



**DEPARTMENT OF TECHNOLOGY
SHIVAJI UNIVERSITY, KOLHAPUR**

**STRUCTURE
For
FIRST YEAR
To
FINAL YEAR B. TECH.
MECHANICAL ENGINEERING**

**TO BE EFFECTIVE FROM
ACADEMIC YEAR 2020-21**



DEPARTMENT OF TECHNOLOGY
SHIVAJI UNIVERSITY, KOLHAPUR
FIRST YEAR B.TECH

Scheme of Teaching and Examination

Semester – I (Group-A)

Course Code	Sr. No.	Course Title	Teaching Scheme with Credits (Hours / Week)				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical/Tutorial		
							Scheme	Max. Marks	Min. Passing \$	Scheme	Max. Marks	Min. Passing \$
BS-11A1	1.	Engineering Mathematics-I	4	1	-	05	CIE	30	40	---	---	---
							SEE	70		---	---	---
BS-11A2	2.	Engineering Physics	3	-	-	03	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-11A1	3.	Basics of Mechanical Engineering	3	-	-	03	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-11A2	4.	Engineering Mechanics	4	-	-	04	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-11A3	5.	Basic Electronics Engineering	3	-	-	03	CIE	30	40	---	---	---
							SEE	70		---	---	---
BS-11A3	6.	Lab. -I Engineering Physics	-	-	2	01	---	---	---	IPE	50	20
ES-11A4	7.	Lab.-II Basics of Mechanical Engineering	-	-	2	01	---	---	---	IPE	50	20
ES-11A5	8.	Lab.-III Engineering Mechanics	-	-	2	01	---	---	---	IPE	50	20
ES-11A6	9.	Lab.-IV Basic Electronics Engineering	-	-	2	01	---	---	---	IPE	50	20
ES-11A7	10.	Lab.-V Computer Programming	1	-	2	02	---	---	---	IPE	50	20
ES-11A8	11.	Lab.-VI Workshop Practice	-	-	2	01	---	---	---	IPE	50	20
		Total	18	1	12	25		500			300	

Total Credits: 25

Total Contact Hours/Week: 31 hrs

Note:

\$: In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Tutorials and practical shall be conducted in batches with batch strength not exceeding 15 students.

CIE – Continuous Internal Evaluation

SEE – Semester End Examination

IPE – Internal Practical Evaluation

* Semester End Examination duration will be 4 hrs

Department of Technology, Shivaji University, Kolhapur, Maharashtra State, India



DEPARTMENT OF TECHNOLOGY
SHIVAJI UNIVERSITY, KOLHAPUR
FIRST YEAR B.TECH

Scheme of Teaching and Examination

Semester – II (Group-A)

Course Code	Sr. No.	Course Title	Teaching Scheme with Credits (Hours / Week))				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical/Tutorial		
							Scheme	Max. Marks	Min. Passing \$	Scheme	Max. Marks	Min. Passing \$
BS-12A1	1.	Engineering Mathematics–II	4	1	-	05	CIE	30	40	---	---	---
							SEE	70		---	---	---
BS-12A2	2.	Engineering Chemistry	3	-	-	03	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-12A1	3.*	Engineering Graphics	4	-		04	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-12A2	4.	Basic Civil Engineering	3	-		03	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-12A3	5.	Basic Electrical Engineering	3	-		03	CIE	30	40	---	---	---
							SEE	70		---	---	---
BS-12A3	6.	Lab.–I Engineering Chemistry	-	-	2	01	---	---	---	IPE	50	20
ES-12A4	7.	Lab.–II Engineering Graphics	-	-	2	01	---	---	---	IPE	50	20
ES-12A5	8.	Lab.–III Basic Civil Engineering	-	-	2	01	---	---	---	IPE	50	20
ES-12A6	9.	Lab. –IV Basic Electrical Engineering	-	-	2	01	---	---	---	IPE	50	20
ES-12A7	10.	Lab. –V Programming with Scilab and Matlab	-	1	-	01	---	---	---	IPE	50	20
HS-12A1	11.	Lab.–VI Professional Communication	2	-	-	02	---	---	---	IPE	50	20
		Total	19	2	8	25		500			300	

Total Credits: 25

Total Contact Hours/Week: 29 hrs

Note:

\$: In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Tutorials and practical shall be conducted in batches with batch strength not exceeding 15 students.

