



Ref.:-

Date:-

**1.2.1 List of programs in which Choice Based Credit System (CBCS)/elective course system has been implemented**

<b>Programme Name : Mechanical- Design Engineering</b>			
<b>Programme Code: I-1408968333</b>			
<b>Sr. No.</b>	<b>Class Name</b>	<b>Status of implementation of CBCS / elective course system (Yes/No)</b>	<b>Year of implementation of CBCS / elective course system</b>
1	M.E. Mechanical- Design Engineering-I	Yes (CBCS & Elective)	2015-16
2	M.E. Mechanical- Design Engineering-II	Yes (CBCS)	2016-17
3	M.Tech. Mechanical- Design Engineering-I	Yes (CBCS & Elective)	2018-19
4	M.Tech. Mechanical- Design Engineering-II	Yes (CBCS & Elective)	2019-2020



*B. Ronge*  
**PRINCIPAL,**  
**College of Engineering**  
**PANDHARPUR**

**Choice Based Credit System Syllabus**  
**(W.e.f. June 2015-16)**



**SOLAPUR UNIVERSITY, SOLAPUR**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**Structure of M.E.-Mechanical (Design Engineering)**

**PART-I**

Sr.No	Name of the Subject	Teaching Scheme			Examination Scheme			
		Lectures	Tutorials	Practical	Theory Paper Marks	Term Work Marks	Oral Marks	Total Marks
1	<b>Computational Techniques in Design Engineering</b>	3	--	2	100	25	--	125
2	<b>Machine Dynamics</b>	3	--	2	100	*	25	125
3	<b>Solid Mechanics</b>	3	1	--	100	25	--	125
4	<b>Design of Experiments And Research Methodology</b>	3	1	--	100	*	25	125
5	<b>Elective -I</b>	3	1	--	100	25	--	125
6	<b>Seminar I</b>	--	--	2	--	25	-	25
		<b>Total</b>	<b>15</b>	<b>3</b>	<b>6</b>	<b>500</b>	<b>100</b>	<b>50</b>
								<b>650</b>

**PART-II**

Sr.No	Name of the Subject	Teaching Scheme			Examination Scheme			
		Lectures	Tutorials	Practical	Theory Paper Marks	Term Work Marks	Oral Marks	Total Marks
1	<b>Advanced Design Engineering</b>	3	1	--	100	*	25	125
2	<b>Finite Element Analysis</b>	3	--	2	100	*	25	125
3	<b>Experimental Stress Analysis</b>	3	--	2	100	25	--	125
4	<b>Industrial Product Design</b>	3	1	--	100	25	--	125
5	<b>Elective II</b>	3	1	--	100	25	--	125
6	<b>Seminar II</b>	--	--	2	--	25	-	25
		<b>Total</b>	<b>15</b>	<b>3</b>	<b>6</b>	<b>500</b>	<b>100</b>	<b>50</b>
								<b>650</b>

<b>Elective -I</b>		<b>Elective -II</b>	
<b>1) Synthesis &amp; Analysis of Mechanisms and Machines</b>		<b>1) Industrial Tribology</b>	
<b>2) Industrial instrumentation</b>		<b>2) Engineering Fracture Mechanics</b>	
<b>3) Reliability Engineering</b>		<b>3) Theory and Analysis of Composite Materials</b>	
<b>4) Mechanical System Design</b>		<b>4) Engineering Design Optimization</b>	

- In-plant training report for the training of at least one month undertaken after semester II is to be submitted in semester III.
- The Oral examination is to be conducted by one internal and one external examiner appointed by university.
- \*Quality of Term Work of the subject may also be considered during oral examination.



- Seminar I and Seminar II is to be conducted by one internal and one external examiner from outside university area appointed by university.

