

**Department of Mechanical  
Engineering  
School of Engineering and  
Technology**

**Criteria 1**

**Sub Criteria 1.3.3**

**Percentage of students undertaking field  
projects/research projects/internships**

**Academic Year**

**2021-2022**

  
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"CELEBRATING DREAMS"

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## Index

S. No	Component	Page No
1.	Scheme of UG	4-8
2.	Syllabus	9-23
3.	Research Projects of UG	24-27
4.	Industrial trainings in UG	28-29
5.	Industrial Visits in UG	30-34

  
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**Total Number of Research Projects in UG and PG**

Research Projects	Program	Total Number of students Involved in research projects
	B.Tech-ME	12

**Total Number of Industrial Trainings in UG**

Industrial Trainings	Program	Total Number of students Involved in industrial trainings
	B.Tech-ME	12

**Total Number of Field Project/Industry Visits in UG**

Industry visits	Program	Total Number of students involved in Industrial visits
	B.Tech	44

  
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**EXAMINATION SCHEME**

**Program Name: B. Tech. Batch 2021-25**

**Branch: Mechanical Engineering (Specialization in Manufacturing Technology)**

**SEMESTER III**

S. No.	Subject Code	Subject Name	Maximum Marks Allotted							Credits Allotted (Subject Wise)			Total Credits	Remarks	
			Theory Slot			Practical Slot				Total Marks	Period Per Week				
			End Sem. Exam	Mid Sem. Exam (Two Tests' Average)	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva	L		T	P			
1	MEL0305	Basic Thermodynamics	40	30	30	40	30	30	200	3	1	2	5		
2	MEL 0308	Measurement and Metrology	40	30	30	40	30	30	200	2	1	2	4		
3	MEL 0310	Mechanics of Solids	40	30	30	40	30	30	200	3	1	2	5		
4	MEL 0341	Manufacturing Technology –II	40	30	30	40	30	30	200	2	1	2	4		
5	MAL0308	Engineering Mathematics	40	30	30	-	-	-	100	3	1	0	4		
6	MEP0302	Machine drawing	-	-	-	40	30	30	100	0	0	4	2		
7	MED0301	Evaluation of Industrial Training-I	-	-	-	40	30	30	100	0	0	4	2		
Total marks ---1100										Total Credits			26		

8	Swayam MOOC Course(Optional)	Solar Energy Conversion	2 Credits
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*Kankey*

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**EXAMINATION SCHEME**  
**Program Name: B. Tech. Batch 2021-25**  
**Branch: Mechanical Engineering (Specialization in Manufacturing Technology)**  
**SEMESTER V**

S. No.	Subject Code	Subject Name	Maximum Marks Allotted							Credits Allotted (Subject Wise)			Total Credits	Remarks
			Theory Slot			Practical Slot				Period Per Week				
			End Sem. Exam	Mid Sem. Exam (Two Tests' Average)	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva	Total Marks	L	T	P		
1	MEL0518	Dynamics of Machines	40	30	30	40	30	30	200	2	1	2	4	
2	MEL0515	Machine Design-I	40	30	30	40	30	30	200	2	1	2	4	
3	MEL0516	IC Engines	40	30	30	40	30	30	200	2	1	2	4	
4	MEL0521	Fluid Machinery	40	30	30	40	30	30	200	2	1	2	4	
5	MEL0522	Advanced Manufacturing	40	30	30	---	-----	-----	100	2	1	0	3	
6	MEL0523	Industrial Automation & Control	40	30	30	---	-----	-----	100	2	1	0	3	
7	MED0502	Evaluation of Industrial Training-2	-	-	-	40	30	30	100	0	0	4	2	
<b>Total marks-1100</b>												<b>24</b>		
<b>Total Credits</b>														

