

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**  
**Scheme of Teaching and Examination 2018 – 19**  
**Outcome Based Education(OBE) and Choice Based Credit System (CBCS)**  
**(Effective from the academic year 2018 – 19)**

**III SEMESTER**

III SEMESTER												
Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	BSC	18MAT31	Transform calculus, fourier series and Numerical techniques	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18ME32	Mechanics of Materials		3	2	--	03	40	60	100	4
3	PCC	18ME33	Basic Thermodynamics		3	0	--	03	40	60	100	3
4	PCC	18ME34	Material Science		3	0	--	03	40	60	100	3
5	PCC	18ME35A or 18ME35B	Metal cutting and forming Metal Casting and Welding		3	0	--	03	40	60	100	3
6	PCC	18ME36A or 18ME36B	Computer Aided Machine Drawing/ Mechanical Measurements and Metrology		1	4	--	03	40	60	100	3
7	PCC	18MEL37A or 18MEL37B	Material Testing lab Mechanical Measurements and Metrology lab		--	2	2	03	40	60	100	2
8	PCC	18MEL38A or 18MEL38B	Workshop and Machine Shop Practice (Consists of Fitting, and Machining) Foundry,Forging and Welding lab		--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49 or 18KAK39/49	Vyavaharika Kannada (Kannada for communication)/ Aadalitha Kannada (Kannada for Administration)	HSMC	--	2	--	--	100	--	100	1
					OR							
					1	--	--	02	40	60		
					Examination is by objective type questions							
TOTAL					17	10	04	24	420	480	900	24
					OR	OR		OR	OR	OR		
					19	14		26	360	540		

**Note:** BSC: Basic Science, PCC: Professional Core, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course.

18KVK39 Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

**Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs**

10	NCMC	18MATDIP31	Additional Mathematics - I	Mathematics	02	01	--	03	40	60	100	0
a) The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. In case, any student fails to register for the said course/ fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE. b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.												

**Courses prescribed to lateral entry B. Sc degree holders admitted to III semester of Engineering programs**

Lateral entrant students from B.Sc. Stream, shall clear the non-credit courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**  
**Scheme of Teaching and Examination 2018 – 19**  
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**(Effective from the academic year 2018 – 19)**

**IV SEMESTER**

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	BSC	18MAT41	Mathematics	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18ME42	Applied Thermodynamics		3	2	--	03	40	60	100	4
3	PCC	18ME43	Fluid Mechanics		3	0	--	03	40	60	100	3
4	PCC	18ME44	Kinematics of Machines		3	0	--	03	40	60	100	3
5	PCC	18ME45A	Metal cutting and forming		3	0	--	03	40	60	100	3
		18ME45B	Metal Casting and Welding									
6	PCC	18ME46A or	Computer Aided Machine Drawing/		1	4	--	03	40	60	100	3
		18ME46B	Mechanical Measurements and Metrology		3	0						
7	PCC	18MEL47A or	Material Testing lab		--	2	2	03	40	60	100	2
		18MEL47B	Mechanical Measurements and Metrology lab									
8	PCC	18MEL48A	Workshop and Machine Shop Practice (Consists of Fitting, and Machining)		--	2	2	03	40	60	100	2
		18MEL48B	Foundry, Forging and Welding lab									
9	HSMC	18KVK49/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK49/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPH49	Constitution of India, Professional Ethics and Cyber Law									
TOTAL					17	10	04	24	420	480	900	24
					OR	OR		OR	OR			
					19	14		26	360	540		
					Examination is by objective type questions							

18KVK39 Vyavaharika Kannada (Kannada for communication) is for non-Kannada speaking, reading and writing students and 18KAK39 Aadalitha Kannada (Kannada for Administration) is for students who speak, read and write Kannada.

**Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs**

10	NCMC	18MATDIP31	Additional Mathematics - I	Mathematics	02	01	--	03	40	60	100	0
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(a) The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. In case, any student fails to register for the said course/ fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured F grade. In such a case, the student have to fulfill the requirements during subsequent semester/s to appear for SEE.

