interface 3. Logical controller interface 4. Stepper motor interface 5. Analog to Digital Converter Interface (8 bit) 	(Digital Input/ Output - PCI bus compatible card/ 8086 Trainer)	
		1. Matrix keyboard interfacing	
		2. Seven segment display interface	100
		3. Logical controller interface	100
		4. Stepper motor interface	
		5. Analog to Digital Converter Interface (8 bit)	
		6. Light dependent resistor (LDR), Relay and Buzzer Interface to make light operated	
		switches	

13.0 VIVA QUESTIONS

- 1. What do you mean by pipelined architecture of CPU?
- 2. What are components of CPU?
- 3. Describe the different instruction formats of 8086.
- 4. Draw the register organization of 8086 and explain typical applications of each register.
- 5. Explain internal architecture of 8086
- 6. Explain why memory is divided into segments in 8086? What are its advantages
- 7. Explain conditional and control flags of 8086.
- 8. What do you mean by address bus and data bus, what are its widths.
- 9. How many address line does 8086 supports
- 10. What is logical address, physical address
- 11. What is the use of microprocessor, What is mean by co processor
- 12. What is little endian, big endian concept.
- 13. Discuss 8086 based system configured in Maximum mode with a neat block diagram.
- 14. Discuss 8086 based system configured in Minimum mode with a neat block diagram
- 15. State the function of the following signals of 8086:
 - i) RQ/GT ii) LOCK iii) DT/R. iv) MN / MX v) QS0, QS1
 - vi) TEST vii) BHE viii) RESET ix) IO / M x) READ
- 16. What is bus cycle? Draw memory-read bus cycle in minimum mode of operation of 8086.
- 17. State and explain the instruction formats of 8086
- 18. Which instruction of 8086 can be used for look up table manipulations? Justify your answer with an example
- 19. Explain the functions of the following instructions in 8086:
 - (i) XLAT(ii) DAA
 - (iii)XCHG AX, BX (iv) MOVSB
- 20. How 8086 does identifies between 8 bit and 16 bit operations?
- 21. What are assembler directives? Explain any 6 such directives used in MASM assembler for 8086 programming.
- 22. How does main program and sub routine communicates? Explain with an example.
- 23. With suitable example, explain the following instructions by stating the addressing mode they belong to:i) LDS ii) XLAT iii) CWD iv) SCAS
- 24. What is the function of address latch enable
- 25. What is positive logic?
- 26. What is negative logic?

- 27. How to convert number from binary to hexadecimal.
- 28. How to convert number from hexadecimal to octal.
- 29. How to convert number from decimal to hexadecimal.
- 30. What is word and double word.
- 31. How many pin IC does 8086 processor has?
- 32. What is multiplex and demultiplexer.
- 33. What does frequency of operation of 8086 processor.
- 34. Which oscillator used.
- 35. Find out the machine code for the following instructions:

i) LEA SI, [BX = 500H] ii) CALL [5000h] iii) NEG 50 [BP] iv) IN DX, AX

- 36. What is the difference between the NEAR and FAR procedure?
- 37. Bring out difference between MACRO and PROCEDURE.
- 38. Describe the interrupt sequence of 8086.
- 39. What is the differences between static and a dynamic RAM.
- 40. What is timing cycle of processor read operation?
- 41. What are the criteria to be considered before interfacing memory to the processor?
- 42. What is assembler
- 43. What is loader
- 44. What is linker
- 45. Explain ALIGN & ASSUME
- 46. Explain PROC & ENDP
- 47. Explain SEGMENT & ENDS
- 48. Define variable
- 49. Explain the linking process.
- 50. What is DOS interrupt. How to create a file, which interrupt to be used
- 51. How to delete a file, which interrupt to be used
- 52. What do you mean by port. Which i/o processor used for interfacing, how many ports available.
- 53. How to the DAC will be interfaced.
- 54. Explain operation of IN, OUT. What is control word.
- 55. Explain stack operation how it works, explain with PUSH, POP instruction.

14.0 University Result

Examination	FCD	FC	SC	% Passing
JULY-2017	-	-	-	100

Prepared by	Checked by		
Prof. Pramod V Patil	Prof. Sachin S Patil	HOD	Principal

Subject Title	LINEAR ICS AND COMMUN	NICATION LAB	
Subject Code	15ECL48	IA Marks	20
Number of Lecture Hrs / Week	03	Exam Marks	80
		Exam Hours	03
		CREDITS – 02	

FACULTY DETAILS:

FACULI I DETAILS.		
Name: Prof. D M Kumbhar, S B Akkole	Designation: AP	Experience: 10, 22.5, 10.9
D B Madihalli		
No. of times course taught:02	Specia	lization: Digital Electronics, Communication
	System	, Industrial Electronics

1.0 Prerequisite Subjects:

Sl. No	Branch	Semester	Subject
01	Electronics and Communication Engineering	I/II	Basic Electronics
02	Electronics and Communication Engineering	III	Analog Electronics

2.0 Course Objectives

This laboratory course enables students to:

- 1. Design, Demonstrate and Analyze instrumentation amplifier, filters, DAC, adder, differentiator and integrator circuits, using op-amp.
- 2. Design, Demonstrate and Analyze multivibrators and oscillator circuits using Op-amp
- 3. Design, Demonstrate and Analyze analog systems for AM, FM and Mixer operations.
- 4. Design, Demonstrate and Analyze balance modulation and frequency synthesis.
- 5. Demonstrate and Analyze pulse sampling and flat top sampling.

3.0 Course Outcomes

This laboratory course enables students to:

	Course Outcome	Cognitive Level	Pos
C216.1	Gain hands-on experience in building analog systems for a given specification using the basic building blocks.	L1,L2,L3	PO1 to PO4 , PO6, PO9, PO10, PO12
C216.2	Gain hands-on experience in AM and FM techniques, frequency synthesis.	L1,L2,L3	PO1 to PO4 , PO6, PO9, PO10, PO12
C216.3	Gain hands-on experience in pulse and flat top sampling techniques.	L1,L2,L3	PO1 to PO4 , PO6, PO9, PO10, PO12
C216.4	Design and analyze the performance of instrumentation amplifier, LPF, HPF, DAC, Oscillators, Adders and Integrators using linear IC.	L1,L2,L3	PO1 to PO4 , PO6, PO9, PO10, PO12
C216.5	Understand the applications of Linear IC for addition, integration And 555 timer operation to generate signals/pulses.	L1,L2,L3	PO1 to PO4 , PO6, PO9, PO10, PO12
	Total Hours of instruction		50

4.0 Course Content

Laboratory Experiments:

- 1. Design an instrumentation amplifier of differential mode of "A" using three amplifiers.
- 2. Design of RC phase shift & Wein's Bridge oscillators using Op-Amp.
- 3. Design active second order Butterworth low pass & high pass filters.
- Design 4 bit R-2R Op-Amp DAC

 (i) using 4 bit binary I/P from toggle switches
 (ii) By generating digital inputs using mod-16 counter.
- 5. Design Adder, Integrator & Differentiator using Op-Amp.
- 6. Design of Monostable and Astable Multivibrator using IC 555.
- 7. Demonstrate Pulse sampling, flat-top sampling and reconstruction.
- 8. Amplitude modulation using Transistor/FET (Generation and Detection)
- 9. Frequency modulation using 8038/2206
- 10. Design BJT/FET Mixer.
- 11. DSBSC generation using Balance Modulator IC 1496/1596.
- 12. Frequency synthesis using PLL.

5.0 Relevance to future subjects

SI No	Semester	Subject	Topics
01	VIII	Project work	Op-amp applications, Active filters, Voltage regulators, PLL, ADC & DAC, 555 Timer Modulation etc.
02	V/VI	Microelectronics	Op-amp as DC amplifiers, Op-amp as AC amplifiers, Op-amp applications.

6.0 Relevance to Real World

SL. No	Real World Mapping
01	Signal conditioning stages.
02	Domestic applications.
03	Industrial atomization.

7.0 Books Used and Recommended to Students

Text Books

- 1. "Operational Amplifiers and Linear IC's", David A. Bell, 2nd edition, PHI/Pearson, 2004. ISBN 978-81-203-2359-9.
- 2. "Linear Integrated Circuits", D. Roy Choudhury and Shail B. Jain, 4nd edition, Reprint 2006, New Age International ISBN 978-81-224-3098-1.
- 3. Communication Systems, Simon Haykins & Moher, 5th Edition, John Willey, India Pvt. Ltd, 2010 ISBN 978-81-265-3653-5
- 4. An Introduction to Analog and Digital Communication, Simon Haykins & Moher, John Wiley India Pvt. Ltd., 2012. ISBN 978-81-265-3653-5.

Reference Books

- 1. Ramakant A Gayakwad, "Op-Amps and Linear Integrated Circuits," Pearson, 4th Ed, 2015. ISBN 81-7808-501-1.
- 2. Somanathan Nair, "Linear Integrated Circuits: Analysis, Design & Applications," Wiley India, 1st Edition, 2015.
- 3. Principles of Communications, Herbert Taub & D.L.Schilling, TMH, 3rd Edition, 2008.