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**EXAMINATION SCHEME**

**Program Name: B.Tech.**

**Batch 2021-25**

**Branch: Mechanical Engineering (Specialization in Manufacturing Technology)**

**SEMESTER VI**

S. No.	Subject Code	Subject Name	Maximum Marks Allotted							Credits Allotted (Subject Wise)			Total Credits	Remarks	
			Theory Slot			Practical Slot				Total Marks	Period Per Week				
			End Sem. Exam	Mid Sem. Exam (Two Tests' Average)	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva	L		T	P			
1	MEL0617	Machine Design-II	40	30	30	40	30	30	200	3	1	2	5		
2	MEL0619	Heat & Mass Transfer	40	30	30	40	30	30	200	3	1	2	5		
3	MEL0621	Robotic Process Automation	40	30	30	-	-	-	100	3	1	0	4		
4	MEL0626	Operations Research	40	30	30	-	-	-	100	3	1	0	4		
5	MEL0627	Additive Manufacturing	40	30	30	40	30	30	200	2	1	2	4		
6	MED0603	Minor Project	-	-	-	40	30	30	100	0	0	4	2		
<b>Total marks=900</b>										<b>Total Credits</b>			<b>24</b>		

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**EXAMINATION SCHEME**

**Program Name: B. Tech.**

**Batch 2021-25**

**Branch: Mechanical Engineering (Specialization in Manufacturing Technology)**

**SEMESTER VII**

S. No.	Subject Code	Subject Name	Maximum Marks Allotted							Credits Allotted (Subject Wise)			Total Credits	Remarks	
			Theory Slot			Practical Slot				Total Marks	Period Per Week				
			End Sem. Exam	Mid Sem. Exam (Two Tests' Average)	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva	L		T	P			
1	MEL0722	Computer Aided Design	40	30	30	40	30	30	200	3	1	2	5		
2	MEL0723	Refrigeration and Air Conditioning	40	30	30	40	30	30	200	3	1	2	5		
3	MEL0727	Total Quality Management	40	30	30	-----	-----	-----	100	2	1	0	3		
4	Listed	Elective 1	40	30	30	-----	-----	-----	100	3	1	0	4		
5	Listed	Elective 2	40	30	30	-----	-----	-----	100	3	1	0	4		
6	MEC0701	Training Report	-----	-----	-----	40	30	30	100	0	0	4	2		
7	MED0702	Major Project	-----	-----	-----	40	30	30	100	0	0	4	2		
<b>Total marks ---900</b>									<b>Total Credits</b>			<b>25</b>			

**ELECTIVE – 1:**

- (1) MEE0717- Theory of Production process
- (2) MEE0702- Unconventional manufacturing processes
- (3) MEE0703- Product Design and Development Dynamics
- (4) MEE0704- Reliability Engineering

**ELECTIVE – 2:**

- (1) MEE0705- Non Conventional Energy Resources
- (2) MEE0706- Optimization Methods
- (3) MEE0707- Introduction to Computational Fluid Dynamics
- (4) MEE0708- Mechanical System design

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**Program Name: B. Tech. Batch 2021-25**

**Branch: Mechanical Engineering (Specialization in Manufacturing Technology)**

**SEMESTER VIII**

S. No.	Subject Code	Subject Name	Maximum Marks Allotted							Credits Allotted (Subject Wise)			Total Credits	Remarks	
			Theory Slot			Practical Slot				Total Marks	Period Per Week				
			End Sem. Exam	Mid Sem. Exam (Two Tests' Average)	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva	L		T	P			
1	MEL0825	Automobile Engineering	40	30	30	40	30	30	200	2	1	2	4		
2	MEL0827	CNC & Flexible Manufacturing Systems	40	30	30	40	30	30	200	2	1	2	4		
3	Listed	Elective 3	40	30	30	----	-----	-----	100	3	1	0	4		
4	Listed	Elective 4	40	30	30	----	-----	-----	100	3	1	0	4		
5	<b>MED0803</b>	<b>Major Project</b>	----	-----	-----	120	90	90	300	0	0	16	8		
<b>Total marks ---900</b>									<b>Total Credits</b>			<b>24</b>			

**ELECTIVE-3:**

- (1)MEE 809- Vibration and Noise- Measurement and Control
- (2)MEE 0810- Foundry Engineering
- (3)MEE 0811- Advanced Welding Technology
- (4) MEE 0812- Tribology