### PART-III

Sr.No	Name of the Subject	Teaching Scheme			Examination Scheme			
		Lectures	Tutorials	Practical	Theory Paper Marks	Term Work Marks	Oral Marks	Total Marks
1	<b>In-plant Training</b>	--	--	1	--	50	--	50
2	<b>Mini Project (Based on Dissertation)</b>	--	--	4	--	50	50	100
<b>Total</b>		--	--	<b>5</b>	--	<b>100</b>	<b>50</b>	<b>150</b>

### PART-IV

Sr.No	Name of the Subject	Teaching Scheme			Examination Scheme			
		Lectures	Tutorials	Practical	Theory Paper Marks	Term Work Marks	Oral Marks	Total Marks
1	<b>Dissertation</b>	--	--	5	--	200	100	300
<b>Total</b>		--	--	<b>5</b>	--	<b>200</b>	<b>100</b>	<b>300</b>

- The Viva-voce on dissertation work is to be arranged only after submission of paper based on dissertation work carried out and acceptance of one paper in International conference or Journal



**SOLAPUR UNIVERSITY, SOLAPUR**  
**FACULTY OF ENGINEERING & TECHNOLOGY**

**Structure of M.E.-Mechanical (Design Engineering) Part-II W.E.F 2016-17**

**SEM- III**

<b>Sr No.</b>	<b>Course</b>	<b>Teaching Scheme</b>			<b>Examination Scheme</b>				<b>Total Marks</b>
		<b>L</b>	<b>P</b>	<b>Credits</b>	<b>AM</b>	<b>Theory</b>	<b>ICA</b>	<b>Oral (ESE)</b>	
1.	Mini Project	--	--	2	ISE	--	50	25	75
2	Lab Practice	--	2	2	ISE	--	50	--	50
3	Dissertation Phase I Synopsis Submission Seminar	--	4	3	ISE	--	75	--	75
	Dissertation Phase II Term work	--	--	6	ISE	--	200		200
	Dissertation Phase II Progress Seminar presentation	--	--	3	ESE	--	100		100
Total		--	6	16		--	--	--	500

**SEM- IV**

<b>Sr No.</b>	<b>Course</b>	<b>Teaching Scheme</b>			<b>Examination Scheme</b>				<b>Total Marks</b>
		<b>L</b>	<b>P</b>	<b>Credits</b>	<b>AM</b>	<b>Theory</b>	<b>ICA</b>	<b>Oral</b>	
1	Dissertation Phase III Progress Seminar Presentation & Report	--	4	4	ISE	--	100	--	100
2	Dissertation Phase IV Term work	--	2	6	ISE	--	200	--	200
3	Final Presentation & Viva-voce	--	--	6	ESE	--	--	200	200
Total		--	6	16		--	300	200	500

**Mini Project is to be completed in the vacation after Sem-II Examination.**

- **Lab Practice:** Students are expected to learn the contemporary tools/softwares used in industries. It is desirable to use such software for their dissertation purpose. They should learn these with self learning approach. They are supposed to complete 5 assignments based on these tools/ software learnt and report progress to concerned guide weekly.
- **Dissertation Phase I Synopsis submission Seminar (ISE):** This presentation is to be evaluated by the panel of three PG teachers headed by guide at college level.



## **SOLAPUR UNIVERSITY, SOLAPUR**

### **ME PART-II, SEM-III**

### **M.E.-Mechanical (Design Engineering) Syllabus W.E.F 2016-17**

#### **Course: MINI PROJECT**

Teaching Scheme: Not Applicable

Examination Scheme:

Practical: Not Applicable

ICA: 50 marks

ESE- Oral : 25 Marks

A Mini Project based on the subjects studied during **Semester-I** and **Semester-II**, shall be undertaken and completed by the candidate during vacation after **Semester-II examination**. The report of this project shall be submitted at the beginning of Semester-III. It will be approved by the guide and endorsed by the Head of Department. It will be assessed as ISE in Semester-III, by the evaluation committee appointed by the Head of the Department.



**SOLAPUR UNIVERSITY, SOLAPUR**  
**ME PART-II, SEM-III**  
**M.E.-Mechanical (Design Engineering) Syllabus W.E.F 2016-17**

**Course: Lab practice**

Teaching Scheme-Not Applicable

Examination Scheme

Practical: 2 hours a week

ICA : 25 Marks

Student should select any contemporary commercial software available in the market pertaining to the stream of specialization. The choice of software tool is preferably to be based on the its application in his/her dissertation work. He/ she shall learn it by self learning approach during the semester.

He/she should solve any five assignments with the help of that software and get assessed by the concerned guide on regular basis.

He/she shall use the learnt software for analysis work or for problem solving work in his/her dissertation work.