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4. Modern digital and analog Communication systems, B. P. Lathi, Oxford University Press., 4th ed, 2010.
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Additional Study material & e-Books

2. Data Sheet: <u>http://www.ti.com/lit/ds/symlink/tl081.pdf</u>

8.0 Relevant Websites (Reputed Universities and Others) for

Notes/Animation/Videos Recommended

Website and Internet Contents References

- 1. https://ocw.mit.edu/
- 2. https://www.smartzworld.com/notes
- 3. https://www.annauniversityplus.com/
- 4. http://www.vidyarthiplus.in/
- 5. http://jntuk.edu.in

9.0 Magazines/Journals Used and Recommended to Students

Sl. No	Magazines/Journals	Website
1	Electronics For You	http://www.efymag.com/
2	Planet analog	http://www.planetanalog.com/
3	EE times	http://www.eetimes.com/
4	IEEE spectrum	http://spectrum.ieee.org/

10.0 Examination Note

Internal Assessment: 20 Marks

Lab IA will be conducted for 20 marks. Students have to conduct one or two experiments.

Scheme of Evaluation for Internal Assessment (20 Marks)

Lab Journal 10 Marks

Lab IA Marks-10 (Conduction 5, Write-up 3, Viva 2)

SCHEME OF EXAMINATION:

- All laboratory experiments are to be included for practical examination.
- Students are allowed to pick one experiment from the lot.
- Change of experiment is allowed only once, in which case Procedure part Marks to be made zero.

11.0 Course Delivery Plan

Experiment No.	Content of Experiment	% of Portion
	PART – A	
1	Design an instrumentation amplifier of differential mode of "A" using three amplifiers.	8
2	Design of RC phase shift & Wein's Bridge oscillators using Op-Amp.	17
3	Design active second order Butterworth low pass & high pass filters.	25
4	Design 4 bit R-2R Op-Amp DAC (i)using 4 bit binary I/P from toggle switches (ii)by generating digital inputs using mod-16 counter.	33
5	Design Adder, Integrator & Differentiator using Op-Amp.	42
6	Design of Monostable and Astable Multivibrator using IC 555.	50
7	Demonstrate Pulse sampling, flat-top sampling and reconstruction.	58
8	Amplitude modulation using Transistor/FET (Generation and Detection)	67
9	Frequency modulation using 8038/2206	75
10	Design BJT/FET Mixer.	83
11	DSBSC generation using Balance Modulator IC 1496/1596.	91
12	Frequency synthesis using PLL.	100

12.0 VIVA QUESTIONS

- 1. What are the features of instrumentation amplifier?
- 2. What are the applications of instrumentation amplifier?
- 3. What is an instrumentation amplifier?
- 4. Write the expression for output voltage.
- 5. What is the use of transducer in an instrumentation amplifier?
- 6. State the two conditions for oscillator.
- 7. What is barkhausen criterion?
- 8. What is damped oscillation?
- 9. What are the applications of wein bridge oscillator?
- 10. What is the formula for RC-phase shift oscillator?
- 11. What is the formula for Wein Bridge oscillator?
- 12. What is the switched capacity filters?
- 13. What are the common applications of filters?
- 14. Define a state variable filter.
- 15. Why do we use higher order filters.
- 16. What is the roll-off a first order filter?
- 17. List out the other filters rather than these filters.
- 18. Name the essential parts of a DAC.
- 19. How many resistors are required in a 12 bit weighted resistors DAC?
- 20. List the various analog to digital conversion techniques.
- 21. Which is the fastest ADC and why?
- 22. What is conversion time in ADC?
- 23. What is the use of a monostable multivibrator?
- 24. Explain how a non symmetrical wave can be obtained.
- 25. What is the application of astable multivibrator?
- 26. What is the other name of astable multivibrator?
- 27. State the two conditions of oscillations.
- 28. What is Schmitt trigger?
- 29. Define an integrator.
- 30. State the applications of an integrator.
- 31. What is a differentiator?
- 32. What are the steps to design a differentiator?
- 33. What are the steps to design an integrator?
- 34. State the various blocks included in PLL.
- 35. Define capture range.
- 36. What is a VCO?
- 37. Define Lock-in Range.
- 38. What is the function of a phase detector?

13.0 University Result

Examination	FCD	FC	SC	% Passing
June 2017	-	-	-	100

Prepared by	Checked by		
	Prof. S B Akkole		
Prof. D M Kumbhar	Prof. D. B. Madihalli	HOD	Principal

S J P N Trust's



HirasugarInstitute of Technology, Nidasoshi.

Inculcating Values, Promoting Prosperity

Activity Report. P.15 2017-18

Approved by AICTE, Recognized by Govt, of Karnataka and Affiliated to VTU Belagavi.

Date of Activity held	10-05-2018
Time	2.00 pm to 5.00 pm
Type of Activity (cultural/curricular/co-curricular)	Co-curricular
Resource Person	Prof. Sachin S Patil (Coordinator)
Professional Details of Resource Person	Assistant Professor, Dept. Of ECE, HIT Nidasoshi
Year / Class -	6th Sem E&C students
No. of students-	55
Activity In charge-	Prof. Sachin S Patil

Description of Activity: The mini-project work has been carried by 6th semester student. In this semester they have implemented software projects, Guided by allotted faculty. They all presented/ Demonstrated in front of jury member at the event conducted as Mini-project exhibition.

Activity Photographs(Maximum 3):





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SJPN Trust's HirasugarInstitute of Technology, Nidasoshi.

ECE Dept.

Activity Report. P.15 2017-18

Inculcating Values, Promoting Prosperity Approved by AICTE, Recognized by Gavt. of Karnataka and Affiliated to VTU Belagavi.





Program Coordinaor

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Inculcating Values, Promoting Prosperity

Activity Report. P.15 2017-18

Approved by AICTE, Recognized by Govt. of Karnataka and Affiliated to VTU Belagavi.

Date of Activity held	09-11-2017
Time	10.00 am to 5.30 pm
Type of Activity (cultural/curricular/co-curricular)	Co-curricular
Resource Person	Prof. Sachin S Patil
Professional Details of Resource Person	Assistant Professor, Dept. Of ECE, HIT Nidasoshi
Year / Class –	5 th Sem E&C students
No. of students-	55
Activity In charge-	Prof. Sachin S Patil

Description of Activity: The mini-project work has been carried by 5th semester student. In this semester they have implemented hardware projects, Guided by allotted faculty. They all presented/ Demonstrated in front of jury member at the event conducted as Mini-project exhibition.

Activity Photographs(Maximum 3):





S J P N Trust's



HirasugarInstitute of Technology, Nidasoshi. Inculcating Values, Promoting Prosperity

ECE Dept.

Activity Report. P.15 2017-18

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Program Coordinaor

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Activity Report. P.15 2017-18

Approved by AICTE, Recognized by Gavt. of Karnataka and Affiliated to VTU Belagavi.

09-05-2018
2.00 pm to 3.30 pm
Co-curricular
Chris Shore
Director of Embedded Solutions, ARM, Cambridge
6 th Sem E&C students
25
Prof. Sachin S Patil



Program Coordinaor

HOD

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2017-18

Approved by AICTE, Recognized by Govt. of Karnataka and Affiliated to VTU Belagavi.

Date of Activity held	06-04-2018	
Time	2.00 pm to3.00 pm	
Type of Activity (cultural/curricular/co-curricular)	Co-curricular	
Resource Person	Pranav Mistry	
Professional Details of Resource Person	MIT Research Scholar	
Year / Class -	6 th Sem E&C students	
No. of students-	26	
Activity In charge-	Prof. Sachin S Patil	

Description of Activity: MIT Research scholar online video from TED website on Topic "The thrilling potential of six sense technology"

Activity Photographs:

Program Coordinaor

HOD

inclpal

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115	Show	24N14C5024	Praveen N. Samai	83
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Inculcating Values, Promoting Prospenty Approved by AICTE,Recognized by Govt of Karnataka and Affiliated to VTU Belagavi.

CAY: 2017-18 Content Beyond The Syllabus

SI. No	Gap	Action Taken	Date- Month-Year	Resource Person with designation	% of Stud.	Relevance to Pos	Relevanc e to PSOs
1	Communication, Team Work, Problem Analysis	Paper Presentation ,Technical quiz and Circuit Debugging	21-03-2018	HSIT QUEST 2018	60	1,3,4,9,10,1 2	1,2
2	Ethics and leadership Skills	Lecture on Ethical Values and leadership Skills	24-8-2017	S B Akkole	93	8,9	1,2
3	Modern Tool Usage	Industrial Visit RTTC Mysore	03-10-2017	RTTC Mysore Staff Mysore	51	5	2

CAYm1: 2016-17 Content Beyond The Syllabus

SL No	Gap	Action Taken	Date- Month-Year	Resource Person with designation	% of Stud	Relevance to Pos	Relevanc e to PSOs
3	Real world Mapping	A article of avoinics	16-02/2017	Smt. S S Malaj	98	12	2
1	Communication, Team Work, Problem Analysis	Paper Presentation, Poster Presentation & Debugging Events HIT SAMBHRAMA	21-04-2017	HIT SAMBHRA MA	60	1,3,4,9,10,12	1,2
2	Ethics and leadership Skills	Lecture on Ethical Values and leadership Skills	14/9/2016	S B Akkole	94	8,9	1,2

Nidasoshi-591 236, Taq: Hukkeri, Dist: Belagavi, Karnataka, India. Phone: +91-8333-278887, Fax: 278886, Web: www.hsit.ac.in, E-mail: principal@hsit.ac.in SELF ASSESSMENT REPORT OF ELECTRONICS & COMMUNICATION ENGG. DEPARTMENT





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ECE NBA SAR 2017-18

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CAYm2: 2015-16 Content Beyond The Syllabus