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SEE – Semester End Examination

IPE – Internal Practical Evaluation

* Semester End Examination duration will be 4 hrs



DEPARTMENT OF TECHNOLOGY
SHIVAJI UNIVERSITY, KOLHAPUR
FIRST YEAR B.TECH

Scheme of Teaching and Examination

Semester – I (Group-B)

Course Code	Sr. No.	Course Title	Teaching Scheme with Credits (Hours / Week))				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical/Tutorial		
							Scheme	Max. Marks	Min. Passing \$	Scheme	Max. Marks	Min. Passing \$
BS-11B1	1.	Engineering Mathematics-I	4	1	-	05	CIE	30	40	---	---	---
							SEE	70		---	---	---
BS-11B2	2.	Engineering Chemistry	3	-	-	03	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-11B1	3.*	Engineering Graphics	4	-		04	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-11B2	4.	Basic Civil Engineering	3	-		03	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-11B3	5.	Basic Electrical Engineering	3	-		03	CIE	30	40	---	---	---
							SEE	70		---	---	---
BS-11B3	6.	Lab.-I Engineering Chemistry	-	-	2	01	---	---	---	IPE	50	20
ES-11B4	7.	Lab.-II Engineering Graphics	-	-	2	01	---	---	---	IPE	50	20
ES-11B5	8.	Lab.-III Basic Civil Engineering	-	-	2	01	---	---	---	IPE	50	20
ES-11B6	9.	Lab. -IV Basic Electrical Engineering	-	-	2	01	---	---	---	IPE	50	20
ES-11B7	10.	Lab. -V Programming with Scilab and Matlab	-	1	-	01	---	---	---	IPE	50	20
HS-11B1	11.	Lab.-VI Professional Communication	2	-	-	02	---	---	---	IPE	50	20
		Total	19	2	8	25		500			300	

Total Credits: 25

Total Contact Hours/Week: 29 hrs

Note:

\$: In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Tutorials and practical shall be conducted in batches with batch strength not exceeding 15 students.

CIE – Continuous Internal Evaluation

SEE – Semester End Examination

IPE – Internal Practical Evaluation

* Semester End Examination duration will be 4 hrs



DEPARTMENT OF TECHNOLOGY
SHIVAJI UNIVERSITY, KOLHAPUR
FIRST YEAR B.TECH

Scheme of Teaching and Examination

Semester – II (Group-B)

Course Code	Sr. No.	Course Title	Teaching Scheme with Credits (Hours / Week)				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical/Tutorial		
							Scheme	Max. Marks	Min. Passing %	Scheme	Max. Marks	Min. Passing %
BS-12B1	1.	Engineering Mathematics-II	4	1	-	05	CIE	30	40	---	---	---
							SEE	70		---	---	---
BS-12B2	2.	Engineering Physics	3	-	-	03	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-12B1	3.	Basics of Mechanical Engineering	3	-	-	03	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-12B2	4.	Engineering Mechanics	4	-	-	04	CIE	30	40	---	---	---
							SEE	70		---	---	---
ES-12B3	5.	Basic Electronics Engineering	3	-	-	03	CIE	30	40	---	---	---
							SEE	70		---	---	---
BS-12B3	6.	Lab.-I Engineering Physics	-	-	2	01	---	---	---	IPE	50	20
ES-12B4	7.	Lab.-II Basics of Mechanical Engineering	-	-	2	01	---	---	---	IPE	50	20
ES-12B5	8.	Lab.-III Engineering Mechanics	-	-	2	01	---	---	---	IPE	50	20
ES-12B6	9.	Lab.-IV Basic Electronics Engineering	-	-	2	01	---	---	---	IPE	50	20
ES-12B7	10.	Lab.-V Computer Programming	1	-	2	02	---	---	---	IPE	50	20
ES-12B8	11.	Lab.-VI Workshop Practice	-	-	2	01	---	---	---	IPE	50	20
		Total	18	1	12	25		500			300	

Total Credits: 25

Total Contact Hours/Week: 31 hrs

Note:

\$: In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Tutorials and practical shall be conducted in batches with batch strength not exceeding 15 students.

CIE – Continuous Internal Evaluation

SEE – Semester End Examination

IPE – Internal Practical Evaluation

* Semester End Examination duration will be 4 hrs.

Department of Technology, Shivaji University, Kolhapur, Maharashtra State, India

Equivalence of First Year B. Tech Semester I &II

The above detailed syllabus is a revised version of the First Year B. Tech course being conducted by the Shivaji University at the Technology Department of the University. This syllabus is to be implemented from June 2020 (Academic Year 2020-21).

The Equivalence for the subjects of First Year B. Tech Semester I and II pre-revised course under the faculty of Science and Technology is as follows.