**ELECTIVE-4:**

- (1)MEE 0813- Computer Integrated Manufacturing
- (2)MEE 0814-Non Destructive testing
- (3)MEE 0815- Design of Machine Tools
- (4) MEE 0816- Finite Element Method

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## Syllabus


<b>Title of the Course</b>	Evaluation of Industrial Training-1
<b>Course Code</b>	MED0301[P]

### Part A

Year	2nd	Semester	3rd	Credits	L	T	P	C
					0	0	2	2
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Projects and Internship							
<b>Pre-Requisite/s</b>	subject knowledge of first and second semester .			<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Understand themselves in relation to their community and develop among themselves sense of social and civic and responsibility. <b>(BL2-Understand)</b></p> <p><b>CO2-</b> Identify the needs and problem of the community and involve them in problem solving. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Utilize their knowledge in finding practical solution to individual and community problem. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Develop the confidence require for group living and sharing of responsibilities of acquire leadership qualities and democratic attitudes. <b>(BL4-Analyze)</b></p> <p><b>CO5-</b> Develop the capacity to meet emergencies and natural disasters and practice national integration and social harmony <b>(BL5-Evaluate)</b></p>							
<b>Course Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG4(Quality education) SDG9(Industry Innovation and Infrastructure)				

### Part B

Modules	Contents	Pedagogy	Hours
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Industrial training has its own importance in a career of a student who is pursuing a professional degree. It is considered as a part of college curriculum. The objective of an industrial training is to provide us an insight regarding internal working of companies. We understand that theoretical knowledge is not enough for a successful professional career. With an aim to go beyond academics, industrial visit provides students a practical perspective of the workplace. Industrial trainings provide an opportunity to learn practically through interaction, working methods and employment practices.	Field work	BL3-Apply	40 hrs
Module-II	It gives students an exposure to current work practices as opposed to possibly theoretical knowledge being taught at college. Industrial visits provide an excellent opportunity to interact with industries and know more about industrial environment. Industrial trainings are arranged by TAP cell with an objective of providing us an opportunity to explore different sectors like IT, Manufacturing services, finance and marketing. Industrial visit helps to combine theoretical knowledge with practical knowledge. Industrial realities are opened to the students through industrial visits/trainings.	Field work	BL4-Analyze	40 hrs

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
	50				
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	0	40	20	60	

  
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Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

Course Articulation Matrix

<b>COs</b>	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	-	1	-	-	-	-	-	-	-	2	2	2
CO2	1	-	2	-	2	-	-	-	-	-	-	-	1	2	1
CO3	1	2	-	2	1	-	-	-	-	-	-	-	2	2	2
CO4	1	1	-	2	-	-	-	-	1	-	-	-	2	2	1
CO5	-	-	-	-	1	-	-	-	-	1	-	-	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus


<b>Title of the Course</b>	Evaluation of Industrial Training-2
<b>Course Code</b>	MED0502[P]

### Part A

Year	3rd	Semester	5th	Credits	L	T	P	C
					0	0	2	2
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Projects and Internship							
<b>Pre-Requisite/s</b>	subject knowledge of Mechanical Engineering			<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Understand themselves in relation to their community and develop among themselves sense of social and civic and responsibility. <b>(BL2-Understand)</b></p> <p><b>CO2-</b> Identify the needs and problem of the community and involve them in problem solving. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Utilize their knowledge in finding practical solution to individual and community problem. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Develop the confidence require for group living and sharing of responsibilities of acquire leadership qualities and democratic attitudes. <b>(BL4-Analyze)</b></p> <p><b>CO5-</b> Develop the capacity to meet emergencies and natural disasters and practice national integration and social harmony <b>(BL5-Evaluate)</b></p>							
<b>Course Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG9(Industry Innovation and Infrastructure)				