**SOLAPUR UNIVERSITY, SOLAPUR**  
**ME PART-II, SEM-III**  
**M.E.-Mechanical (Design Engineering) Syllabus W.E.F 2016-17**

**Course: Dissertation Phase I- Synopsis Submission Seminar**

Teaching Scheme-Not Applicable

Examination Scheme

Practical: 4 hours a week

ISE: 25 Marks

ICA : 75 Marks

The synopsis shall include the problem definition, literature survey, and approaches for handling the problem, finalizing the methodology for the dissertation work and design calculations / experimental design etc., resources used, references for the literature survey, Cost estimation and sponsorship letter if any.

Students have to present the seminar based on this synopsis in front of a redressal committee of 3 persons.

The Principal shall appoint this redressal committee comprising of the Guide and two experts to review and approve the synopses before submitting them to the University for approval. This committee shall evaluate work (ISE) and submit the one page report of the suggestions/modifications in the synopsis. The candidates shall submit the synopsis to the University authorities for approval in before the due date.

The reports to be submitted to the university shall be in 8 copies. (1 Copy: Candidate, 1 Copy: Guide, 6 Copies: University)



**SOLAPUR UNIVERSITY, SOLAPUR**  
**ME PART-II, SEM-III**  
**M.E.-Mechanical (Design Engineering) Syllabus W.E.F 2016-17**

**Course: Dissertation Phase II-Term Work**

Teaching Scheme-Not Applicable

Examination Scheme

Practical: Not Applicable

ICA: 200 Marks

The term work under this submitted by the student shall include.

- 1) Work diary maintained by the student and countersigned by his guide.
- 2) The content of work diary shall reflect the efforts taken by candidates for
  - (a) Searching the suitable project work.
  - (b) Visits to different factories or organizations.
  - (c) Brief report on web sites, journals and various papers referred for project work.
  - (d) The brief report of feasibility studies carried to come to final conclusion.
  - (e) Rough sketches.
  - (f) Design calculations etc. carried by the student.



**ME PART-II, SEM-III**  
**M.E.-Mechanical (Design Engineering) Syllabus W.E.F 2016-17**

**Course: Dissertation Phase II-Progress Seminar Presentation**

Teaching Scheme-Not Applicable

Examination Scheme

Practical: Not Applicable

ICA: 100 Marks

The student has to make a presentation of the preliminary work prescribed the syllabus in front of panel of experts in addition to guide as appointed by head of department.



**SOLAPUR UNIVERSITY, SOLAPUR**  
**ME PART-II, SEM-IV**  
**M.E.-Mechanical (Design Engineering) Syllabus W.E.F 2016-17**

**Course: Dissertation Phase III Progress Seminar Presentation & Report**

Teaching Scheme-Not Applicable

Examination Scheme

Practical: Not Applicable

ICA: 100 Marks

The student has to make a presentation of the progress work (analysis/experimental work/testing/validation) in front of panel of 2 experts in addition to guide as appointed by head of department.



**SOLAPUR UNIVERSITY, SOLAPUR**  
**ME PART-II, SEM-IV**  
**M.E.-Mechanical (Design Engineering) Syllabus W.E.F 2016-17**

**Course: Dissertation Phase IV Term work**

Teaching Scheme-Not Applicable

Examination Scheme

Practical: 2 Hrs/Week

ICA: 200 Marks

**Preparation of Dissertation Report:** The dissertation to be submitted by the student on topic already approved by university authorities on the basis of synopsis shall be according to the following guide lines.

**Format of dissertation report:**

The dissertation work report shall be typed on A4 size bond paper. The total No. of minimum pages shall not be less than 60. Figures, graphs, annexure etc. should be added as per the requirement.

The report should be written in the format as given below-

1. Title sheet
2. Certificate
3. Acknowledgement
4. List of figures, Photographs/Graphs/Tables
5. Abbreviations.
6. Abstract
7. Contents.
8. Text with usual scheme of chapters.
9. Discussion of the results and conclusions
10. Bibliography (the source of illustrative matter be acknowledged clearly at appropriate place as per IEEE/ASME/Elsevier Format).

Annexure: May contain photographs, paper presented in the conference/journals on the dissertation topic

The reports to be submitted to the university shall be hard bound (6 copies).