(b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

**Courses prescribed to lateral entry B. Sc degree holders admitted to III semester of Engineering programs**

Lateral entrant students from B.Sc. Stream, shall clear the non-credit courses Engineering Graphics and Elements of Civil Engineering and Mechanics of the First Year Engineering Programme. These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.

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**Scheme of Teaching and Examination 2018 – 19**  
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**(Effective from the academic year 2018 – 19)**

V SEMESTER
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Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	18ME51	Management and Economics		2	2	--	03	40	60	100	3
2	PCC	18ME52	Design of Machine Elements I		3	2	--	03	40	60	100	4
3	PCC	18ME53	Dynamics of Machines		3	2	--	03	40	60	100	4
4	PCC	18ME54	Turbo Machines		3	--	--	03	40	60	100	3
5	PCC	18ME55	Fluid Power Engineering		3	--	--	03	40	60	100	3
6	PCC	18ME56	Operations Management		3	--	--	03	40	60	100	3
7	PCC	18MEL57	Fluid Mechanics/Machines lab		--	2	2	03	40	60	100	2
8	PCC	18MEL58	Energy Conversion Lab		--	2	2	03	40	60	100	2
9	HSMC	18CIV59	Environmental Studies	Civil/ Environmental	1	--	--	02	40	60	100	1
				[Paper setting: Civil Engineering Board]								
TOTAL					18	10	04	26	360	540	900	25

**Note:** PCC: Professional Core, HSMC: Humanity and Social Science.

**AICTE activity Points:** In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

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**Scheme of Teaching and Examination 2018 – 19**  
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VI SEMESTER												
Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME61	Finite Element Methods		3	2	--	03	40	60	100	4
2	PCC	18ME62	Design of Machine Elements II		3	2	--	03	40	60	100	4
3	PCC	18ME63	Heat Transfer		3	2	--	03	40	60	100	4
4	PEC	18ME64X	Professional Elective -I		3	--	--	03	40	60	100	3
5	OEC	18ME65X	Open Elective -A		3	--	--	03	40	60	100	3
6	PCC	18MEL66	Computer Aided Modelling and Analysis Lab		--	2	2	03	40	60	100	2
7	PCC	18MEL67	Heat Transfer Lab		--	2	2	03	40	60	100	2
8	MP	18MEM68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
TOTAL					15	10	06	24	320	480	800	24

**Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.**

Professional Elective -I			
Course code under 18XX64X	Course Title	Course code under 18XX64X	Course Title
18ME641	Non-Traditional Machining	18ME644	Vibrations and Noise Engineering
18ME642	Refrigeration and Air conditioning	18ME645	Composite Materials Technology
18ME643	Theory of Elasticity	18ME646	Entrepreneurship Development

**Open Elective -A**

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

**Mini-project work:**

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.

**CIE procedure for Mini-project:**

**(i) Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the Mini-project work, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

**(ii) Interdisciplinary:** Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college.

The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

**SEE for Mini-project:**

**(i) Single discipline:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

**(ii) Interdisciplinary:** Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

**Internship:** All the students admitted to III year of BE/B. Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

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VII SEMESTER	
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Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P					
1	PCC	18ME71	Control Engineering		3	--	--	03	40	60	100	3
2	PCC	18ME72	Computer Aided Design and Manufacturing		3	--	--	03	40	60	100	3
3	PEC	18ME73X	Professional Elective - 2		3	--	--	03	40	60	100	3
4	PEC	18ME74X	Professional Elective - 3		3	--	--	03	40	60	100	3
5	OEC	18ME75X	Open Elective -B		3	--	--	03	40	60	100	3
6	PCC	18MEL76	Computer Integrated Manufacturing Lab		--	2	2	03	40	60	100	2
	PCC	18MEL77	Design Lab		--	2	2	03	40	60	100	2
7	Project	18MEP78	Project Work Phase - 1		--	--	2	--	100	--	100	1
8	Internship	--	Internship	(If not completed during the vacation of VI and VII semesters, it shall be carried out during the vacation of VII and VIII semesters )								
TOTAL					15	04	06	18	340	360	700	20