First Year B. Tech Semester I & II

Sr. No	First Year B. Tech Semester I & II Pre-revised syllabus	First Year B. Tech Semester I & II Revised syllabus	Remark
1	Engineering Mathematics-I	Engineering Mathematics-I	Change in the subject content.
2	Engineering Physics	Engineering Physics	Change in the subject content.
3	Engineering Mechanics	Engineering Mechanics	Change in the subject content.
4	Fundamentals of Mechanical Engineering	Basics of Mechanical Engineering	Change in the title and subject content.
5	Electronic Components and Devices	Basic Electronics Engineering	Change in the title and subject content.
6	Lab.-I Engineering Physics	Lab.-I Engineering Physics	Change in the subject content.
7	Lab.-II Engineering Mechanics	Lab.-III Engineering Mechanics	Change in the subject content.
8	Lab.-III Fundamentals of Mechanical Engineering	Lab.-II Basics of Mechanical Engineering	Change in the title and subject content.
9	Lab.-IV Electronic Components and Devices	Lab.-IV Basic Electronics Engineering	Change in the title and subject content.
10	Lab.-V Professional Communication	Lab.-VI Professional Communication	Change in the subject content.
11	Lab.-VI Matlab and Scilab	Lab.-V Programming with Scilab and Matlab	Change in the title and subject content.
12	Engineering Mathematics-II	Engineering Mathematics-II	Change in the subject content.
13	Engineering Chemistry	Engineering Chemistry	Change in the subject content.
14	Fundamentals of Civil Engineering	Basic Civil Engineering	Change in the title and subject content.
15	Engineering Graphics	Engineering Graphics	Change in the subject content.
16	Fundamentals of Electrical Engineering	Basic Electrical Engineering	Change in the title and subject content.
17	Lab.-I Engineering Chemistry	Lab.-I Engineering Chemistry	Change in the subject content.
18	Lab.-II Fundamentals of Civil Engineering	Lab.-III Basic Civil Engineering	Change in the title and subject content.

19	Lab.-III Engineering Graphics	Lab.-II Engineering Graphics	Change in the subject content.
20	Lab.-IV Fundamentals of Electrical Engineering	Lab.-IV Basic Electrical Engineering	Change in the title and subject content.
21	Lab.-V Workshop Practice	Lab.-VI Workshop Practice	Change in the subject content.
22	Lab.-VI Computer Programming	Lab.-V Computer Programming	Change in the subject content.



DEPARTMENT OF TECHNOLOGY
SECOND YEAR B.TECH

Scheme of Teaching and Examination
Semester – III (Mechanical Engineering)

To be implemented from Academic Year 2021- 22

Course Code	Sr. No	Course Title	Teaching Scheme with Credits (Hours / Week)				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical		
							Scheme	Max. marks	Min. Passing \$	Scheme	Max. marks	Min. Passing
ME301	1.	Programmable Computational Methods	04	01	-	05	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME302	2.	Electrical Technology and Computer Programming C ++	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME303	3.	Engineering Thermodynamics	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME304	4.	Machine Tools and Processes	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME305	5.	Fluid Mechanics	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME303L	6.	Laboratory Engineering Thermodynamics	-	-	02	01	-	-	-	IPE	50	20
										EOE	50	20
ME302L	7.	Laboratory Electrical Technology and Computer Programming C++	-	-	02	01	-	-	-	IOE	50	20
ME305L	8.	Laboratory Fluid Mechanics	-	-	02	01	-	-	-	EPE	50	20
ME306L	9.	Machine Drawing	01	-	02	02	-	-	-	EPE	50	20
ME307L	10.	Workshop Practices I	-	-	02	01	-	-	-	IPE	50	20
		Total	19	01	10	25	-	500	-	-	300	-
ME301A	1.	Environmental Studies	02	-	-	-	Project	30	40	-	-	-
							Theory	70				
Audit Course												
ME302A	2.	Introduction to Fine Arts	02	-	-	-	Institute Level	-	-	-	-	-

\$ In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Total Credits=25

Note:1. Students are expected to do self-study for two hours as per the guide hence contact hours to be taken as two for the calculation of contact hours

2. Tutorials and Practical to be conducted in batches with batch strength not exceeding 15 students.

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

IPE: Internal Practical Evaluation

EPE: External Practical Examination

IOE: Internal Oral Evaluation

EOE: External Oral Examination

Department of Technology, Shivaji University, Kolhapur, Maharashtra State, India



DEPARTMENT OF TECHNOLOGY

SECOND YEAR B.TECH

Scheme of Teaching and Examination

Semester – IV (Mechanical Engineering)

To be implemented from Academic Year 2021-22

Course Code	Sr. No	Course Title	Teaching Scheme with Credits (Hours / Week)				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical		
							Scheme	Max. marks	Min. Passing \$	Scheme	Max. marks	Min. Passing
ME401	1.	Applied Mathematics	04	01	-	05	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME402	2.	Strength of Materials	04	01	-	05	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME403	3.	Theory of Machines I*	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME404	4.	Fluid and Turbo Machinery	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME405	5.	Metallurgy	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME403L	6.	Laboratory Theory of Machines I	-	-	02	01	-	-	-	EOE	50	20
ME404L	7.	Laboratory Fluid and Turbo Machinery	-	-	02	01	-	-	-	IPE	50	20
										EPE	50	20
ME405L	8.	Laboratory Metallurgy	-	-	02	01	-	-	-	IPE	50	20
										EOE	50	20
ME406L	9.	Workshop Practice II	-	-	02	01	-	-	-	IPE	50	20
							-	-	-	EPE	100	40
		Total	19	02	08	25	-----	500	-----	-----	300	-----
ME401A	10.	Environmental Studies	02	-	-	-	Project	30	40	----	----	---
							Theory	70				
	Audit Course											
ME402A	10.	Soft Skills Development	02	-	-	-	Institute Level	-----	-----	----	----	---

\$ In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Total Credits=25

Note: 1. Theory of Machine I theory paper will be of 4 Hours.