### Part B

Modules	Contents	Pedagogy	Hours
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Industrial training has its own importance in a career of a student who is pursuing a professional degree. It is considered as a part of college curriculum. The objective of an industrial training is to provide us an insight regarding internal working of companies. We understand that theoretical knowledge is not enough for a successful professional career. With an aim to go beyond academics, industrial visit provides students a practical perspective of the workplace. Industrial trainings provide an opportunity to learn practically through interaction, working methods and employment practices.	Field work	BL4-Analyze	40 hrs
Module-II	It gives students an exposure to current work practices as opposed to possibly theoretical knowledge being taught at college. Industrial visits provide an excellent opportunity to interact with industries and know more about industrial environment. Industrial trainings are arranged by TAP cell with an objective of providing us an opportunity to explore different sectors like IT, Manufacturing services, finance and marketing. Industrial visit helps to combine theoretical knowledge with practical knowledge. Industrial realities are opened to the students through industrial visits/trainings.	Field work	BL5-Evaluate	40 hrs

Part D (Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
	50				
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	0	40	20	60	

  
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Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

Course Articulation Matrix

<b>COs</b>	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	-	1	-	-	-	-	-	-	-	2	2	2
CO2	1	-	2	-	2	-	-	-	-	-	-	-	1	2	1
CO3	1	2	-	2	1	-	-	-	-	-	-	-	2	2	2
CO4	1	1	-	2	-	-	-	-	1	-	-	-	2	2	1
CO5	-	-	-	-	1	-	-	-	-	1	-	-	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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## Syllabus

<b>Title of the Course</b>	Minor Project
<b>Course Code</b>	MED0603[P]

### Part A

Year	3rd	Semester	6th	Credits	L	T	P	C	
					0	0	2	2	
<b>Course Type</b>	Project								
<b>Course Category</b>	Projects and Internship								
<b>Pre-Requisite/s</b>	Knowledge of Mechanical engineering and interdisciplinary subjects.			<b>Co-Requisite/s</b>					
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> To enhance writing skills and knowledge.( <b>BL2-Understand</b> ) <b>CO2-</b> To increase their mental ability.( <b>BL3-Apply</b> ) <b>CO3-</b> To inculcate the ability to express innovative opinion and thoughts( <b>BL4-Analyze</b> ) <b>CO4-</b> To have Dissertation works as skills development in students.( <b>BL5-Evaluate</b> )								
<b>Course Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG9(Industry Innovation and Infrastructure)					

### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Identification of a problem and formulation of a topic of project/thesis	PBL	BL3-Apply	15 hrs
Module-III	Dissertation and Viva-voci	PBL	BL5-Evaluate	20 hrs

  
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Part D(Marks Distribution)

**Theory**

Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
	50				

**Practical**

Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	50	40	20	60	

Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	-	1	-	-	-	-	-	-	-	2	2	2
CO2	1	-	2	-	2	-	-	-	-	-	-	-	1	2	1
CO3	1	2	-	2	1	-	-	-	-	-	-	-	2	2	2
CO4	1	1	-	2	-	-	-	-	1	-	-	-	2	2	1
CO5	-	-	-	-	1	-	-	-	-	1	-	-	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus

<b>Title of the Course</b>	Training Report
<b>Course Code</b>	MEC0701[P]

### Part A

Year	4th	Semester	7th	Credits	L	T	P	C	
					0	0	2	2	
<b>Course Type</b>	Lab only								
<b>Course Category</b>	Projects and Internship								
<b>Pre-Requisite/s</b>	subject knowledge of Mechanical Engineering			<b>Co-Requisite/s</b>					
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Understand themselves in relation to their community and develop among themselves since of social and civic and responsibility. <b>(BL2-Understand)</b></p> <p><b>CO2-</b> Identify the needs and problem of the community and involve them in problem solving. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Utilize their knowledge in finding practical solution to individual and community problem. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Develop the confidence require for group living and sharing of responsibilities of acquire leader ship qualities and democratic attitudes. <b>(BL4-Analyze)</b></p> <p><b>CO5-</b> Develop the capacity to meet emergencies and natural disasters and practice national integration and social harmony <b>(BL5-Evaluate)</b></p>								
<b>Course Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professsonal Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG9(Industry Innovation and Infrastructure)					