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**Professional Elective - 2**

Course code under 18XX73X	Course Title	Course code under 18XX73X	Course Title
18ME731	Design for Manufacture	18ME734	Total Quality Management
18ME732	Automation and Robotics	18ME735	Operations Research
18ME733	Computational Fluid Dynamics		

Professional Electives - 3
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Course code under 18XX74X	Course Title	Course code under 18XX74X	Course Title
18ME741	Additive Manufacturing	18ME744	Mechatronics
18ME742	Emerging Sustainable Building Cooling Technologies	18ME745	Project Management
18ME743	Theory of Plasticity		

Open Elective -B			
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Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (Please refer to the list of open electives under 18XX75X).

Selection of an open elective shall not be allowed if:

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Project work:	
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Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

**CIE procedure for Project Work Phase - 1:**

(i) **Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -I, shall be based on the evaluation of the project work phase -I Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the Project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -1, shall be based on the evaluation of project work phase -1 Report (covering Literature Survey, Problem identification, Objectives and Methodology), project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

**Internship:** All the students admitted to III year of BE/B. Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and/or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the Internship requirements.

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VIII SEMESTER												
Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18ME81	Energy Engineering		3	--	--	03	40	60	100	3
2	PEC	18ME82X	Professional Elective - 4		3	--	--	03	40	60	100	3
3	Project	18MEP83	Project Work Phase - 2		--	--	2	03	40	60	100	8
4	Seminar	18MES84	Technical Seminar		--	--	2	03	100	--	100	1
5	Internship	18XXI85	Internship	Completed during the vacation/s of VI and VII semesters and /or VII and VIII semesters.)				03	40	60	100	3
TOTAL					06	--	04	15	260	240	500	18

**Note:** PCC: Professional Core, PEC: Professional Elective.

**Professional Electives - 4**

Course code under 18XX82X	Course Title	Course code under 18XX82X	Course Title
18ME821	CNC Machine Tools	18ME824	Automobile Engineering
18ME822	Tribology	18ME825	Tool Design
18ME823	Non-Destructive Testing and Evaluation	18ME826	Fracture Mechanics

**Project Work**

**CIE procedure for Project Work Phase - 2:**

**(i) Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

**(ii) Interdisciplinary:** Continuous Internal Evaluation shall be group wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable.

The CIE marks awarded for the project work phase -2, shall be based on the evaluation of project work phase -2 Report, project presentation skill and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

**SEE for Project Work Phase - 2:**

**(i) Single discipline:** Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.

**(ii) Interdisciplinary:** Contribution to the project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.

**Internship:** Those, who have not pursued /completed the internship, shall be declared as fail and have to complete during subsequent University examination after satisfying the internship requirements.

**AICTE activity Points:** In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of degree only after the release of the Eighth semester Grade Card.

Activity points of the students who have earned the prescribed AICTE activity Points shall be sent the University along with the CIE marks of 8th semester. In case of students who have not satisfied the AICTE activity Points at the end of eighth semester, the column under activity Points shall be marked NSAP (Not Satisfied Activity Points).

**B.E. Mechanical Engineering**

### III SEMESTER

Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week			Examination				Credits
				Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17MAT31	Engineering Mathematics – III	Maths	04			03	60	40	100	4
2	17ME32	Materials Science	ME	04			03	60	40	100	4
3	17ME33	Basic Thermodynamics	ME	03	02		03	60	40	100	4
4	17ME34	Mechanics of Materials	ME	03	02		03	60	40	100	4
5	17ME35A/ 17ME35B	Metal Casting and Welding	ME	04			03	60	40	100	4
		Machine Tools and Operations	ME								
6	17ME36 A/ 17ME36B	Computer Aided Machine Drawing	ME	01		4	03	60	40	100	3
		Mechanical Measurements and Metrology	ME	03							
7	17MEL37A/ 17MEL37B	Materials Testing Lab/	ME	1		2	03	60	40	100	2
		Mechanical Measurements and Metrology Lab	ME								
8	17MEL38A/ 17MEL38B	Foundry and Forging Lab	ME	1		2	03	60	40	100	2
		Machine Shop/	ME								
9	17KL/CPH39 /49	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	1			01	30	20	50	1
TOTAL				22/24	04	08/04		510	340	850	28
MATERIAL SCIENCE											