2. Students are expected to do self-study for two hours as per the guidance given by the project guide hence contact hours to be taken as two for the calculation of contact hours.

3. Tutorials and Practical to be conducted in batches with batch strength not exceeding 15 students.

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

Department of Technology, Shivaji University, Kolhapur, Maharashtra State, India

IPE: Internal Practical Evaluation
 IOE: Internal Oral Evaluation

EPE: External Practical Examination
 EOE: External Oral Examination

Equivalence of Pre Revised and Revised Structure

Second Year B. Tech. (Mechanical Engineering) Semester III and IV

The above detailed syllabus is a revised version of the Second Year B. Tech (Mechanical Engineering) Program being conducted by the Shivaji University at the Technology Department of the University. This syllabus is to be implemented from June 2021, (Academic year 2021-22). The prime feature of this revision is the transformation of the existing curriculum into the Outcome based curriculum as specified in NBA rules and regulations.

The Equivalence for the subjects/courses of Mechanical Engineering at Second Year B. Tech. Semester III and IV pre-revised and Revised Program under the faculty of Engineering and Technology is as follows.

Second Year B. Tech. Semester III (Mechanical Engineering)

Sr. No	Second Year B. Tech. (Mechanical Engineering) Semester III Pre-revised syllabus	Second Year B. Tech. (Mechanical Engineering) Semester III Revised syllabus	Remark
	Credits = 25	Credits = 25	No change in credits
1.	Numerical Methods	Programmable Computational Methods	Course Name Changed Slight modification in the content
2.	Electrical Technology and Computer Programming C ++	Electrical Technology and Computer Programming C ++	Slight modification in the content
3.	Engineering Thermodynamics	Engineering Thermodynamics	Slight modification in the content
4.	Manufacturing Engineering I	Machine Tools and Processes	Course Name Changed Slight modification in the content
5.	Fluid Mechanics	Fluid Mechanics	Slight modification in the content
6.	Laboratory Power Engineering	Laboratory Engineering Thermodynamics	Course Name Changed Slight modification in the content
7.	Laboratory Electrical Technology and Computer Programming C++	Laboratory Electrical Technology and Computer Programming C++	Slight modification in the content
8.	Laboratory Fluid Mechanics	Laboratory Fluid Mechanics	Slight modification in the content
9.	Machine Drawing	Machine Drawing	Slight modification in the content
10.	Workshop Practices I	Workshop Practices I	Slight modification in the content
11.	Environmental Studies	Environmental Studies	Slight modification in the content
12.	Audit Course Introduction to Performing Arts	Audit Course Introduction to Performing Arts	Slight modification in the content

Audit course have not been assigned any credits. The students will be evaluated for these courses by the concerned course in charge. There will be grade conferred to the student. The grade will be based on conversion of marks obtained out of 50. (Obtaining passing grade is essential). Please refer to chart in the detail examination scheme. The chart shows the marks range and the respective grade.

***Course work:** It consists of assignments, quiz, seminars, presentations, research papers and research articles, developing working models, surveys and activities related to course as designed by the course coordinator to suit the needs of the course and to complement program outcomes. The practical work and its journal is not part of course work.

Second Year B. Tech. Semester IV (Mechanical Engineering)

Sr. No.	Second Year B. Tech. (Mechanical Engineering) Semester IV Pre-revised syllabus	Second Year B. Tech. (Mechanical Engineering) Semester IV Revised syllabus	Remark
	Credits = 25	Credits = 25	No change in credits
1.	Applied Mathematics	Applied Mathematics	Slight modification in the content
2.	Mechanics of Material	Strength of Materials	Course Name Changed Slight modification in the content
3.	Theory of Machine I	Theory of Machines I	Slight modification in the content
4.	Fluid and Turbo Machinery	Fluid and Turbo Machinery	Slight modification in the content
5.	Material Science and Metallurgy	Metallurgy	Course Name Changed Slight modification in the content
6.	Laboratory Theory of Machine I	Laboratory Theory of Machines I	Slight modification in the content
7.	Laboratory Fluid and Turbo Machinery	Laboratory Fluid and Turbo Machinery	Slight modification in the content
8.	Laboratory Material Science and Metallurgy	Laboratory Metallurgy	Course Name Changed Slight modification in the content
9.	Workshop Practice – II	Workshop Practice – II	Slight modification in the content
10.	Environmental Studies	Environmental Studies	Slight modification in the content
11.	Audit Course Soft skill development	Audit Course Soft skills development	Slight modification in the content

Audit course have not been assigned any credits. The students will be evaluated for these courses by the concerned course in charge. There will be grade conferred to the student. The grade will be based on conversion of marks obtained out of 50. (Obtaining passing grade is essential). Please refer to chart in the detail examination scheme. The chart shows the marks range and the respective grade.

