

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

Criteria 1

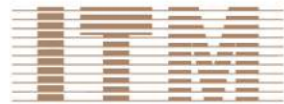
Sub Criteria 1.3.3

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

Academic Year

2022-2023


Dr. Omveer Singh
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"CELEBRATING DREAMS"

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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	17

Total Number of Industrial Trainings in UG

Industrial Trainings	Program	Total Number of students Involved in industrial trainings
	B.Tech-ME	09

Total Number of Field Project/Industry Visits in UG

Industry visits	Program	Total Number of students involved in Industrial visits
	B.Tech	60



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EXAMINATION SCHEME
Program Name: B. Tech. Batch 2022-26
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	2	1	2	4			
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	2	1	2	4			
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	2	1	0	3			
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														23		
Total Credits																

8	Swayam MOOC Course(Optional)	Solar Energy Conversion	2 Credits
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EXAMINATION SCHEME

Program Name: B. Tech. Batch 2022-26

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				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	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		
Total marks-1100															
Total Credits												24			

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EXAMINATION SCHEME

Program Name: B. Tech. Batch 2022-26

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				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	MEL0617	Machine Design-II	40	30	30	40	30	30	200	2	1	2	4	
2	MEL0619	Heat & Mass Transfer	40	30	30	40	30	30	200	2	1	2	4	
3	MEL0620	Power Plant Engineering	40	30	30	-	-	-	100	2	1	0	3	
4	MEL0626	Operations Research	40	30	30	-	-	-	100	2	1	0	3	
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	
Total marks=900												20		
Total Credits														

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EXAMINATION SCHEME

Program Name: B. Tech.

Batch 2022-26

Branch: Mechanical Engineering

SEMESTER VII

S. No.	Subject Code	Subject Name	Maximum Marks Allotted							Credits Allotted (Subject Wise)	Total Credits	Remarks		
			Theory Slot			Practical Slot								
			End Sem. Exam	Mid Sem. Exam (Two Tests' Average)	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva	Total Marks	L			T	P
1	MEL0722	Computer Aided Design	40	30	30	40	30	30	200	2	1	2	4	
2	MEL0723	Refrigeration and Air Conditioning	40	30	30	40	30	30	200	2	1	2	4	
3	MEL0727	Total Quality Management	40	30	30	-----	-----	-----	100	2	1	0	3	
4	Listed	Elective 1	40	30	30	-----	-----	-----	100	2	1	0	3	
5	Listed	Elective 2	40	30	30	-----	-----	-----	100	2	1	0	3	
6	MEC0701	Training Report	-----	-----	-----	40	30	30	100	0	0	4	2	
7	MED0702	Major Project	-----	-----	-----	40	30	30	100	0	0	4	2	
Total marks ---900									Total Credits			21		

ELECTIVE – 1:

- (1) MEE0717- Theory of Production process
- (2) MEE0709-Industrial Robotics
- (3) MEE0703- Product Design and Development
- (4) MEE0710-Alternative fuels and emission control

ELECTIVE – 2:

- (1) MEE0705- Non Conventional Energy Resources
- (2) MEE0706- Optimization Methods
- (3) MEE0707- Introduction to Computational Fluid Dynamics
- (4) MEE0711- Sensors, Actuators and Signal Conditioning

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EXAMINATION SCHEME
Program Name: B. Tech.
Branch: Mechanical Engineering
SEMESTER VIII

Batch 2022-26

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	2	1	0	3		
4	Listed	Elective 4	40	30	30	----	-----	-----	100	2	1	0	3		
5	MED0803	Major Project	----	-----	-----	120	90	90	300	0	0	16	8		
Total marks ---900									Total Credits			22			

ELECTIVE-4:

- (1)MEE 809- Vibration and Noise- Measurement and Control
- (2)MEE 0817- Simulation and Modeling
- (3)MEE 0818- Project Management
- (4) MEE 0814- Non Destructive Testing

ELECTIVE-5:

- (1)MEE0813- Computer Integrated Manufacturing
- (2)MEE0819-Production and Operation Management
- (3)MEE0820- Machine Learning for Robotics
- (4) MEE 0816- Finite Element Method

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Syllabus


Title of the Course	Evaluation of Industrial Training-1
Course Code	MED0301[P]

Part A

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

Part E

Books	
Articles	
References Books	
MOOC Courses	
Videos	

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


Title of the Course	Evaluation of Industrial Training-2
Course Code	MED0502[P]

Part A

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

Books	
Articles	
References Books	
MOOC Courses	
Videos	

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

Title of the Course	Minor Project
Course Code	MED0603[P]

Part A

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

Books	
Articles	
References Books	
MOOC Courses	
Videos	

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

Title of the Course	Training Report
Course Code	MEC0701[P]

Part A

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

Books	
Articles	
References Books	
MOOC Courses	
Videos	

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

Title of the Course	Major Project
Course Code	MED0702[P]

Part A

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

Books	
Articles	
References Books	
MOOC Courses	
Videos	

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

Title of the Course	Major Project
Course Code	MED0803[P]

Part A

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

Books	
Articles	
References Books	
MOOC Courses	
Videos	

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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Major Project Session 2022-23