Sr. No.	Gap	Action Taken	Date-Month- Year	Resource Person with designation	% of students	Relevance to POs, PSOs
01	Modern Tool Usage	Simulation Software of PTDS discussions	26-08-16 to 23-09-16	M M Gadag, Asso. Prof	100	PO5
02	Analyze complex engineering problems	Design of filters using MATLAB	Sep-2015	S S Ittannavar, Asst. Prof	100	PO-3
03	Understand impact of Professional Engg Solution, Ethics	Preparation of Model to demonstration the given functionality	16-09-2015	D B Madihalli Asst. Prof	92	PO7,PO8, PO9

CAYm3: 2014-15

Sr. No.	Gap	Action Taken	Date-Month- Year	Resource Person with designation	% of students	Relevance to POs, PSOs
01	Professional Engg,Commun ication and Life long Learning	Presentation of Video lectures	14-02-2014	N M Patel Asst. Prof	95	PO7,PO10, PO12
02	Ethics and industrial Team work	Video on Satellite (Sat com)	01-04-2015	D M Kumbhar Asst. Prof	98	PO8,PO9
03	Modern Tool Usage	Workshop on Android application development	15-16 th March 2014	Sheetal Boragave Team Lead, Tech Mahendra Hyderbad	90	PO5,PO7,PO8

Nidasoshi-591 236, Taq: Hukkeri, Dist: Belagavi, Karnataka, India. Phone: +91-8333-278887, Fax: 278886, Web: www.hsit.ac.in, E-mail: principal@hsit.ac.in SELF ASSESSMENT REPORT OF ELECTRONICS & COMMUNICATION ENGG. DEPARTMENT



Notice

Date : 15/02/2018

It is here by informed to all students of 6th semester to Contact respective Guides as in table. Finalize the mini-project title and submit one page synopsis to Prof. S S Patil on or before 21/02/2018.

Coordinator

Biestrenics & Commn. Aug.

SJPN Trust's HIRASUGAR INSTITUTE OF TECHNOLOGY, NIDASOSHI DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG. CLASS: 6th SEM MINI-PROJECT Batches (EVEN SEM 2017-18)

S.N.	NAME	USN	Batches	Guide	
1	JYOTI BANAHATTI	2HN14EC403			
2	AKSHATA B. NANDAGANVI	2HN15EC001	DI	Prof. D B Madihalli	
3	AKSHATA JAMAKHANDI	2HN15EC002	ы		
4	AMRUTHA S. M.	2HN15EC003		1124111	
5	A SKAREPPAGOL	2HN15EC004	B2		
6	ARJEVI A.PATIL	2HN15EC005	1 1 1 1 1 1 1	Prof. S S Malaj	
7	ARUNA CHOUGALA	2HN15EC006			
8	BHAVANI SHIRALKAR	2HN15EC007	B3	Concernance -	
9	CHAITRA ANGADI	2HN15EC008		Prof. P B Khot	
10	GAYATRI GHARABUDE	2HN15EC009			
11	JAGADEESH MANAGANVI	2HN15EC010		Philippin and	
12	JAYASHRI SANJU MADANNAVAR	2HN15EC011		and the state of the state	
13	JYOTI CHOUGALA	2HN15EC012	B4	Prof. P V Patil	
14	M S KHATKALLI	2HN15EC013			
15	KOMAL RAJENDRA RANBHARE	2HN15EC014		A STATE OF THE OWNER OF	
16	KUSHAL BARAGI	2HN15EC015	B5	D. P.N.P.H.	
17	LALITA AMBALAZERI	2HN15EC016	100-5	PTOL N K Honnagoudar	
18	LAXMI MANNIKERI	2HN15EC017		and States and	
19	MOHAN ADIVEPPA BASSAPURI	2HN15EC018		AN ARCING THE	
20	MUSALE SHREYA RAVINDRA	2HN15EC019	B6	Dr. V G Kasabegoudar	
21	MUSTAKIM NIJAM PENDARI	2HN15EC020			
22	PATIL RUTUJA MALLIKARJUN	2HN15EC023	1200 20000	Cardina Contraction	
23	POOJA PATIL	2HN15EC024	B7	Prof. S S Ittannavar	
24	PRAVEEN BASAPPA POTARADDI	2HN15EC025			
25	R L MUSHANAGOL	2HN15EC026			
26	RAMESH HUDDAR	2HN15EC027	B8	Prof. M M Gadag	
27	REKHA DHARMATTI	2HN15EC028	- Control		

S.N.	NAME	USN	Batches	Guide
286	SAMMED MAHAVEER HULIKOPPE	2HN15EC029		D. COD MILL
29	SANIYA RAFIK JAGADAL	2HN15EC030	B9	Prot. S B Akkole
30	SAVITA DASANGALI	2HN15EC032		
31	SHIVAKUMAR PUJARI	2HN15EC034		
32	SHIVANGI S.SINGH	2HN15EC035	100 million (100 million)	
33	SHRADDHA KATTI	2HN15EC036		D. 0.D.01 ().)
34	SHWETA CHANDRAKANT NAIK	2HN15EC037	B10	Dr. S B Shrigiri
35	SHWETA S.PARULEKAR	2HN15EC038		
36	SNEHA M. MAGADUM	2HN15EC039	D. P. S. C.	
37	SULOCHANA BAHUBALI BELAVI	2HN15EC040	B11	Prof. V B Dhere
38	SUVARNA SANGAVE	2HN15EC043		X
39	SWATI RAJU BOGALKAR	2HN15EC044		
40	TEJASHWINI ASHOK DIGGEWADI	2HN15EC045	B12	Alimit Merculy
41	UDAGERI SANGAMESH SHIVAPPA	2HN15EC046		Prof. S S Patil
42	VINOD JADHAV	2HN15EC047		
43	SOURABH LOHAR SURESH	2HN15EC048		
44	NAGANAGOWDA PATIL	2HN15EC406		
45	ANUJA T.MANE	2HN16EC400	D17	Brof N M Patel
46	BALESHI NANDER	2HN16EC401	613	rior www.act
47	MANJUNATH BALAPPA ALAGUNDI	2HN16EC406	1	A NIVE-SAL
48	PADMAJA BHUPAL SHETTI	2HN16EC407	1201000	1. 1.82.21 191
49	PRIYANKA MAGADUM	2HN16EC408		Prof S S Formate
50	PRIYANKA PATIL	2HN16EC409	B14	Tion o o Kainak
51	RANI JOGUR	2HN16EC410	Contraction of the second	New Kattlering
52	SANKALP G.PATIL	2HN16EC414	The second	
53	VARADA PRAKASH JOSHI	2HN16EC418	ALL REAL	
54	VEENA BAMANALE	2HN16EC419	DIS	Peorf D M Fumiliture
55	VISHAL HIREMATH	2HN16EC420	B15	FIGE D M Kumonar
56	VRUSHALI MALI	2HN16EC421		ED CHER AND

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2017-18

Event	National Level Technical Event
Theme	Innovation 2K18
Place	Sharad Institute of Technology Yadrav, Inchalakarji(Maharashtra)
Date	28.02.2018
Project Title	Attached Electrical Powered Tricycle for Physically Challenged poor person
Prize:	II Prize
Student Name:	Sagar Giraganvi, Mahesh Khot, Vioresh Angadi, Vikas hiremath
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar



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Mr. Lungers & Londba	Dr. S. A. Khut	Hon, Shri, Anil Bagane





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Jupursecond/Unpht/partfctpant/y6lunt during INNOVATION-2k18 held or and wishes him/her bright future.	eer w	Competitiers 8 team approciates his/her efforts
tatte	de 1	Breeze
Ms. Apurva A. Londhe	Dr. S. A. Khot	Hon, Shri, Anil Bagane

Event	State level Project exhibition cum competition
Theme	"SRUSHTI" 2018
Place	Dayanand Sagar College of Engineering Bangaluru
Date	22.05.2018 to 24.05.2018
Project Title	Maize Thrusher
Prize:	III Prize
Student Name:	Basavaraj Vajaramatti, Bhuvaneshwar Bomannavar, Akash Rathod, Murali More
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar



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Photo: Prize Distribution by Dr. Kiran Kumar Reddy, Former Chairman ISRO.





Event	State level Project exhibition cum competition
Theme	"SRUSHTI" 2018
Place	Dayanand Sagar College of Engineering Bangaluru
Date	22.05.2018 to 24.05.2018
Project Title	
Prize:	SRUSHTI 2018 "Student Friendly College" Award
Student Name:	
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar



Photo: "Student Friendly College" Award received by HIT Team
2016-17

Event	State level Project exhibition cum competition	
Theme	Science and Technological Solutions for Specially abled person	
Place	Visveswarayya Technological University, Belagavi	
Date	10.03.2017	
Project Title	Flexible Seated wheel chair for Physically Challenged poor person	
Prize:	I Prize	
Student Name:	Rahul Raj, Praveen Totagi, Kaza Dafedar, Akshay Koti	
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar	

The students are designed a project " Electrically Operated Wheel Chair" for handicapped community under the guidance of Prof. Mahantesh Tanodi and and Prof.Sujata Huddar and the same project has been won many awards and appreciated by AICTE Chairman Prof. Anil Sahasrbudde and VTU Vice-Chancellor Dr. Karisidappa. Dr. H. N. Jagannatha Reddy, Registrar VTU and Dr. Satish Annigeri Registrar (Evaluation) VTU



Photo: Prize Distribution by Dr. H. N. Jagannatha Reddy, Registrar VTU and Dr. Satish Annigeri Registrar (Evaluation) VTU

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police limits and one nouse theft case each in Karwar ru-The accused have been ral police station limits, Ankola station limits and Goa Ponda station limits. DH News Service



r xible seated wheel chair for physically challenged and e onomically poor developed by students of HiraSugar In-1 Ite of Technology, Nidasoshi, DH PHOTO

Students bag first prize

4, Kalon 13, India

Saue level project exhibition Rahul Raj, Praveen Totagi, com-competial conducted Kaza Deledar & Akshay Koti b. Visvessuraya ... echnological bagged first place for their University, Belagavi, under project "Plexible Seated Wheel Science & Technological Sontions For Specially Abled Per-, lenged & Economically Pour acts students of F uSugar h- Persons," in which 74 engi-

S DESHWAR, DHNS: At the Nidasoshi, namely Kumar Chair For Physically Chalclimite of a hnology, neering colleges participated.