**SOLAPUR UNIVERSITY, SOLAPUR**  
**ME PART-II, SEM-IV**  
**M.E.-Mechanical (Design Engineering) Syllabus W.E.F 2016-17**

**Course: Final Presentation and Viva Voce**

Teaching Scheme-Not Applicable

Examination Scheme

Practical: Not Applicable

ESE: 200 Marks

Final viva voce (ESE) is to be conducted by the examiner panel appointed by the university. Student has to give a presentation comprising of the dissertation work.

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**



**Name of the Faculty: Science & Technology**

**Revised Structure and Syllabus**

**CHOICE BASED CREDIT SYSTEM**

**Syllabus: Mechanical-Design Engineering**

**Name of the Course: M.Tech.- Semester I, II, III & IV**  
**(Syllabus to be implemented from w.e.f. June 2018-19 & 2019-20)**

**FACULTY OF SCIENCE & TECHNOLOGY**

**Curriculum for M. Tech.(Mechanical-Design Engineering)**

**Four Semester Course**

**Choice Based Credit System (CBCS) - (WEF 2018-19)**

**Semester I: Theory /Tutorial/ Lab Courses**

<b>Course Code</b>	<b>Name of the Course</b>	<b>Engagement Hours</b>			<b>Credits</b>	<b>SA</b>	<b>FA</b>		<b>Total</b>
		<b>L</b>	<b>T</b>	<b>P</b>			<b>ESE</b>	<b>ISE</b>	
1	Advanced Stress Analysis	3	-	-	3	70	30	-	100
2	Advanced Vibrations and Acoustics	3	-	-	3	70	30	-	100
3	Industrial Instrumentation	3	-	-	3	70	30	-	100
4	<b>Elective- I</b> 1. Computational Techniques in Design Engineering 2. Reliability Engineering 3. Mechanical System Design 4. Computer Aided Design	3	-	-	3	70	30	-	100
5	Research Methodology and IPR©	3	-	-	3	70	30	-	100
6	Advanced Vibrations and Acoustics Lab	-	-	2	1	-	-	50	50
7	Industrial Instrumentation Lab	-	-	2	1	-	-	50	50
8	Seminar –I			2		2		50	50
<b>Total</b>		<b>15</b>	<b>2</b>	<b>4</b>	<b>19</b>	<b>350</b>	<b>150</b>	<b>150</b>	<b>650</b>

L Lecture

FA Formative Assessment

T Tutorial

SA Summative Assessment

P Lab  
Session

ESE End Semester Examination

ISE In Semester Evaluation

ICA Internal Continuous Evaluation

© - This Course is common for M. Tech. (Civil- Structural Engineering) and M. Tech. (Mechanical-Design Engineering)

**Semester II: Theory /Tutorial/ Lab Courses**

<b>Course Code</b>	<b>Name of the Course</b>	<b>Engagement Hours</b>			<b>Credits</b>	<b>SA</b>	<b>FA</b>		<b>Total</b>
		<b>L</b>	<b>T</b>	<b>P</b>		<b>ESE</b>	<b>ISE</b>	<b>ICA</b>	
1	Finite Element Method	3	-	-	3	70	30		100
2	Advanced Design Engineering	3	-	-	3	70	30		100
3	Industrial Product Design	3	-	-	3	70	30		100
4	<b>Elective- II</b> 1. Theory and Analysis of Composite Materials 2. Engineering Design Optimization 3. Industrial Tribology 4. Advanced Engineering Materials	3	-	-	3	70	30		100
5	<b>Elective- III</b> 1. Engineering Fracture Mechanics 2. Project Management 3. Design for Manufacture and Assembly 4. Analysis and Synthesis of Mechanisms and Machine	3	-	-	3	70	30		100
6	Finite Element Method Lab	-	-	2	1	-			50 50
7	Product Design Lab	-	-	2	1	-			50 50
8	Seminar-II	-	2	-	2	-	-		50 50
<b>Total</b>		<b>15</b>	<b>2</b>	<b>4</b>	<b>19</b>	<b>350</b>	<b>150</b>	<b>150</b>	<b>650</b>