**B.E. Mechanical Engineering**

**IV SEMESTER**

Sl. No	Subject Code	Title	Teaching Department	Teaching Hours /Week			Examination				Credits
				Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17MAT41	Engineering Mathematics – III	Maths	04			03	60	40	100	04
2	17ME42	Kinematics of Machinery	ME	03	02		03	60	40	100	04
3	17ME43	Applied Thermodynamics	ME	03	02		03	60	40	100	04
4	17ME44	Fluid mechanics	ME	03	02		03	60	40	100	04
5	17ME45A/	Metal Casting and Welding	ME	04			03	60	40	100	04
	17ME45B	Machine Tools and Operations	ME								
6	17ME46 A/	Computer Aided Machine Drawing	ME	01		4	03	60	40	100	03
	17ME46B	Mechanical Measurements and Metrology	ME	03							
7	17MEL47A/	Materials Testing Lab/	ME	1		2	03	60	40	100	02
	17MEL47B	Mechanical Measurements and Metrology Lab	ME								
8	17MEL48A/	Foundry and Forging Lab	ME	1		2	03	60	40	100	02
	17MEL48B	Machine Shop/	ME								
9	17KL/CPH39/49	Kannada/Constitution of India, Professional Ethics and Human Rights	Humanities	1			01	30	20	50	1
<b>TOTAL</b>				<b>21/23</b>	<b>06</b>	<b>08/04</b>		<b>510</b>	<b>340</b>	<b>850</b>	<b>28</b>



## B.E. Mechanical Engineering

### V SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17ME51	Management and Engineering Economics	3	2	0	03	60	40	100	4
2	17ME52	Dynamics of Machinery	3	2	0	03	60	40	100	4
3	17ME53	Turbo Machines	3	2	0	03	60	40	100	4
4	17ME54	Design of Machine Elements - I	3	2	0	03	60	40	100	4
5	17ME55X	Professional Elective-I	3	0	0	03	60	40	100	3
6	17ME56X	Open Elective-I	3	0	0	03	60	40	100	3
7	17MEL57	Fluid Mechanics & Machinery Lab	1	0	2	03	60	40	100	2
8	17MEL58	Energy Lab	1	0	2	03	60	40	100	2
<b>TOTAL</b>			<b>20</b>	<b>08</b>	<b>04</b>		<b>480</b>	<b>320</b>	60	40

Professional Elective-I		Open Elective-I	
17ME551	Refrigeration and Air-conditioning	17ME561	Optimization Techniques
17ME552	Theory of Elasticity	17ME562	Energy and Environment
17ME553	Human Resource Management	17ME563	Automation and Robotics
17ME554	Non Traditional Machining	17ME564	Project Management

- 1. Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
- 2. Professional Elective:** Elective relevant to chosen specialization/ branch
- 3. Open Elective:** Electives from other technical and/or emerging subject areas.