### Part B

Modules	Contents	Pedagogy	Hours
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Industrial training has its own importance in a career of a student who is pursuing a professional degree. It is considered as a part of college curriculum. The objective of an industrial training is to provide us an insight regarding internal working of companies. We understand that theoretical knowledge is not enough for a successful professional career. With an aim to go beyond academics, industrial visit provides students a practical perspective of the workplace. Industrial trainings provide an opportunity to learn practically through interaction, working methods and employment practices.	Field work	BL4-Analyze	40 hrs
Module-II	It gives students an exposure to current work practices as opposed to possibly theoretical knowledge being taught at college. Industrial visits provide an excellent opportunity to interact with industries and know more about industrial environment. Industrial trainings are arranged by TAP cell with an objective of providing us an opportunity to explore different sectors like IT, Manufacturing services, finance and marketing. Industrial visit helps to combine theoretical knowledge with practical knowledge. Industrial realities are opened to the students through industrial visits/trainings.	Field work	BL5-Evaluate	40 hrs

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
	50				
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	0	40	20	60	

  
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Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

Course Articulation Matrix

<b>COs</b>	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	-	1	-	-	-	-	-	-	-	2	2	2
CO2	1	-	2	-	2	-	-	-	-	-	-	-	1	2	1
CO3	1	2	-	2	1	-	-	-	-	-	-	-	2	2	2
CO4	1	1	-	2	-	-	-	-	1	-	-	-	2	2	1
CO5	-	-	-	-	1	-	-	-	-	1	-	-	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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## Syllabus

<b>Title of the Course</b>	Major Project
<b>Course Code</b>	MED0702[P]

### Part A

Year	4th	Semester	7th	Credits	L	T	P	C	
					0	0	2	2	
<b>Course Type</b>	Lab only								
<b>Course Category</b>	Projects and Internship								
<b>Pre-Requisite/s</b>	Knowledge of Mechanical engineering and interdisciplinary subjects.			<b>Co-Requisite/s</b>					
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> To enhance writing skills and knowledge.( <b>BL2-Understand</b> ) <b>CO2-</b> To increase their mental ability.( <b>BL3-Apply</b> ) <b>CO3-</b> To inculcate the ability to express innovative opinion and thoughts.( <b>BL4-Analyze</b> ) <b>CO4-</b> To have Dissertation works as skills development in students. ( <b>BL5-Evaluate</b> )								
<b>Course Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG9(Industry Innovation and Infrastructure)					

### Part B

Modules	Contents	Pedagogy	Hours
Module-I			

### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Identification of a problem and formulation of a topic of project/thesis	PBL	BL3-Apply	48 hrs
Module-III	Dissertation and Viva-voci	PBL	BL5-Evaluate	

  
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Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
	50				
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	50	40	20	60	

Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	-	1	-	-	-	-	-	-	-	2	2	2
CO2	1	-	2	-	2	-	-	-	-	-	-	-	1	2	1
CO3	1	2	-	2	1	-	-	-	-	-	-	-	2	2	2
CO4	1	1	-	2	-	-	-	-	1	-	-	-	2	2	1
CO5	-	-	-	-	1	-	-	-	-	1	-	-	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus

<b>Title of the Course</b>	Major Project
<b>Course Code</b>	MED0803[P]

### Part A

<b>Year</b>	4th	<b>Semester</b>	8th	<b>Credits</b>	L	T	P	C
					0	0	8	8
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Projects and Internship							
<b>Pre-Requisite/s</b>	Knowledge of Mechanical engineering and interdisciplinary subjects.			<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> To enhance writing skills and knowledge.( <b>BL2-Understand</b> ) <b>CO2-</b> To increase their mental ability.( <b>BL3-Apply</b> ) <b>CO3-</b> To inculcate the ability to express innovative opinion and thoughts.( <b>BL4-Analyze</b> ) <b>CO4-</b> To have Dissertation works as skills development in students.( <b>BL5-Evaluate</b> )							
<b>Course Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG9(Industry Innovation and Infrastructure)				

### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Identification of a problem and formulation of a topic of project/thesis	PBL	BL3-Apply	15 hrs
Module-II	To have field work and data collection through a chosen methodology	PBL	BL4-Analyze	15 hrs
Module-III	Dissertation and Viva-voci	PBL	BL5-Evaluate	20 hrs

  
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Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
	150				
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
300	0	120	60	180	

Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	-	1	-	-	-	-	-	-	-	2	2	2
CO2	1	-	2	-	2	-	-	-	-	-	-	-	1	2	1
CO3	1	2	-	2	1	-	-	-	-	-	-	-	2	2	2
CO4	1	1	-	2	-	-	-	-	1	-	-	-	2	2	1
CO5	-	-	-	-	1	-	-	-	-	1	-	-	2	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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### Details of UG research projects

Name of the School: School of Engineering and Technology

Name of the Course and Branch: B.Tech-ME (Batch 2018-22)

Session: 2021-22

Total No. of Students enrolled: 12

S. No.	Specialization	Name of the student	Roll no.	Title of the project	Duration	Name of the Guide
1.	B.Tech-ME	K S Anurag	BETN1ME18002	Mechanical wear Behavior of Orange peel reinforced Epoxy	06 months	Dr. Ratan Kumar Jain
		Khushal Sahu	BETN1ME18003			
		Shubhanshu	BETN1ME18011			
		Siddarth Sing Urreti	BETN1ME18012			
2.	B.Tech-ME	Asif Khan	BETN1ME18005	Design and Analysis of Helmet with integrated cooling and air filtration system	06 months	Mr. Sateesh Kumar
		Mohit Kushwah	BETN1ME18006			
		Shivam Pandey	BETN1ME18010			
3	B.Tech-ME	Rahul Pawar	BETN1ME18007	Piezoelectricity : A Futuristic Vision	06 months	Mr. Sateesh Kumar
		Sanju Paul	BETN1ME18009			
		Akaram Ali	BETN3ME19D01			
		Danish Khan	BETN3ME19D02			
4.	B.Tech-ME	Manthan Verma	BETN1ME18004	Case study on manufacturing and installation of Racking system setup for ware housing management	06 months	Mr. Arun Kushwah

Head  
Department of Mechanical Engineering

  
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**MECHANICAL WEAR BEHAVIOR OF  
ORANGE PEEL REINFORCED EPOXY  
COMPOSITES**

*A dissertation submitted in partial fulfilment for the  
award of the degree of*

**BACHELOR OF TECHNOLOGY  
IN  
MECHANICAL ENGINEERING**



"CELEBRATING DREAMS"

*Submitted by*

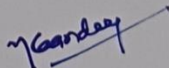
Khushal Sahu

*Under the guidance of*

Dr. Ratan Kumar Jain

**Department of Mechanical Engineering  
School of Engineering and Technology  
ITM UNIVERSITY, GWALIOR, M.P.**

**2018-2022**

  
Dean  
School of Engg. &  
ITM University  
Gwalior

  
**Dr. Omveer Singh**  
REGISTRAR  
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"CELEBRATING DREAMS"

**DESIGN AND ANALYSIS OF HELMET WITH INTEGRATED COOLING AND AIR  
FILTRATION SYSTEM**

**A MAJOR PROJECT**

Submitted in partial fulfillment for the award of degree of

**BACHELOR OF TECHNOLOGY**

**IN**

**MECHANICAL ENGINEERING**



**UNIVERSITY**

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"CELEBRATING DREAMS"

**Submitted by**

**ASIF KHAN**

**(BETN1ME18005)**

**Under the guidance of**

**Assistant Prof. Sateesh Kumar**

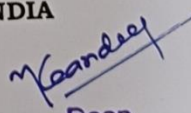
**Department of Mechanical Engineering**

**School of Engineering & Technology**

**ITM UNIVERSITY GWALIOR, MP, INDIA**

**2018-2022**

[1]

  
Dean  
School of Engg. & Techn  
ITM University  
Gwalior

  
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### Total Number of Industrial Trainings in UG