*** Course work:** It consists of assignments, quiz, seminars, presentations, research papers and research articles, developing working models, surveys and activities related to course as designed by the course coordinator to suit the needs of the course and to complement program outcomes. The practical work and its journal is not part of course work.

**DEPARTMENT OF TECHNOLOGY****THIRD YEAR B.TECH**

Scheme of Teaching and Examination
Semester – V (Mechanical Engineering)

To be implemented from Academic Year 2022 - 23

Course Code	Sr. No	Course Title	Teaching Scheme with Credits (Hours / Week)				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical		
							Scheme	Max. marks	Min. Passing %	Scheme	Max. marks	Min. Passing
ME501	1.	Machine Design I	04		-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME502	2.	Theory of Machines II	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME503	3.	Energy Engineering	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME504	4.	Tool Engineering	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME505	5.	Heat and Mass Transfer	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME502L	6.	Laboratory Theory of Machines II	-	-	02	01	-	-	-	EOE	50	20
ME505L	7.	Laboratory Heat and Mass Transfer	-	-	02	01	-	-	-	EPE	50	20
ME504L	8.	Laboratory Tool Engineering	-	-	02	01	-	-	-	IOE	50	20
ME506L	9.	Laboratory Computer Aided Drafting	-	-	02	01	-	-	-	EPE	50	20
ME507L	10.	Workshop Practice III	-	-	02	01	-	-	-	EPE	50	20
ME508L	11.	Internship I and Seminar			01 01	02	-	-	-	IOE	50	20
		Total	18	-	12	25	-	500	-	-	300	-
	Audit Course											
ME501A	12.	Research Methodology	01	-	02	-	-	-	-	-	-	-

\$ In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Total Credits=25

Note:

1. Students are expected to do self-study for two hours as per the guide hence contact hours to be taken as two for the calculation of contact hours
2. Theory of Machine – II: The duration of this paper shall be of 4 Hours.
3. Tool Engineering: The duration of this paper shall be of 4 Hours and shall include drawing of jigs and fixture / press tools problem on separate drawing sheet.
4. **Internship – I and Seminar** shall include
 - a. Internship of minimum four (4) weeks should be done after SY (Semester IV) in summer vacation and it's assessment will be done in TY (Semester V) based on report submitted. – Credit 01

Work load of the assessment both (a) and (b) shall be assigned to the mini project seminar guide.

5. Tutorials and Practical to be conducted in batches with batch strength not exceeding 15 students.

CIE: Continuous Internal Evaluation

IPE: Internal Practical Evaluation

IOE: Internal Oral Evaluation

SEE: Semester End Examination

EPE: External Practical Examination

EOE: External Oral Examination



**DEPARTMENT OF TECHNOLOGY
THIRD YEAR B.TECH**

Scheme of Teaching and Examination
Semester – VI (Mechanical Engineering)

To be implemented from Academic Year 2022 - 23

Course Code	Sr. No	Course Title	Teaching Scheme with Credits (Hours / Week)				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical		
							Scheme	Max. marks	Min. Passing \$	Scheme	Max. marks	Min. Passing
ME601	1.	Machine Design II	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME602	2.	Control Engineering	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME603	3.	Internal Combustion Engines	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME604	4.	Metrology and Quality Control	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME605	5.	Engineering Economics	03	01	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME601L	6.	Laboratory Machine Design II	-	-	02	01	-	-	-	EOE	50	20
ME604L	7.	Laboratory Metrology and Quality Control	-	-	02	01	-	-	-	EOE	50	20
ME603L	8.	Laboratory Internal Combustion Engines	-	-	02	01	-	-	-	EPE	50	20
ME606L	9.	Laboratory Computer Aided Manufacturing	-	-	02	01	-	-	-	IOE	50	20
ME607L	10.	Mini Project	-	-	02	01	-	-	-	IOE	50	20
		Total	19	01	10	25	-	500	-	-	300	-
Audit Course												
ME601A	11.	Introduction to Foreign Language	01	-	02	-	-	-	-	-	-	-

\$ In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Total Credits=25

Note:

- Students are expected to do self-study for two hours as per the guidance given by the project guide hence contact hours to be taken as two for the calculation of contact hours (Executing a mini project and delivering a presentation with mini project report. - Credit 02)

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2. Tutorials and Practical to be conducted in batches with batch strength not exceeding 15 students

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

IPE: Internal Practical Evaluation

EPE: External Practical Examination

IOE: Internal Oral Evaluation

EOE: External Oral Examination

Equivalence of Pre Revised and Revised Structure

Third Year B. Tech. (Mechanical Engineering) Semester V and VI

The above detailed syllabus is a revised version of the Third Year B. Tech (Mechanical Engineering) Program being conducted by the Shivaji University at the Technology Department of the University. This syllabus is to be implemented from June 2022, (Academic year 2022-23). The prime feature of this revision is the transformation of the existing curriculum into the Outcome based curriculum as specified in NBA rules and regulations.