L Lecture FA Formative Assessment

T Tutorial SA Summative Assessment

P Lab Session ESE End Semester Examination

ISE In Semester Evaluation

ICA Internal Continuous Evaluation

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**



**Name of the Faculty: Science & Technology**

**Revised Structure and Syllabus**

**CHOICE BASED CREDIT SYSTEM**

**Syllabus: Mechanical-Design Engineering**

**Name of the Course: M.Tech.- Semester I, II, III & IV**  
**(Syllabus to be implemented from w.e.f. June 2018-19 & 2019-20)**

### Semester III: Theory /Tutorial/ Lab Courses

Course Code	Name of the Course	Engagement Hours			Credits	SA	FA		Total
		L	T	P			ESE	ISE	
Dissertation	Lab Practices	-	-	2	2	-	-	50	50
	Open Elective	3	-	-	3	70	30	-	100
	Dissertation Phase I : Synopsis Submission Seminar*	-	-	2	2	-	50	-	50
	Dissertation Phase II : Progress Seminar	-	-		8	100	200	-	300
Total		3	-	4	15	170	280	50	500

Note:- \* indicates student engagement against which faculty contact hour is 2 hours per candidate

**L** Lecture  
**T** Tutorial  
**P** Lab Session

**FA** Formative Assessment  
**SA** Summative Assessment  
**ESE** End Semester Examination  
**ISE** In Semester Evaluation  
**ICA** Internal Continuous Evaluation

#### List of open Elective

1. Business Analytics
2. Operation Research
3. Cost Management of Engineering Projects
4. Non conventional Energy

- For all activities related to dissertation Phase I (synopsis submission seminar and progress seminar) student must interact regularly every week with the advisor.
- Synopsis submission seminar shall cover detailed synopsis of the proposed work. Student shall submit Synopsis of the Dissertation Work only after delivering this seminar.
- Progress seminar shall be delivered capturing details of the work done by student for dissertation.
- Student shall deliver all seminars using modern presentation tools. A hard copy of the report shall be submitted to the Department before delivering the seminar. A PDF copy of the report must be submitted to the advisor along with other details if any.
- Lab Practice shall include any of the below activities as recommended by Advisor and student shall submit a report after completion of the activity to Advisor along with other details if any. Software / hardware assignments, learning new software, literature survey, filed work, industrial training etc. related to dissertation work.
- Details of modes of assessment of seminar and dissertation shall be as specified in 7(III) of PG Engineering Ordinance of Solapur University, Solapur.

**FACULTY OF ENGINEERING & TECHNOLOGY**

**Curriculum for M. Tech. (Mechanical-Design Engineering)**

**Four Semester Course**

**Choice Based Credit System (CBCS) - (WEF 2019-20)**

**Semester IV: Laboratory / Tutorial Courses**

<b>Course Code</b>	<b>Name of the Course</b>	<b>Engagement Hours</b>			<b>Credits</b>	<b>SA</b>	<b>FA</b>		<b>Total</b>
		<b>L</b>	<b>T</b>	<b>P</b>			<b>ESE</b>	<b>ISE</b>	
<b>Dissertation</b>	<b>Dissertation Phase -III</b> Progress Report presentation and submission		-	4	3	-	-	100	100
	<b>Dissertation Phase -IV</b> Final presentation and submission of report	-	-	2	6	-	-	100	100
	Dissertation Viva voice	-	-	-	6	200	-	-	200
<b>Total</b>		-	-	<b>6</b>	<b>15</b>	<b>200</b>		<b>200</b>	<b>400</b>

**Note:- \* indicates student engagement against which faculty contact hour is 3 hours per candidate**

**L** Lecture  
**T** Tutorial  
**P** Lab Session

**FA** Formative Assessment  
**SA** Summative Assessment  
**ESE** End Semester Examination  
**ISE** In Semester Evaluation  
**ICA** Internal Continuous Evaluation

- For all activities related to dissertation Phase III, student must interact regularly every week with the advisor.
- Progress seminar shall be delivered capturing details of the work done by student for dissertation.
- Student shall deliver all seminars using modern presentation tools. A hard copy of the report shall be submitted to the Department before delivering the seminar. A PDF copy of the report must be submitted to the faculty advisor along with other details if any.
- Details of modes of assessment of seminar and dissertation shall be as specified in 7(III) of PG Engineering Ordinance of Solapur University, Solapur.