Industrial Trainings	Program	Total Number of students Involved in research projects
	B.Tech-ME	12



**SURYA ROSHNI LTD.**

(Steel Pipe Division)  
P-1 to F-20, Ghirongi Industrial Area, Malanpur  
Distt. Bhand - 477 117 (M.P.)  
Tel. : (07539) 283040, Fax : 283483  
E-mail : steelmtrs@surya.in  
CIN : L31501HR1973PLC007543

SRL/SPD/2022/143

Date: 30.06.2022

#### TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. Animesh Panigrahi S/o Sh. Ajay Panigrahi** student of **B. Tech (Mechanical) 7<sup>th</sup> Semester of ITM University, Gwalior (Madhya Pradesh)** has undergone Summer Training in our organization in Mechanical Department from 01.06.2022 to 30.06.2022.

During training period his performance & conduct was found good.

We wish him all success in his future endeavor.

For SURYA ROSHNI LTD  
(Steel Pipe Division)

  
(Mukesh Rai)  
DGM (HR)

Regd Office : Prakash Nagar, Bahadurgarh - 124 507 (Haryana)

  
**Dr. Omveer Singh**  
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ITM University  
Gwalior (M.P.)



# Certificate of Completion

This certificate is in recognition of diligent and dedicated participation of

*Archana Routaray*

in "Virtual workshop on Electric Vehicles (EV) with insights of sustainable mobility".

From 1<sup>st</sup> may 2022 to 14<sup>th</sup> may 2022

NinthSem congratulates you on your achievement and overall participation in this workshop.

  
Manish Patra  
Chief Operating Officer

  
Priyamwada Sazena  
Industry Expert- EV



Industrial Visits	
Industry	Date
<b>Industrial Visit-</b> Engipress Rail sleeper factory, Morena	14 May 2022
<b>Industrial Visit-</b> Rail Spring Karkhana, Sithouli	25 May 2022

**Industrial Visits to EngiPress Rail sleeper factory, Morena on 14<sup>th</sup> May 2022:**



**1. General:**

Industrial visit for students of 4 and 6 semester Mechanical Engineering was organised on 14 May 2022. The students were taken to Engipress Rail Sleeper Factory-Morena.

**2. Participation:** Following faculty members and students visited the plant

- (a) Dr. R. S Rajput, HOD-ME & Dr. R K Jain, Professor and Mr. Arun Kushwah, Asst. Professor.
- (b) Students of 4 and 6 semester Mechanical Engineering 28 in number.

3. Visit was arranged by Mr. Abhay Agarwal, Director, Engipress Rail Sleeper Factory- Morena(Mob no.09893127789).

4. **Transport:** Bus for the visit was provided by University.

**5. Objective of the visit:**

- (a) To show students, manufacturing of railway sleepers.
- (b) To show students, casting of concrete.
- (c) To explain, pre-stressed concrete and its benefits.
- (d) To show students, how actually industry works.
- (e) To make students familiar with the industrial environment.
- (f) To show students, the similarity & difference between theoretical and practical concepts of

engineering.

  
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**6. Learning Outcomes:**

- (a) Students learned about manufacturing of railway sleepers.
- (b) Students also learned casting allowances.
- (c) Students learned about mechanical vibrator.
- (d) Students learned about properties of concrete, which is an essential part of their syllabus of Material Science and Basic Civil Engineering.
- (e) Students also learned about the safety measures which are must while working in an industry and daily routine also.