The Equivalence for the subjects/courses of Mechanical Engineering at Third Year B. Tech. Semester V and VI pre-revised and Revised Program under the faculty of Engineering and Technology is as follows.

Third Year B. Tech. Semester V (Mechanical Engineering)

Sr. No	Third Year B. Tech. (Mechanical Engineering) Semester V Pre-revised syllabus	Third Year B. Tech. (Mechanical Engineering) Semester V Revised syllabus	Remark
	Credits = 25	Credits = 25	No change in credits
1.	Machine Design I	Machine Design I	Slight modification in the content
2.	Theory of Machine II	Theory of Machines II	Slight modification in the content
3.	Energy Engineering	Energy Engineering	Slight modification in the content
4.	Manufacturing Engineering II	Tool Engineering	Course Name Changed Slight modification in the content
5.	Heat and Mass Transfer	Heat and Mass Transfer	Slight modification in the content
6.	Laboratory Theory of Machine II	Laboratory Theory of Machines II	Slight modification in the content
7.	Laboratory Manufacturing Engineering II	Laboratory Tool Engineering	Course Name Changed Slight modification in the content
8.	Laboratory Heat and Mass Transfer	Laboratory Heat and Mass Transfer	Slight modification in the content
9.	Laboratory Computer Aided Drafting	Laboratory Computer Aided Drafting	Slight modification in the content
10.	Workshop Practice III	Workshop Practice III	Slight modification in the content
11.	Internship I and Mini Project	Internship I and Seminar	Course Name Changed Seminar Shifted to Semester V and Mini Project Shifted to Semester VI
12.	Audit Course Research Methodology	Audit Course Research Methodology	Slight modification in the content

Audit course have not been assigned any credits. The students will be evaluated for these courses by the concerned course in charge. There will be grade conferred to the student. The grade will be based on conversion of marks obtained out of 50. (Obtaining passing grade is essential). Please refer to chart in the detail examination scheme. The chart shows the marks range and the respective grade.

***Course work:**It consists of assignments, quiz, seminars, presentations, research papers and research articles, developing working models, surveys and activities related to course as designed by the course coordinator to suit the needs of the course and to complement program outcomes. The practical work and its journal is not part of course work.

Third Year B. Tech. Semester VI (Mechanical Engineering)

Sr. No	Third Year B. Tech. (Mechanical Engineering) Semester VI Pre-revised syllabus	Third Year B. Tech. (Mechanical Engineering) Semester VI Revised syllabus	Remark
	Credits = 25	Credits = 25	No change in credits
1	Machine Design II	Machine Design II	Slight modification in the content
2	Control Engineering	Control Engineering	Slight modification in the content
3	Internal Combustion Engine	Internal Combustion Engines	Slight modification in the content
4	Metrology and Quality Control	Metrology and Quality Control	Slight modification in the content
5	Industrial Engineering and Management	Engineering Economics	Course Name Changed Slight modification in the content
6	Laboratory Machine Design II	Laboratory Machine Design II	Slight modification in the content
7	Laboratory Internal Combustion Engine	Laboratory Internal Combustion Engines	Slight modification in the content
8	Laboratory Metrology and Quality Control	Laboratory Metrology and Quality Control	Slight modification in the content
9	Laboratory Computer Aided Manufacturing	Laboratory Computer Aided Manufacturing	Slight modification in the content
10	Seminar	Mini Project	Seminar Shifted to Semester V and Mini Project Shifted to Semester VI
11	Audit Course Introduction to Foreign Language	Audit Course Introduction to Foreign Language	Slight modification in the content

Audit course have not been assigned any credits. The students will be evaluated for these courses by the concerned course in charge. There will be grade conferred to the student. The grade will be based on conversion of marks obtained out of 50. (Obtaining passing grade is essential). Please refer to chart in the detail examination scheme. The chart shows the marks range and the respective grade.

* **Course work:** It consists of assignments, quiz, seminars, presentations, research papers and research articles, developing working models, surveys and activities related to course as designed by the course coordinator to suit the needs of the course and to complement program outcomes. The practical work and its journal is not part of course work.