Hubball-Dhanwad GALD SUNDAY, MARCH 12, 2017

Photo: Paper cutting "Deccan Herald" March 12, 2017



Photo: Paper cutting "Prajavani" 12.03.2017

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI STATE LEVEL SCIENCE EXHIBITION CUM COMPETITION ON "SCIENCE AND TECHNOLOGICAL SOLUTIONS FOR SPECIALLY ABLED PERSONS"
Certificate of Participation
This is to certify that
Mr./MsRaver . B. Nandagaon
of has participated and exhibited
science proposal entitled
in State Level Science Exhibition cum Competition on
"Science and Technological Solutions for Specially Abled Persons" held on 10th March, 2017
organized by Centre for P.G. Studies, Visvesvaraya Technological University, Belagavi, Karnataka.
Anno 2 half
VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI STATE LEVEL SCIENCE EXHIBITION CUM COMPETITION ON "SCIENCE AND TECHNOLOGICAL SOLUTIONS FOR SPECIALLY ABLED PERSONS"
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Mc/Ms_ of science pro	ISVESV. "SC B-hame H-I T oposal entit nce and Te	ARAYA TECHNOLOG STATE LEVEL SCIENCE EXHIBIT EIENCE AND TECHNOL SPECIALLY ABL Certificate of This is to a This is to a This is to a Anagoud Nemagoud Ntdazocht ded in State Level Science Exhi schnological Solutions for Specie	AICAL UNIVERSITY, BELAGAVI THON CUM COMPETITION ON OGICAL SOLUTIONS FOR ED PERSONS" Darticipation Darticipation tertify that has participated and exhibited bition cum Competition on ally Abled Persons" held on 10th March. 2017
Mc/Ms_ of science pro	ISVESV. "SC "SC Blum H.I.T oposal entr nce and Te zed by Cer	ARAYA TECHNOLOG STATE LEVEL SCIENCE EXHIBIT DENCE AND TECHNOL SPECIALLY ABL CONTINUES OF CONTINUES SPECIALLY ABL CONTINUES OF CONTINUES This is to a This is to a This is to a Midazochi Midazochi In State Level Science Exhi schnological Solutions for Species inter for P.G. Studies, Visvesvaray	AICAL UNIVERSITY, BELAGAVI THON CUM COMPETITION ON OGICAL SOLUTIONS FOR ED PERSONS" Darticipation Darticipation certify that has participated and exhibited bition cum Competition on ally Abled Persons" held on 10th March, 2017 to Technological University, Belagaw, Karnataka.

Event	State level Project exhibition cum competition	
Theme	"SRUSHTI 2017"	
Place	R V College Bengaluru	
Date	10.03.2017	
Project Title	Attachable Electrical Powered Wheel Chair	
Prize:	I Prize	
Student Name:	Praveen Nandagov, Bharatesh Magadum, Bhimanagouda Nemagouda, Vinod Ginimuge	
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar	



Photo: Prize distribution by Dr.Omkar Rai Director General Software Technology Parks of India, Government of India.

Event	State level Project exhibition cum competition	
Theme	"SRUSHTI 2017"	
Place	R V College Bengaluru	
Date	10.03.2017	
Project Title	Experimental investigation of dry sugarcane leaves pallets as a ecofriendly biofuel and	
	fabrication of specially designed furnace for household purpose	
Prize:	Consolation Prize	
Student Name:	Rahul Raj, Praveen Totagi, Kaza Dafedar, Akshay Koti	
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar	



Photo: Paper cutting "Vijay Karnataka" 18.06.2017. AICTE Chairman Prof. Anil Sahasrbudde and VTU Vice-Chancellor Dr. Karisidappa Observing the Project



Photo: Paper cutting "Vijayvani" 27.05.2017.

ವಿವಿಧ ಬಗೆಯ ಆವಿಷ್ಕಾರಗಳ ಪ್ರದರ್ಶನ: ಜನ ಮೆಚ್ಚುಗೆ ಗಳಿಸಿದ ವಿದ್ಯಾರ್ಥಿಗಳ ಶ್ರಮ ತಾಂತ್ರಿಕ ಮೇಳದಲ್ಲಿ ವೈಜ್ಞಾನಿಕ ಶಕ್ತಿ ಅನಾವರಣ

Driostida: storiwada dar 27

ಮೈಸೂದು ದಗ್ಗೆಯಲ್ಲಿನ ಆರ್.ಎ. ಇಂಜನಿಯರಿಂಗ್ ຄະປະແດຊ ພະຍະ ເກດໄປແລ້ ລະກຸຍະ ನಂತನ್ ಅಮೇಶಸಿದ್ದ ರಾಜ್ಯ ವಸ್ತುವ ಸಾಂಕ್ಷಿಕ ಮೇಳ ಸೃಸ್ಥಿ-2017 ವರವನೇ ವಿಶ ಸಾವಿರಾರು ಹುಂದಿ ಯುವಕರು ಸಾಕ್ಷ್ಮಯಾದರು, ಮೇಸದಲ್ಲಿ ಆದೇಕ ಸುಲೇಜುಗಳು, ಗಡೆಸಿದ ಪ್ರದರ್ಶನ direnta directina matativativativa directo' ಭಾಗಪಾಸದ ಕೆಂಥಂದು ಅವಿಷ್ಠಾರಗಳ ಪರಿಚಯ ಇಲ್ಲಿದೆ.

ರೈಲ್ವೇ ಅಡ'ಮ್ಯಾಣ್ಣ್ ಗೇಟ್, ಮಲ್ಪಟ್ಟೆಡ್ ಅಪರೇಷನ್ ಅಧಾರಿಕ ಈ ತುತ್ತಪ್ಪಾರ ವಸ್ತು ಮಾಡವಾಭ್ಯದ ರೈಲು ಕ್ರಾಸಿಂಗ್ ಗೇಟುಗಳ ಸಂಕ್ಷತ್ರಮ ದೃಷ್ಟಿಯಂಥ ತಂಡುಂಗಲಾಗಿದೆ. ಈ ತಂತ್ರಪ್ಪಾನದಲ್ಲಿ ರೈಲು ಆಗಬಂಗುವ ೫ ನೆಕೆಂದುಗಳ ಮುದ್ದ ಗೆಗಬಗಾದಿ ಶ್ರಯಂಜಾಲಿಹವಾಗಿ ಮುಚ್ಚಿಕೊಳ್ಳುತ್ತದೆ ಹಾಗೂ ก็กมหงอุฒส สุระชาพี สมกับร ระเปล ವನ್ನು ಮುಂದಿನ ರೈಲೈ ಸಿಲ್ಟಾಣಗಾಗೆ ಕೇಂಬಸುವ ສະຫັກງາວ ພວກຊີ້ຕົວກັງໃກ່ວາ ແລະ ແລະ ແມ່ນ ຫັວໄປປາ ລວນ ລູກັກກາ ແຫຼ່ງແຜ່ລາວ. ಈಗಾಗಲೇ ರೈಲ್ವೇ ಆದುವೆಯು ಈ ಮಂತ್ರವನ್ನು ಉದಾರೋಗಿಕೊಳ್ಳುವಲ್ಲಿ ಆಸಕ್ತಿ ತೋಂದ.

ವಶಿಷ್ಟರಗತನರಿಗೆ ನೆರವಾಗುವೆ ವಿದ್ಯು ತ್ರಚಾಲಿತ ತ್ರಿಲಕ್ಕೆ ವಾಹದ : ದಾಗ್ರ ಸದ್ಯರವಾಗಬೇಕಾದರೆ ಅಲ್ಲಿ ದಾಗಿರುವ ಪ್ರತಿ ದೇಶವಾಗಿಯೂ ಅರೋಗ್ರ and relation a quere the



ಸಾಧ್ಯ. ಆ ವಿಶೆಯಲ್ಲಿ ಬೆಳಗಾವಿ ಪರ್ಧೆಯ ಹೀಡಾ ಮಗರ್ಸ್ ಹಾಂತ್ರಿಕ ಮಹಾವಿದಾ ಕಾರುವ ωση φιστού ωδαμέταταση πόσαιτασ actuation auto and and ಸಿದ್ದಪಡಿಸಿದ್ದಾರೆ. ಯಾದ ವೃತ್ತಿಯು ತನ್ನ ಎರಡು ಕಾರುಗಾನ್ನು ಕಳೆದುಕೊಂಡಿರುವ ಮತ್ತು meuning statesada anti-ಸಾಧನ ಉಪಯುಕ್ಷಕರವಾಗಿದೆ. ಅವರು ಯಾರ ಸಹಾಯವಿಲ್ಲರೇ ಸ್ಥೆಕ್ರಿಯಿಂದ ಈ ವೀರ್ ಚೇರ್.