## B.E. Mechanical Engineering

### VI SEMESTER

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17ME61	Finite Element Analysis	3	2	0	03	60	40	100	4
2	17ME62	Computer integrated Manufacturing	4	0	0	03	60	40	100	4
3	17ME63	Heat Transfer	3	2	0	03	60	40	100	4
4	17ME64	Design of Machine Elements -II	3	2	0	03	60	40	100	4
5	17ME65X	Professional Elective-II	3	0	0	03	60	40	100	3
6	17ME66X	Open Elective-II	3	0	0	03	60	40	100	3
7	17MEL67	Heat Transfer Lab	1	0	2	03	60	40	100	2
8	17MEL68	Modeling and Analysis Lab(FEA)	1	0	2	03	60	40	100	2
<b>TOTAL</b>			<b>21</b>	<b>6</b>	<b>04</b>		<b>480</b>	<b>320</b>	60	40

Professional Elective-II		Open Elective-II	
17ME651	Computational Fluid Dynamics	17ME661	Energy Auditing
17ME652	Mechanics of Composite Materials	17ME662	Industrial Safety
17ME653	Metal Forming	17ME663	Maintenance Engineering
17ME654	Tool Design	17ME664	Total Quality Management
17ME655	Automobile Engineering		

- 1. Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
- 2. Professional Elective:** Elective relevant to chosen specialization/ branch
- 3. Open Elective:** Electives from other technical and/or emerging subject areas.

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**  
**CHOICE BASED CREDIT SYSTEM (CBCS)**  
**SCHEME OF TEACHING AND EXAMINATION 2015-2016**

**B.E. Mechanical Engineering**

**VII SEMESTER**

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17ME71	Energy Engineering	3	2	0	03	60	40	100	4
2	17ME72	Fluid Power Systems	4	0	0	03	60	40	100	4
3	17ME73	Control Engineering	3	2	0	03	60	40	100	4
4	17ME74X	Professional Elective - III	3	0	0	03	60	40	100	3
5	17ME75X	Professional Elective-IV	3	0	0	03	60	40	100	3
6	17MEL76	Design Lab	1	0	2	03	60	40	100	2
7	17MEL77	CIM Lab	1	0	2	03	60	40	100	2
8	17MEP78	Project Phase – I	-	-	-	-	60	40	100	2
<b>TOTAL</b>			<b>18</b>	<b>4</b>	<b>04</b>		<b>480</b>	<b>320</b>	60	<b>24</b>

Professional Elective-III		Professional Elective-IV	
17ME741	Design of Thermal Equipment's	17ME751	Automotive Electronics
17ME742	Tribology	17ME752	Fracture Mechanics
17ME743	Financial Management	17ME753	Human Resource Management
17ME744	Design for Manufacturing	17ME754	Mechatronics
17ME745	Smart Materials & MEMS	17ME755	Advanced Vibrations

**1. Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.

**2. Professional Elective:** Elective relevant to chosen specialization/ branch

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**SCHEME OF TEACHING AND EXAMINATION 2015-2016**

**B.E. Mechanical Engineering**

**VIII SEMESTER**

Sl. No	Subject Code	Title	Teaching Hours /Week			Examination				Credits
			Lecture	Tutorial	Practical	Duration (Hours)	SEE Marks	CIE Marks	Total Marks	
1	17ME81	Operations Research	3	2	0	03	60	40	100	4
2	17ME82	Additive Manufacturing	4	0	0	03	60	40	100	4
3	17ME83X	Professional Elective - V	3	0	0	03	60	40	100	3
4	17ME84	Internship / Professional Practice	Industry Oriented			03	60	40	60	40
5	17ME85	Project Phase – II	-	6	-	03	60	40	200	6
6	17MES86	Seminar	-	4	-	-	60	40	100	1
<b>TOTAL</b>			<b>10</b>	<b>12</b>	<b>-</b>		<b>480</b>	<b>320</b>	<b>700</b>	<b>20</b>

Professional Elective-V	
15ME831	Cryogenics
15ME832	Experimental Stress Analysis
15ME833	Theory of Plasticity
15ME834	Green Manufacturing
15ME835	Product life cycle management

- 1. Core subject:** This is the course, which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.
- 2. Professional Elective:** Elective relevant to chosen specialization/ branch
- 3. Internship / Professional Practice:** To be carried out between 6<sup>th</sup> & 7<sup>th</sup> semester vacation or 7<sup>th</sup> & 8<sup>th</sup> semester vacation.