DEPARTMENT OF TECHNOLOGY

FINAL YEAR B.TECH

Scheme of Teaching and Examination

Semester – VII (Mechanical Engineering)

To be implemented from Academic Year 2023-24

Course Code	Sr. No	Course Title	Teaching Scheme with Credits (Hours / Week)				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical		
							Scheme	Max. marks	Min. Passing %	Scheme	Max. marks	Min. Passing
ME701	1.	Refrigeration and Air Conditioning	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME702	2.	Mechanical System Design	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME703	3.	Hydraulics and Pneumatics	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME704	4.	Industrial Engineering	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME705	5.	Elective I	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME701L	6.	Laboratory Refrigeration and Air Conditioning	-	-	02	01	-	-	-	IPE	50	20
							-	-	-	EOE	50	20
ME704L	7.	Laboratory Industrial Engineering	-	-	02	01	-	-	-	EOE	50	20
ME703L	8.	Laboratory Hydraulics and Pneumatics	-	-	02	01	-	-	-	EPE	50	20
ME706L	9.	Major Project Phase I*	-	-	02	03	-	-	-	IOE	50	20
ME707L	10.	Industrial Training	-	-	-	01	-	-	-	IOE	50	20
		Total	18	-	08	25	-	500	-	-	300	-
		Audit Course										
ME701A	11.	Constitution of India	02	-	-	-	-	-	-	-	-	-

\$ In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Total Credits=25

Note:

- Students are expected to do self-study for two hours as per the guide hence contact hours to be taken as two for the calculation of contact hours.
- Tutorials and Practical to be conducted in batches with batch strength not exceeding 15 students.

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

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IPE: Internal Practical Evaluation

EPE: External Practical Examination

IOE: Internal Oral Evaluation

EOE: External Oral Examination

Elective – I:

1. Finite Element Analysis
2. Cryogenics
3. Operations Research
4. Tribology
5. Enterprise Resources Planning
6. Industrial Health and Safety Management

Open Elective (Energy Conservation & management / Nano Technology/Automobile Engineering / Industrial Engineering)

Note on Electives:

A particular elective will be offered when at least 20 students opt for it.

Note on Open Elective:

In order to promote interdisciplinary study, Mechanical Engineering program can offer open electives to the students of other engineering program.



DEPARTMENT OF TECHNOLOGY
FINAL YEAR B.TECH

Scheme of Teaching and Examination
Semester – VIII (Mechanical Engineering)
To be implemented from Academic Year 2023-24

Course Code	Sr. No	Course Title	Teaching Scheme with Credits (Hours / Week)				Examination Scheme (Marks)					
			L	T	P	Credits	Theory			Practical		
							Scheme	Max. marks	Min. Passing %	Scheme	Max. marks	Min. Passing
ME801	1.	Automobile Engineering	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME802	2.	Production and Operations Management	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME803	3.	Mechatronics	04	-	-	04	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME804	4.	Costing and Cost Control	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME805	5.	Elective – II	03	-	-	03	CIE	30	40	-	-	-
							SEE	70		-	-	-
ME801L	6.	Laboratory Automobile Engineering	-	-	02	01	-	-	-	EOE	50	20
ME802L	7.	Laboratory Production and Operations Management	-	-	02	01	-	-	-	EOE	50	20
ME803L	8.	Laboratory Mechatronics	-	-	02	01	-	-	-	EOE	50	20
ME806L	9.	Major Project(Phase II)*	-	-	02	04*	-	-	-	IPE	50	20
							-	-	-	EPE	100	40
		Total	18	-	8	25	-	500	-	-	300	-
Audit Course												
ME801A	10.	Human Values and Professional Ethics	02	-	-	-	-	-	-	-	-	-

\$ In theory student should appear for the CIE (Mid Semester Exam), submit the assignment and must secure 40% marks in SEE.

Total Credits=25

Note:

1. Students are expected to do self-study for two hours as per the guidance given by the project guide hence contact hours to be taken as two for the calculation of contact hours.

2. Tutorials and Practical to be conducted in batches with batch strength not exceeding 15 students.

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

IPE: Internal Practical Evaluation

EPE: External Practical Examination

IOE: Internal Oral Evaluation

EOE: External Oral Examination

***Elective – II:**

- 1.** Computational Fluid Dynamics
- 2.** IoT
- 3.** Nanotechnology
- 4.** Machine Tool Design
- 5.** Industrial Automation and Robotics
- 6.** Power Plant Engineering

Open Elective(Energy Conservation & management / Nano Technology / Automobile Engineering /Industrial Engineering)

Note on Electives:

A particular elective will be offered when at least 20 students opt for it.

Note on Open Elective:

In order to promote interdisciplinary study Mechanical Engineering program can offer open electives to the students of other engineering program.

Equivalence of Pre Revised and Revised Structure**Final Year B. Tech. (Mechanical Engineering) Semester VII and VIII**

The above detailed syllabus is a revised version of the Final Year B. Tech (Mechanical Engineering) Program being conducted by the Shivaji University at the Technology Department of the University. This syllabus is to be implemented from June 2023, (Academic year 2023-24). The prime feature of this revision is the transformation of the existing curriculum into the Outcome based curriculum as specified in NBA rules and regulations.