ಮೇಲೆ ಪತ್ರ ಕುಂಬಕೊಲ್ಲದ ತುಪ್ರಂಶವನ್ನು ಅಳವರಿಸಲಾಗಿದೆ. ಈ ಯಂತ್ರಕ್ಕೆ ಒಂದು ಬಾರಿ ಟಾರ್ಕ್ ಮಾಡಿದರೆ ಸುಮಾರು 45 ಕಿ.ಮೀ ಮಾರ ಚಲಿಸುವ ಸಾಮುರ್ಥ, ವನ್ನು ಹೊಂದಿದೆ.

र्डकाण्ड्रार्ड्स् का तिर्मुहर्य् ७३१ स्वत्ये विद्यानार्वन्त्रम् ४४२, ४४४, ४०२३ स्वान्ड ಪಧವಾದ್ದ ತಮಾರಿಸಿದ್ದಾರೆ. ಗೋಲರ್ ಸ್ಟಾಸ್ CINS. worke and LVALIDED ແມສແມສາເພ ສູ່ລະ ອີດດະ : ເປັນກະຕິບູ່ ແລະ ອີດອີ ອະດີ ອັດສະຫຼາມການ ದೊರೆಯುವ ತರ್ಮಾಯ ಶಕ್ಷಿಗಾಗ ತಂತ್ರವ್ದಾನ ತಂಡದಿಂಬದೆ ಸಾಧನ ನೋಡಲು ಮತ್ತು ಬಳಸಲು ವನ್ನು ಆಳವಡಿಸಿ, ಹೆಂಗೆ ಅವರ ಉಪಯೋಗ ಗೋಬರ್ ಗ್ರಾಸ್ ನಂತೆ ರಿದೆ, ಅವರೆ ರಿವಕ್ಕೆ ಅವರ ಪಡೆಯುವವರೆಯ ಹುಂಗಳೂರಿನ ಕೆರನಾ ಹಾಗೆ ಇಲ್ಲಿ ಸರಗೆಯನ್ನು ಉಪಯೋಗಸಾವ ನಾಯಕ, ಆಕ್ರಯಪ್ರಮುಶ, ಅಕ್ರಯ ಮ ಮನನೆಯರಿಂಗ್ ಕಾಲೇವನ ವಿಧ್ಯಾರ್ಥಿಗಳು ಅವಸ್ಥಳವೆ ಇಲ್ಲ ಅವರ ಬದರಿಗೆ ಗ್ರಹಬಳಕೆಯಲ್ಲಿ ಮತ್ತು ಅನಿಸುವ ಶಿಕ್ಷ ತಯಾಸಿದ್ದಾರೆ.

100000 253 360 (8000) ರಾಜ್ಯ ಮಟ್ಟದ ತಾಂತ್ರಿಕ ಮೇಳ 14-2017 de standares standores ಭಾನವಾರ ನಡೆಯಲಿದೆ. ಕಾರ್ಯಕ್ರಮದಲ್ಲಿ ಕೇಂದ, ದನಗೊಬ್ಬರ ಮತ್ತು ಸಂಸದೀಯ a mandriv stala auf , and , ತನುತಾದೂರ್, ದಾದಾ ಅಟಾಮಿಕ್ Redardin fred, d died Lder of ad claster m. who' solaring of , acres שקון ה.שנסי אשר נוסל ליסמול ಗ್ರಾದ ಉಪ್ಪತಾರರಿದ್ದಾರೆ.

ಬಳಸಿದ ಪ್ರಾಜ್ಯಗಳನ್ನು ಬೇರೆ ಕಡೆಗೆ ಎನೆಯುವ ಬದಲು ಅದನ್ನು ಹಿ ಸುಧನದ ಮೂಲಕ ಬಳಸಿ ಮನಗಳಿಗೆ ಬೆಡಾದ ಪ್ರವಿಕ ಅನಿಲವನ್ನು ທສາງສາມແລະ ເຊື້ອ ແລະ ເຊື້ອງແລງ ຈາກໃຊ້ ແລະເວັດເຫດັ່ງ ສະຫານແລະແ ಇವನ್ನು ಪ್ರತೀ ಮನೆಯಲ್ಲಿ ಕಂಡುರಿಸುವಂದು ಸದನ್ನು ಗ್ರಾರ್ ಎಂದು ಬಾರ ಮಾನಯನ್ನು ಮಾನದರೆ ಸುವು. ನಂತರ ಮನೆಯಲ್ಲಿ ಬಾರದ ಪ್ರಾಬ್ಯವನ್ನು ಸಾಕರ್ ಸುಮಾರು 250 ಗ್ರಾಂಗ 20 ವಿನದವರೆಗೆ ಬೇಕದ ಅವಲ ಸೇಲವು ಇವರಲ್ಲಿ ಮಾಡುವಲಿದೆ. ಅಶ್ಲೇ ಅಲ್ಲದೇ ಈ ಸಾಧೀವನ್ನು ಸೌರ ಶಕ್ತಿ ಮತ್ತು ವಿದ್ಯಾಕ್ತಿಗೆ ಸಹಾಯದಿಂದಲೂ ಬಳಸಲವರು. ಈ ತಂತ್ರತ್ಯಾವಾನ್ನ ಎರ್.ರಿಗಗರ ಪ್ರೇ.ಶ್ರಶಂತ ಕಾಮತ್ ಅವರ ಮುರ್ಗವರ್ಶವರಿಯಲ್ಲಿ ಅವಿತ್ರ

Photo: Paper cutting "Hosa Digant" 28.05.2017. IISC Jury Members Evaluating the Project



Photo: Paper cutting "Vijayavani" 2.06.2017. Project Associates and Guides are appreciated by AICTE Chairman Dr. Anil Sahasrabuddi and VTU Vice-Chancellor Dr. Karisiddappa



Photo: ABVP Bengaluru team observing the Project



Photo: Project Students and Guides are felicitated by SJPN Trust Board of Management









Event	State level Project exhibition cum competition	
Theme	Emerging & Sustainable Technology for Successful Accomplishment of National	
	Programme''Make in India''	
Place	NMAM Institute of Technology, Nitte.	
Date	11.03.2017	
Project Title	Attached Electrical Powered Tricycle for Physically Challenged poor person	
Prize:	I Prize	
Student Name:	Praveen Nandagov, Bharatesh Magadum, Bhimanagouda Nemagouda, Vinod Ginimuge	
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar	









Event	National Level Technical Symposium	
Theme	Navapravartya 2K17	
Place	Sant Gajanan Maharaj College of Engineering Mahagaon(Maharashtra)	
Date	16.03.2017	
Project Title	Attached Electrical Powered Tricycle for Physically Challenged poor person	
Prize:	Winner	
Student Name:	Praveen Nandagov, Bharatesh Magadum, Bhimanagouda Nemagouda, Vinod Ginimuge	
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar	









Event	National Level Technical Symposium
Theme	Jigyasa
Place	Shaikh College of Engineering and Technology Belagavi
Date	04.04.2017
Project Title	Attached Electrical Powered Tricycle for Physically Challenged poor person
Prize:	First
Student Name:	Praveen Nandagov, Bharatesh Magadum, Bhimanagouda Nemagouda, Vinod Ginimuge
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar





SHAIKH COLLEGE ENGINEERING & T	OF TECHNOLOGY, BELAGAVI
<u>Certuttale</u>	<u>11 2019711</u>
This certificate is a	warded to
Master/Miss Praveen Mandage	90
of Mechanical Engg. Department for	participating in Project Exhibition
L securing	tion during the year 2016-17.
Date: 04/64/17	
Bardil	Allamaner
Co-ontinator	Principal
Sponsored by: 🚯 SHREE KRISHNA COACH, Shinnoli-Maharastra	

SHAIKH COLLEG	GE OF
ENGINEERING	& TECHNOLOGY, BELAGAVI
<u>Certificate</u>	of Merit
This certificate i	s awarded to
Master/Miss Bharatesh Mag	adumm
of Mechanical Engg. Department fo	r participating in Project Exhibition
Date: 04/04/17 Belagars	osition during the year 2016-17.
Co-ortinator	Principal
Sponsored by: 🚯 SHREE KRISHNA C	OACH, Shinnoli-Maharastra

Event	State Level Technical Symposium	
Theme	Techno Pro 2K17	
Place	Tontadarya College of Engineering Gadag	
Date	18.05.2017	
Project Title	Attached Electrical Powered Tricycle for Physically Challenged poor person	
Prize:	I Prize	
Student Name:	Praveen Nandagov, Bharatesh Magadum, Bhimanagouda Nemagouda, Vinod Ginimuge	
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar	

STR TONTADARYA COLLE Mundarugi Road.	GADAG - 582101.
STATE LEVEL TECHNICA	IL PROJECT EXHIBITION PRO - 2K17 Innovation Beyond Imagination II
This is to certify that Mr./Ms./MrsBhas has participated in STATE LEAVEL TECHIN Prace in common and the state	atest M. 8 th Sem NAL PROJECT EXHIBITION, and secured
Prof. Sujette Bhavitants Convert Soz. FAT Department	Dr. Mahesh M. Awati Pressar