S No	Name	Roll No
1	Abhay kumar saini	BETN1ME19001
2	Amit singh Tomar	BETN1ME19003
3	Animesh Panigrahi	BETN1ME19004
4	Archana Routaray	BETN1ME19005
5	Ayush Singh Chauhan	BETN1ME19007
6	Chirag singh tomar	BETN1ME19008
7	Himanshu sharma	BETN1ME19009
8	Manish kumar prasad	BETN1ME19010
9	Manmeet Singh	BETN1ME19011
10	Mohit mathe	BETN1ME19012
11	Narendra yadav	BETN1ME19014
12	Rajkumar singh gurjar	BETN1ME19015
13	Ramesht dubey	BETN1ME19016
14	Rohit kumar vaishya	BETN1ME19017
15	Sunny ojha	BETN1ME19018
16	Vinayak tiwari	BETN1ME19019
17	Nakul Verma	BETN3ME20D01
18	Pankaj Singh	BETN3ME20D02



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S. No.	Roll No.	Name of Student
1	BETN1ME20001	Deepika bhadoria
2	BETN1ME20002	Kuldeep Yadav
3	BETN1ME20004	Shivam Singh Narwariya
4	BETN1ME20005	Suraj Kumar
5	BETN1ME20006	Berthe Fadel Yashin
6	BETN1ME20007	Yogesh Kashyap
7	BETN1ME20008	Aniket Dwivedi
8	BETN1ME20009	Harsh Vishwakarma
9	BETN1ME20010	Dube Absolute M J
10	BETN1ME20011	KRISHNA PRASAD CHAUDHARY

  
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**Industrial Visits to Rail Spring Karkhana, Sitholi on 25<sup>th</sup> May 2022:**



1. **General:** Industrial visit for students of 4<sup>th</sup> & 2<sup>nd</sup> semester Mechanical Engineering was organized on 25<sup>th</sup> May 2022. The students were taken to Rail Spring Karkhana- Sithouli.

2. **Participation:**

(a) Following faculty members and students visited the plant -Dr. Rajendra Singh Rajput, HOD-ME & Mr. Jai Kumar, Assistant Professor.

(b) Students of 2<sup>nd</sup> and 4<sup>th</sup> semester Mechanical Engineering, 16 in number. (25<sup>th</sup> May 2022)

3. Visit was arranged by Mr. Sanjeev Chava, Asst. Workshop Manager, Rail Spring Karkhana- Sithouli (Mob no.9752447004).

4. **Transport:** Bus for the visit was provided by University.

5. **Objective of the visit:**

(a) To make students familiar with the industrial environment.

(b) To show students, how actually industry works.

(c) To show students, manufacturing of rail springs.

(d) To show students, the similarity & difference between theoretical and practical concepts of engineering.

6. **Learning Outcomes:**

(a) Students learned about effect of alloying element on the rail steel.

(b) Students also learned about Forging process.


(c) Students visited the preheating furnace where they learned about the effect of various temperature ranges on the properties of rail steel.

(d) Students learned about coiling of steel wires into springs.

(e) Students learned about hardness testing, compression testing, shot peening and crack detection method.

(f) Students also learned about the safety measures which are must while working in an

industry and daily routine also.

  
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## 7. Feedback from students:

Students had a comprehensive knowledge of furnace, forging, heat treatment and cooling, rolling of steel and crack detection testing and other parameters of testing on state of the art CNC machines.

Date: 25<sup>th</sup> May 2022

S. No.	Roll No.	Name of Student
1	BETN1ME20001	Deepika bhadoria
2	BETN1ME20002	Kuldeep Yadav
3	BETN1ME20004	Shivam Singh Narwariya
4	BETN1ME20005	Suraj Kumar
5	BETN1ME20006	Berthe Fadel Yashin
6	BETN1ME20007	Yogesh Kashyap
7	BETN1ME20008	Aniket Dwivedi
8	BETN1ME20009	Harsh Vishwakarma
9	BETN1ME20010	Dube Absolute M J
10	BETN1ME20011	KRISHNA PRASAD CHAUDHARY
S. No	Roll No	Name
1	BETN1ME21001	Babu ali
2	BETN1ME21002	Bavandeep Singh
3	BETN1ME21003	Divyansh pamnani
4	BETN1ME21004	Sonu Rawat
5	BETN1ME21005	Vijay Kumar Sharma
6	BETN1ME21006	Krishna Gupta



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"CELEBRATING DREAMS"

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Head *m/lemdley*  
Department of Mechanical Engineering

*OS*  
Dr. Omveer Singh  
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