The Equivalence for the subjects/courses of Mechanical Engineering at Final Year B. Tech. Semester VII and VIII pre-revised and Revised Program under the faculty of Engineering and Technology is as follows.

Final Year B. Tech. Semester VII (Mechanical Engineering)

Sr. No	Final Year B. Tech. (Mechanical Engineering) Semester VII Pre-revised syllabus	Final Year B. Tech. (Mechanical Engineering) Semester VII Revised syllabus	Remark
	Credits = 25	Credits = 25	No change in credits
1.	Refrigeration and Air-conditioning	Refrigeration and Air-conditioning	Slight modification in the content
2.	Machine Design – III	Mechanical System Design	Course Name Changed Slight modification in the content
3.	Hydraulics and Pneumatics	Hydraulics and Pneumatics	Slight modification in the content
4.	Manufacturing Engineering III	Industrial Engineering	Course Name Changed Slight modification in the content
5.	Elective I	Elective I	
	Finite Element Analysis	Finite Element Analysis	Slight modification in the content
	Cryogenics	Cryogenics	Slight modification in the content
	Operations Research	Operations Research	Slight modification in the content
	Tribology	Tribology	Slight modification in the content
	Production Management	Enterprise Resources Planning	New Elective Course Introduced Production Management Shifted to Semester VIII As Production Operations and Management
		Industrial Health and Safety Management	New Elective Course Introduced
6.	Laboratory Refrigeration and Air-conditioning	Laboratory Refrigeration and Air-conditioning	Slight modification in the content
	Laboratory Hydraulics and Pneumatics	Laboratory Hydraulics and Pneumatics	Slight modification in the content
7.	Laboratory Manufacturing Engineering III	Laboratory Industrial Engineering	Course Name Changed Slight modification in the content
8.	Laboratory Major Project Phase I	Laboratory Major Project Phase I	Slight modification in the content
9.	Laboratory Report on Industrial Training	Laboratory Report on Industrial Training	Slight modification in the content
10.	Audit Course Constitution of India	Audit Course Constitution of India	Slight modification in the content

Audit course have not been assigned any credits. The students will be evaluated for these courses by the concerned course incharge. There will be grade conferred to the student. The grade will be based on

conversion of marks obtained out of 50. (Obtaining passing grade is essential). Please refer to chart in the detail examination scheme. The chart shows the marks range and the respective grade.

***Course work:**It consists of assignments, quiz, seminars, presentations, research papers and research articles, developing working models, surveys and activities related to course as designed by the course coordinator to suit the needs of the course and to complement program outcomes. The practical work and its journal is not part of course work.

Final Year B. Tech. Semester VIII (Mechanical Engineering)

Sr. No	Final Year B. Tech. (Mechanical Engineering) Semester VIII Pre-revised syllabus	Final Year B. Tech. (Mechanical Engineering) Semester VIII Revised syllabus	Remark
	Credits = 25	Credits = 25	No change in credits
1.	Automobile Engineering	Automobile Engineering	Slight modification in the content
2.	Power Plant Engineering	Production and Operation Management	New Course Introduced Power Plant Engineering shifted to Elective II
3.	Mechatronics and Robotics and Robotics	Mechatronics	Course Name Changed Slight modification in the content
4.	Total Quality Management	Costing and Cost Control	New Course Introduced
5.	Elective II*	Elective II*	
	Computational Fluid Dynamics	Computational Fluid Dynamics	Slight modification in the content
	Vibration and Noise	IoT	Slight modification in the content
	Nanotechnology	Nanotechnology	Slight modification in the content
	Machine Tool Design	Machine Tool Design	Slight modification in the content
	Flexible Manufacturing Systems	Industrial Automation and Robotics	New Course Introduced
	Power Plant Engineering	Power Plant Engineering	Shifted to Elective II from Compulsory Course in Semester VIII Slight modification in the content
6.	Laboratory Automobile Engineering	Laboratory Automobile Engineering	Slight modification in the content
7.	Laboratory Power Plant Engineering	Laboratory Production and Operation Management	New Course Introduced
8.	Laboratory Mechatronics and Robotics and Robotics	Laboratory Mechatronics	Course Name Changed Slight modification in the content
9.	Major Project Phase II	Major Project Phase II	Slight modification in the content
10.	Audit Course Human Values and Professional Ethics	Audit Course Human Values and Professional Ethics	Slight modification in the content

Audit course have not been assigned any credits. The students will be evaluated for these courses by the concerned course in charge. There will be grade conferred to the student. The grade will be based on conversion of marks obtained out of 50. (Obtaining passing grade is essential). Please refer to chart in the detail examination scheme. The chart shows the marks range and the respective grade.

* **Course work:** It consists of assignments, quiz, seminars, presentations, research papers and research articles, developing working models, surveys and activities related to course as designed by the course coordinator to suit the needs of the course and to complement program outcomes. The practical work and its journal is not part of course work.