9	TONTADARYA COLL Mundaragi Raa	EGE OF ENGINEERING
	STATE LEVEL TECHNIC	AL PROJECT EXHIBITION
	TECH	PRO - 2KIZ Innovation Beyond Imagination I
	Cen	tificate
T	inis is to certify that Mr./Ms./Mrs	aven N. 8th Gem
7	has participated in STATE LEAVEL TECH	INAL PROJECT EXHIBITION, and secured
0	d place in <i>(tracer paid - saver</i> . Con	iducted by TCE. Gadag on 18 th May 2017.
	Prof. Bujinta Elhavikatti Communi HDD. HZ. Opportuni	Dr. Mahosh M. Awats Provagal

۲	STS TONTADARYA COLLE Mundaragi Read,	CGE OF ENGINEERING
	STATE LEVEL TECHNIC	AL PROJECT EXHIBITION
	TECH	PRO - 2K17 Innovation Bayond Imagination II.
	Cert	ificate
	This is to certify that Mr./Ms./Mrs	NG 8th Sem
	has participated in STATE LEAVEL TECHI	NAL PROJECT EXHIBITION, and secured
	1" place in <i>(rzecze sect- zwer</i> . Conc	Jucted by TCE. Gadag on 18 ^m May 2017.
	Prof. Bogers Bravelkarts Constant Histo Constants	Dr. Mahreath M. Awatti Protocoal

Event	DepartmentLevel Project Exhibition 2017
Theme	Project Competition
Place	Mechanical Department" HSIT Nidasoshi
Date	2017
Project Title	Attached Electrical Powered Tricycle for Physically Challenged poor person
Prize:	Best Project(Design)
Student Name:	Praveen Nandagov, Bharatesh Magadum, Bhimanagouda Nemagouda, Vinod Ginimuge
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar

HIRASUGAR INSTITUTE OF TECHNOLOGY Nidasoshi 591236 Tal. Hiskkeri Dist. Belagavi DEPARTMENT OF MECHANICAL ENGINEERING Thusis to certify that Mr./Hiss. Ninod . Timminge has sound / pursequenced Best Project Proved in Project Exhibition (Design) held in the academic year 2016 - 2017 at 3077 Nidasoshi. tentre he H SJPN Trusts Nidasoshi-591236 Tal. Hukkeri Dist. Belagavi DEPARTMENT OF MECHANICAL ENGI This is to certify that Mr./Mer. Bhimanagouda Henagoud has secured / papelipated Best project record in Project Exhibition (Design) held in the academic year 2016-2017 at 9777 Nidasoshi. Alass Country Printipal HOT

BJPN Trust's HIRASUGAR INSTITUTE OF TECHNOLOGY Nichesoshi 591236 Tal, Hukkeri Dist, Belagavi DEPARTMENT OF MECHANICAL ENGINEER This is to certify that Mr. Mulu. Prancen Nandagaon. has secured / pursuspared Best project Award in Sorgect Exhibition (Design) held in the academic year 2016 - 2017 at HPT Nidasoshi. ATMSS Coronition Thencipal Hibb SJPN Trust's HIRASUGAR INSTITUTE OF TECHNOLOGY Nichesonhi-591236 Tal. Hukkeri Dist. Belagavi DEPARTMENT OF MECHANICAL ENGINEER This is to certify that Mr. /Miss. -Bharatest reagadum has secured / puplicipated Best project Award in Diogect Extribution (Design) held in the academic year 2016 - 2017 at HIT Nidasoshi. Walutes AIMSS Com Principal

2015-16

Event	State level Project exhibition cum competition	
Theme	"SRUSHTI 2016"	
Place	CMR Institute of Technology Bengaluru	
Date	25.04.2016	
Project Title	Wheel Chair for Specially abled Person	
Prize:	III Prize	
Student Name:	Mutturaj Ilegar, Mahesh Mantur, Basavantappa Badiger	
Guide Name:	Mr.Mahantesh Tanodi & Mrs.Sujata Huddar	



Smart India Hackathon 2018 - Hardware Edition Shortlist for Stage 2

i4clD	MyGov ID	Team Name	Theme	Name of Institute	Team Leader Name	
25703	171678	MekSmart	Waste Management	CVR COLLEGE OF ENGINEERING #5195	Satwik Redsly Machyaria	
21806	177845	Technocalypse	Waste Management	IT Kharagpur #15265	Cheitanye Paikara	
21971	186457	MISSION PLANNERS	Waste Management	VEL TECH #7319	SWATHI	
22517	206335	PHONEX 17	Waste Management	VELAMMAL INSTITUTE OF TECHNOLOGY #4453	SANTHEEP M	
22786	218614	aiws	Waste Management	AUAY BINAY INSTITUTE OF TECHNOLOGY, CUTTACE 93322	Bibhu Ashish Dash	
23148	235702	THE SPONTANEOUS SIX	Waste Management	R.M.K. COLLEGE OF ENGINEERING AND TECHNOLOGY	Rohini M	
23556	255881	Team mechora	Weste Management	SRIKRISHNA COLLEGE OF ENGINEERING AND	Darshan	
11503	366498	AUNS COM	Martin Management	ET Aludras #13361	Vanut Sünder	
23003	220426	Tarbon Thread's	Waste Management	CMP ENGINEERING COLLEGE #5550	SHAR SHARIER	
24770	787463	Technomaniac	Waste Management	TECHNODRATS INSTITUTE OF TECHNOLOGY #2543	Priva Kumari	
23855	293105	Crazy Buds	Waste Management	M.A.M. SCHOOL OF ENGINEERING #4791	Athif sil	
23963	306153	210X	Waste Management	TEO-IND INDIA NIR INSTITUTE OF TEO-INDLOGY #6705	LOKEDI PURI GOSWAMI	
24004	309383	SIMPLE MINDS D1	Waste Management	SRI MANAKULA VINAFAGAR ENGINEERING COLLEGE 911052	DHARSHAN DINESH	
24063	310088	TEAM GCRane	Waste Management	GOVERNMENT COLLEGE OF ENGINEERING, KARAD	VAIDHAV SURESH KAMIBLE	
24095	310434	EXTRACTORS	Waste Management	TRP ENGINEERING COLLEGE #5014	Sive muthu essakiyoppan R	
			and the state of the			
24116	310714	EC KINGS	Weste Management	ARYA COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY 46928	amboj gupta	
24181	311316	TORAZEN	Waste Management	NEW PRINCE SHRI BHAVANI COLLEGE OF ENGG & TECH #8767	VENKATESH R	
243.75	313047	HETEL SESAT	Watte Management	HIRASUGAR INSTIUTE OF TECHNOLOGY 45806	Astraini R Patti	
24380	212516	Team Innovators1	Waste Management	UNIVERSAL COLLEGE OF ENGINEERING #1840	Rishkesh Lahote	
24416	314498	Nethali	Waste Management	CAPE INSTITUTE OF TECHNOLOGY #3874	MUTHU KUMAR	
24449	314665	Mechonizz	Waste Management	SNI MANAKULA VINAYAGAR ENGINEERING COLLEGE	M. CHIDHARTH	
24458	814753	Lokmanus	Weste Management	JAIN COLLEGE OF ENGINEERING #5637	Praveen P Gothe	
24536	315621	The Gladiators	Waste Management	G. H. RAISONI COLLEGE OF ENGINEERING, NAGPUR.	Nihal surgaritister	
D.U.S.M.D.	215745	TRADI FASHERS	Weste Management	MOBADABAD INSTITUTE OF TECHNOLOGY #7509	Siddharth Puri	
24561	315857	SILVER LINING	Waste Management	ASIA PADFIC INSTITUTE OF INFORMATION	Nilesh Jha	
		Children Politi	Million to Mind a name of t	MORADINA STREET TO OF TECHNOLOGY #2518	Yach Khanna	
24665	317219	Water Cops	Weste Monagement	INTERPTY COLOR OF TECHNOLOGY #1910	the Camue Chanmight	
24584	317402	TEXTRE TECHNOLOGY	Waste Management	WTHE HEREASTRY CHURCE OF	Uperesi kelehan waleuri	
24659	317571	Indian Stuminati	Waste Management	ENGINEERING, VIZIANAGARAM #5325	Vanu krister veiputi	
24854	319755	MGMEXTCTeam_13	Waste Management	MGM'S COLLEGE OF ENGINEERING AND TECHNOLOGY #1642	owati sawant	
24843	319941	Smart Power Generation	Waste Monagement	DR.MAHAUNGAM COLLEGE OF ENGINEERING AND TEDHNOLOGY #4582	Bavishya Medhavan	
24862	320525	Back_Benchens	Waste Management	JAWAHARLAL INSTITUTE OF TECHNOLOGY, BORAWAN 42350	shivem soni	
25043	324535	Plasticycle builders	Waste Managament	KALASAUNGAM INSTITUTE OF TECHNOLOGY #4900	Balamurali	
25049	325003	INTACS	Weste Menagement	BHILAI INSTITUTE OF TECHNOLOGY, RAPUR. #7276	Naveen Gupta	
	222222	Production .	Whote Management	VAROHAMUN COLLEGE OF ENGINEERING #5576	DIALLA LOCHAN RED DV	
15374	239553	THINKEDS 3.P	Weste Manufertant	UNWAHAR FOLICATION SOCIETY'S & C. PATH	Sumit Anant Sunial	
103/6	223302	TRANSPORT & D	trans a state trans.	COLLEGE OF ENGINEERING #7247		
25385	329431	HITEC-RECYCLEBIN	Waste Menagement	HERASUGAR INSTILITE OF TECHNOLOGY #5808	Sachin pata	
15387	329483	ELECTRICAL LEVELERS	Waste Management	KUPPAM ENGINEERING COLLEGE #5208	t, ryothina	
25392	329547	2/Ber///////////////////////////////////	Watte Management	IS. H. RAISONI COLLEGE OF ENGINEERING, NAGPUR, 97485	Acest setherware	
25483	330518	Nmit-Spartans	Waste Monagement	NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY 45745	Sabari Prabasiler R	
15554	331369	Unbestables	Waste Management	OOVERNMENT COLLEGE OF ENGINEERING, KARAD #7253	Sourabh Sunil Potdar	
21569	164253	DYNAMIC DEVELOPERS	Agriculture / Agro-Electronics	ANUMAN-HISLAMY'S KALSEKAR TED-INICAL CAMPUS #2282	Aber Ashelak Khan	
22712	215339	MECHAGNITION	Agriculture / Agro-Electronics.	GANDH INSTITUTE FOR EDUCATION & TECHNOLOGY 84176	Lasman Kumar Sahoo	

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21216	1100013	The Americanter	Securit Communication	Involutions crailing American	Tanan Khandelwal
22824	210815	Warehouse Warrisms	Smart Communication	R.M.K. COLLEGE OF ENGINEERING AND TECHNOLOGY	pranay kumar
23565	256564	Clairvoyants2	Smort Communication	BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING	Harshil Banzal
23082	230398	Aqua Rangers MURITM	Smart Communication	MARE LAMMAN REDDY INSTITUTE OF TECHNOLOGY	Prathika cheerala
	-		Contractor and the	AND MANAGEMENT #4700	AN ANTH APPERTMAN 1
23243	241066	CODESLASH	Smart Communication	MANSALAM COLLEGE OF ENGINEERING #0621	ANADINASNOHNAN)
23462	251302	REINCANZ	Smatt Communication	SHI RAMAKRISHNA ENGINEERING COLLEGE #7132	navaneetta kustar
23543	255409	Wirtual Techies	Smart Communication	PANIMALAR ENGINEERING COLLEGE #3981	ADINAYA.B
23552	255659	Hackaborna.	Smart Communication	SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY #3668	Arun Kumar
23578	306726	Bakerstreet Braves	Smart Communication	R.M.K. COLLEGE OF ENGINEERING AND TECHNOLOGY #7554	Dukshita Jain
14053	1000358	witter of	Smart Communication	HIRASUSAN INSTITUTE OF TECHNOLOGY ASSOS	Outelatabissum Alan
23592	259544	GIETIANS	Smart Communication	GANON INSTITUTE OF ENGINEERING AND	Rupari Biswas
23720	273095	Team of Challengers	Smart Communication	GOKARAU RANGARAU INSTITUTE OF ENGINEERING	Paranda Sandhya
				& TED-INGLOGY[E&T] #5559	
23768	282329	EARE-Technocrats	Smart Communication	C.A.R.E. GROUP OF INSTITUTIONS 44490	VARSHINES
23903	303140	Team Ashoka	Smart Communication	Indian Institute of Information Technology Design &	THEPPABATTUNI ANTONY
				Manufacturing #13684	ROHITTH
24276	312555	Scivitilators_on_fire	Smart Communication	RAUEEV GANDHI MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY #5200	A SAI CHAND
34293	313672	Power Trackers	Smart Communication	HIRASUGAR INSTIUTE OF TECHNOLOGY 45806	Akash U Burase
24382	313535	Brain_boggiess	Smart Communication	LAXMI INSTITUTE OF TECHNOLOGY, SARIGAM #7434	Krishnkent Pandey
24430	314318	Fraternite	Smart Communication	SAGAR INSTITUTE OF RESEARCH & TECHNOLOGY #7734	ASHISH MISHRA
20055	379974	autoralia.	Smart Communication	THAFAR UNIVERSITY #7242	Puneet Mishra
24607	316469	AryabhataSOET	Smart Communication	DR.D.Y.PATIL SCHOOL OF ENGINEERING AND TECHNOLOGY #2983	Nayan Vijey Dhobale
		In the Placebillar	Smart Communication	UNIVERSITY COLLEGE OF ENGINEERING #5420	Goud manoj kumar
24139	310721	Code789/s	Smart Communication	TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY #6705	Nikita Pande
			A	IS & Testandiated Lines and Pt 1963	Payan Tali
24271	312231	Tech Pheros	Smart Communication	DOG COLLEGE OF TECHNOLOGY ATTAT	Naetha centhilitanar
24492	315071	atueroones	Smart Communication	VALING& INSTITUT OF INDUSTRIAL TECHNOLOGY	Shakeb Ameen
24548	322533	Springheid botopes	Smart Communication	#3007	COT AN I PRIAMARY IN M.
24739	318272	INNOTECH	Smart Communication	TECHNOLOGY #5748	ISPORT PROKAPITE P
25091	325777	Tessaract	Smart Communication	VELAMMAL COLLEGE OF ENGINEERING & TECHNOLOGY #4997	Seoraj J P
25093	325794	Tessaract	Smart Communication	VELAMMAL COLLEGE OF ENGINEERING & TECHNOLOGY 14897	Sooraj J P
NADIO.	210332	Report Chartles	Smart Communication	KASTURBA POLYTECHNIC FOR WOMEN #5845	Khushbu Tiwari
24610	110110	Sab Bot Are	Smart Communication	SIES GRADUATE SCHOOL OF TECHNOLOGY #2331	Jaisharikar lyer
25087	325736	Tenzeract	Smart Communication	VELAMMAL COLLEGE OF ENGINEERING &	Sooriaj J P
25123	326482	Renalisance MHSSCE	Smart Communication	ANIUMANI-ISLAM/S M. H. SABOO SIDDIK COLLEGE	Tiwari Kartikeya Arvind
-	C. Costan	-		CARD INSTITUTE OF TECHNIC CON 45200	Ishaan Abining
25199	327525	ECUPSES	Smart Communication	TECHNOLOUPING AND INSTITUTE OF TECHNOLOUPING AND	Swishma Sen
25125	326489	Cinetales	Smart Communication		ht
25135	326655	AIR TRACKERS	Smart Communication	ASS79	valuaria sriperamououru.
25321	328856	TEAM BEGINNERS	Smart Communication	ISS ACADEMY OF TECHNICAL EDUCATION #3754	uticersh shukla
25167	327060	Creativity Crew_2	Smart Communication	SHRI GURU GOBIND SINGHII INSTITUTE OF ENGINEERING AND TECHNOLOGY #2205	Hernansha Waghare
25463	530189	Hope Community	Smart Communication	SHRI SHIVARI VIDYA PRASARAK SANSTHA'S LATE BAPUSAHEB SHIVARAD DEGRE COLLEGE OF ENGINEERING, DHELE	Rohit Kishor Patil
25251	328088	Surajya	Smart Communication	DR.D.Y.PATIL SCHOOL OF ENGINEERING AND TECHNOLOGY #7481	Kultan Manikrao Gore
	-	CHAR COLLEGE	Smart Communication	JEPPAAR ENGINEERING COLLEGE (EET) #5049	GUNA ABINAYA K
15607	332032	IN ALLAND	Smart Communication	ANUMAN-HISLAM'S M. H. SABOO SIDDIK COLLEGE OF	Afreen Bheti
15611	532089	RE-WILLIE		ENGINEERING #2170	Tamé Jain
21587	164898	Techno Hash It Out	Automobiles / Smart Vehicles		Lin bassas
21741	174756	The infinite Loops	Automobiles / Smart Vehicles	National Institute of Technology, Coa #19661	and survey abarra sharehout
21783	176705	E-TYCON OF GECA	Automobiles / Smart Vahicles	GOVERNMENT COLLEGE OF ENGINEERING, AUKANDABAD (ACADEMIC AUTONOMOUS) #2812	eportive acceracy chorcenant
21820	178308	Team Veyu	Automobiles / Smart Vehicles	VNR VIONANA JYOTHI INSTITUTE OF ENGINEERING & TECHNOLOGY #5572	Tejas Shah

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	Inculcating Values, Promoting Prosperity	7.1.1
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Date of Activity held and Time:	01/07/2013 to 03/08/2013
Name of Activity:	PGDIA Course (Post Graduate Diploma in Industrial Automation)
Type of Activity: (cultural/curricular/co-curricular)	Co- curricular
Resource Person/Invitee:	Prolific Systems And Technologies Pvt. Ltd, Bengaluru
Professional Details of Resource Person:	
Year / Class:	Final Year - 2013 Batch
No. of students:	24
No. of Staff:	•
Activity In charge:	Prof. S. N. Topannavar

Description of Activity: The course includes trainingon diverse hardware & software platforms employed in Industrial Automation and renders hands-on experience in variety of applications. The course incorporates Field Instrumentation in process measurements, Panel Design, Programmable logic Controllers, AC Drivers, Supervisory Control & Data Acquisition Software and Distributed Control System.



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HSIT Dept ECE NAAC.1.2.3 2013-14

Department of Electronics and Communication Engineering

Date of Activity held	15 & 16 March-2014
Time:	9.00am to 5pm
Name of Activity:	Professional Android Application Development
Type of Activity: (cultural/curricular/co-curricular)	Extra-Curricular
Resource Person/Invitee:	 Sri. Shitalkumar Borganve Prof Naveed Mulla, Faculty
Professional Details of Resource Person:	Android Professional
Year / Class:	FINAL YEAR STUDENTS
No. of students:	70
No. of Staff:	05
Activity In charge:	Prof S. B. Akkole Prof N. M. patel Prof. D. B. Madihalli (Program Co-ordinator) Miss.Shweta Bhosle Student Co-ordinator)

Description Of Activity:Inaugural Speech by Prof. Naveed Mulla, Faculty Department of Computer Science and Engineering, Maratha Mandal College of Engineering, Belgaum. Dr. N C Hiremath, Principal, HIT, Nidasoshi. Prof S B Akkole, HOD, Department of Electronics and Communication Engineering, Sri. Shitalkumar Borganve are also seen. The program was attended by 70 students Activity Photo:





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CSE NAAC STAC-Event-Details 2013-14

Department of Computer Science and Engineering

Date of Activity held	26th and 27th October 2013	a. 1 1	
Time	11.00 Pm Onwards		
Type of Activity (Cultural/Curricular/Co-Curricular)	Co-Carricular	27	
Resource Person	Mr. Kashish Sachdeva and Mr. Kunal Dudeja	1. (t)	1.0
Professional Details Of Resource Person	Network Bulls Pvt. Limited Gurgaon		
Year/ class	Computer Science and Engg Students		
No. of students	54		
Activity in-charge	Prof. M. R. Pawar	25	

Description of Activity:

A two day National Workshop was organized on 26-27 Oct. 2013 in association with ACM, IIT Delhi named "National Network Security Championship 2013". Mr. Kashish Sachdeva, Network Design & support Engg. Network Bulls Pvt. Limited Gurgaon and Mr. Kunal Dudeja Network Design & support Engg. Network Bulls Pvt. Limited Gurgaon were the resource persons. After completion of the two days workshop, test for championship was conducted.

Activity photographs(Minimum 5):



Computer Science & Engy. MIT, Nidaseshi:

Rincipal Rissugat Institute of Technolos. NIDASOSHI - 691 236

Nidasoshi-591 236, Taq: Hukkeri, Dist: Belagavi, Karnataka, India. * Phone: +91-8333-278887, Fax: 278886, Web: www.hsjt.ac.in, E-mail: principal@hsit.ac.in

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Date of Activity held and Time:	24/07/2017 to 23/08/2017
Name of Activity:	PGDIAMES (Post Graduate Diploma in Industrial Automation Mechatronics Electrical Systems)
Type of Activity: (cultural/curricular/co-curricular)	Co- curricular
Resource Person/Invitee:	Prolific Systems And Technologies Pvt. Ltd, Bengaluru
Professional Details of Resource Person:	
Year / Class:	Final Year - 2017 Batch
No. of students:	13
No. of Staff:	
Activity In charge:	Prof. S. N. Topannavar

Description of Activity: The course includes training on diverse hardware & software platforms employed in Industrial Automation and renders hands-on experience in variety of applications. The course incorporates Field Instrumentation in process measurements, Panel Design, Programmable logic Controllers, AC Drivers, Supervisory Control & Data Acquisition Software and Distributed Control System.

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Department of Electrical and Electronics Engineering

Date of Activity held	22 nd to 23 rd September 2017	
Time	9.00 am to 5 pm	
Type of Activity (Cultural/Curricular/Co- Curricular)	Curricular	
Resource Person	Prof V R.Sheelavant, Asst.Professor, Electrical and Electronics Engineering dept. SDMCET Dharwar.	
Professional Details Of Resource Person	Nil	
Year/ class	7 th sem	
No. of students	55	
Activity in-charge	Prof.S B Patil and Prof. Mahesh Yanagimath Prof. Pramod Murari	

Description of Activity: IEEE HIT student branch conducted two day workshop on "MAT Lab applications in Electrical Engg" for VII - Semester students. A total of 55 students benefited from this course..

Activity photographs:



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	Inculcating Values, Promoting Prosperity	7.1.1
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11/01/2018 to 31/01/2018
Soft Skill Training
Co-curricular
Prof. Santosh Sajjan
Training & Placement Officer. HIT, Nidasoshi
Pre-final Year- 2019 Batch
71
Prof. Santosh Sajjan

Description of Activity: 10 Days Soft Skill Training Program for each department covered Pick and speak, Employability skills, Resume writing skills, Dress code Sample HR questions, Presentation skills, Market trends related to individual department.



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Department of Computer Science and Engineering

Date of Activity held	15-01-2018 to 20-01-2018
Time	9.00 Am Onwards
Type of Activity (Cultural/Curricular/Co-Curricular)	Co-Curricular
Resource Person	Faculties of HSIT
Professional Details Of Resource Person	Professor/Associate Professor/Assistant Professor In HSIT
Year/ class	CSE Students
No. of students	14
Activity in-charge	Prof. M. R. Pawar

Description of Activity:

Department has organized in-house GATE coaching program for final year students of Computer Science and Engineering department. This activity is scheduled from 15-01-2018 to 20-1-2018. All the faculties of CSE department have shown their keen interest in delivering the lecture on syllabus of GATE-2018.

Activity photographs(Minimum 5):



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S J P N Trust's	HSIT
Hirasugar Institute of Technology, Nidasoshi.	Dept ECE
	NAAC.1.2.3
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Department of Electronics and Communication Engineering

Date of Activity held	16th to 27th January 2018
Time:	9.00am to 1.15pm
Name of Activity:	Gate Classes
Type of Activity: (cultural/curricular/co-curricular)	Extra-Curricular
Resource Person/Invitee:	ECE Staff
Professional Details of Resource Person:	All M.Tech Qualified staff
Year / Class:	FINAL YEAR STUDENTS
No. of students:	35
No. of Staff:	14
Activity In charge:	Dr. V G Kasabegoudar Prof S B Akkole Shri. V V Guruwodeyar

Description Of Activity: Gate 2018 crash for final year students conducted from 16th to 27th January 2018. The entire syllabus distributed to the dept staff members and HOD. The crash course conducted for the registered student with free of cost. A total 35 students benefited with this course. This program inaugurated on 16/01/2018 by shri. Kiran S Dodawd an Industriliast from Belgaum. On this occation Principal Dr. S. C. Kamate and Dr. V. G. Kasabegoudar HOD ECE were also present and guided the students on how to crack Gate examinations.

Activity Photo:



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HSIT	
Dept ECE	
NAAC.1.2.3	
2017-18	

Department of Electronics and Communication Engineering



Dr. V. G. Resabegoudar Projessor & Head Electronics & Communication Engg. Dept

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	7.1.1
	2017-18

Department of Electrical and Electronics Engineering

Date of Activity held and Time:	18/01/2018 19/01/2018 20/01/2018 22/01/2018 23/01/2018 24/01/2018 25/01/2018 27/01/2018 29/01/2018 Time -9 to 1 pm 29/01/2018 29/01/2018	
Name of Activity:	Gate Classes	
Type of Activity: (cultural/curricular/co-curricular)	Co-Curricular	
Resource Person/Invitee:	EEE Staff	
Professional Details of Resource Person:	All M.Tech Qualified staff	
Year / Class:	FINAL YEAR STUDENTS	
No. of students:	Approximate 12	
No. of Staff:	Approximate 12	
Activity In charge:	Dr. Sudendra Hadadi	
	Contraction and Alexandra a	

Description of Activity: As final year students of EEE department interested in gate exam 2018 .So all EEE staff planned to conduct classes to guide students to get good results in Gate Exam.

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Department of Computer Science and Engineering

Date of Activity held	23-01-2018 to 31-01-2018
Time	9.00 mm Onwards
Type of Activity (Cultural/Curricular/Co-Curricular)	Co-Curricular
Resource Person	Shri. Santosh Sajjan
Professional Details Of Resource Person	Training and Placement Officer, HSIT Nidasoshi.
Year/ class	3rd Year CSE Students
No. of students	56
Activity in-charge	Prof. M. R. Pawar

Description of Activity:

Department has organized in-house Pre-Placement training program for 3rd year students of Computer Science and Engineering department. This activity is scheduled from 23-01-2018 to 31-1-2018. Resource person for this training program was Shri. Santosh Sajjan, Training and placement officer, HSIT Nidasoshi.

Activity photographs(Minimum 5):



Computer Science & Engg.

HIT, Nidasoshi.

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Nidasoshi-591 236, Taq: Hukkeri, Dist: Belagavi, Karnataka, India. Phone: +91-8333-278887, Fay: 278886, Web: www.buit.eo.in. E. mail.
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		NAAC
		7.1.1
		2017-18

Date of Activity held and Time:	9 th to 10 th February 2018, 09.00AM- 5.00PM	
Name of Activity:	Two day Workshop on Computer Aided Drawing	
Type of Activity: (cultural/curricular/co-curricular)	curricular	
Resource Person/Invitee:	Prof. Mahantesh Tanodi	
Professional Details of Resource Person: '	Assistant Professor, Mechanical Engineering Department, HIT Nidasoshi	
Year / Class:	All the students of Mechanical Engineering Department	
No. of students:	57 ,	
No. of Staff:	NA .	
Activity In charge:	Prof. M. M. Shivashimpi, Prof. M.R. Ingalagi	

Description of the Activity:

The workshop is conducted on computer aided Drawing for the students, they learn about basic drafting and design of the mechanical Engineering components.



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