Name of the School: SOET

Name of the Course and Branch: B.Tech Mechanical engineering

Session: 2022-23

Total No. of Students enrolled: 17

S.No	Specialization	Name of the Student	Roll No.	Title of the project	Duration	Guide's Name
1	B.Tech.	Chirag Singh Tomar	BETN1ME19008	Static and dynamic Analysis of Telescopic Suspension using Ansys	6 months	Mr. Jai Kumar Sharma
		Amit Singh Tomar	BETN1ME19003			
		Abhay Kumar	BETN1ME19001			
2	B.Tech.	Animesh Panigrahi	BETN1ME19004	Motorized Smart Turning Mechanism	6 months	Mr. Jai Kumar Sharma
		Mohit Mathe	BETN1ME19012			
		Himanshu Sharma	BETN1ME19009			
		Nakul Verma	BETN3ME20D01			
3	B.Tech.	Manish Kumar Prasad	BETN1ME19010	Mini Refrigeration	6 months	Mr. Sateesh Kumar Mr. Nishant Kumar
		Manmeet Singh	BETN1ME19011			
		Archana Routaray	BETN1ME19005			
		Pankaj Singh	BETN3ME20D02			
4	B.Tech.	Vinayak Tiwari	BETN1ME19019	A Design of Mini Lathe Machine	6 months	Mr. Jai Kumar Sharma
		Rajkumar Gurjar	BETN1ME19015			
		Ramesht Dubey	BETN1ME19016			
5	B.Tech.	Ayush Singh Chauhan	BETN1ME19007	Design And Analysis of composite Spur Gear	6 months	Mr. Jai Kumar Sharma
		Sunny Ojha	BETN1ME19018			
		Rohit Kumar vaishya	BETN1ME19017			


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HOD-M.E.

School of Engineering and Technology



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"CELEBRATING DREAMS"

A PROJECT REPORT ON

Motorized Smart Turning Mechanism

Submitted in partial fulfillment of the requirements

For the award of the degree

BACHELOR OF ENGINEERING

IN

MECHANICAL ENGINEERING



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

SUBMITTED BY

MOHIT MATHE (BETN1ME19012)

Under the guidance of

Mr. JAI KUMAR

DEPARTMENT OF MECHANICAL ENGINEERING

SCHOOL OF ENGINEERING & TECHNOLOGY

ITM UNIVERSITY GWALIOR, (M.P), INDIA

2019-2023


Dean
School of Engg. & Techn.
ITM University
Gwalior


Dr. Omveer Singh
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ITM University
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"CELEBRATING DREAMS"

**MINI REFRIGERATORS
MAJOR PROJECT**

A Report Submitted

In Partial Fulfillment of the Requirements

For the Degree of

Bachelor of Technology

By

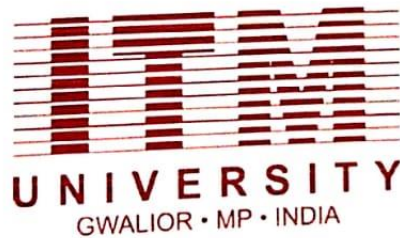
Pankaj Singh

Roll No.: **BETN3ME20D02**

Under the Supervision of

Mr Sateesh Kumar

Mr Nishant Kumar



Department of Mechanical Engineering

ITMUniversity

Gwalior – 474 001

Kaundey
**Dean
School of Engg. & Techn
ITM University
Gwalior**

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

Total Number of Industrial Trainings in UG

Industrial Trainings	Program	Total Number of students Involved in research projects
	B.Tech-ME	09



NORTH CENTRAL RAILWAY

RAIL SPRING KARKHANA, SITHOULI, GWALIOR

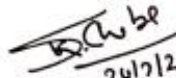
CERTIFICATE

It is certified that Miss. Deepika Bhadoriya S/O Shri Dhruv Singh Bhadoriya, Student Of B.Tech Mechanical Engineering (VII semester), of ITM University Gwalior, was given an Industrial Practical Training of "Spring Manufacturing Technology" from 21.05.2023 to 20.07.2023.

She has completed the training with Sincerity and Dedication.

Sr.No. 18/2023

Date: 24.07.23


24/7/23
(S.K. Chaba)

Assistant Workshop Manager
Rail Spring Karkhana
Sithouli, Gwalior
Asst. Workshop Manager
Rail Spring Karkhana
Sithouli, Gwalior


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"CELEBRATING DREAMS"



Date 25th July 2023

TO WHOM IT MAY CONCERN

This is to certify that Mr. Krishna Prasad Chaudhary has done his internship in Workshop at Land Rovers Overland Pvt. Ltd., ekantakuna - Lalitpur, Nepal From 10th June 2023 to July 20th 2023.

During the internship he was a good learner and has meet our expectation, he has work on different types of cars from land rovers to city cars. He has gained knowledge on basic maintenance of the vehicles.

We wish him all the best and success for his future endeavours.



(Chairman)
Er. Jeevan Khatri
Land Rovers Overland Pvt. Ltd.
Ekantakuna-13, Lalitpur Nepal

Address: Ekantakuna-Ring Road Chowk, Lalitpur | Lat: N29°39'59" | Long: E85°18'31" | Alt:
1306m

VAT: 603565825 | REG: 142547/072/073 | TEL: +977 01 55 48 621
www.landroversoverland.com | info@landroversoverland.com

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Industrial Visits	
Industry	Date
Industrial Visit- Rail Spring Karkhana Sithouli	5 April 2023
Industrial Visit- Rail Spring Karkhana Sithouli	6 April 2023
Industrial Visit- KVK, Gwalior	7 April 2023
Industrial Visit- Engipress Rail SleeperFactory Morena	14 May 2022

Industrial Visits to Rail Spring Karkhana- Sithouli on 5th April 2023:

1. **General:** Industrial visits for students of 2nd semester Mechanical Engineering were organized on 5th April 2023. The students were taken to Rail Spring Karkhana-Sithouli.



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

(a) Mr. Arun Singh Kushwah and Mr. Sateesh Kumar, Assistant Professor, Department of Mechanical Engineering.

(b) Students of 2nd semester Mechanical 09 in numbers.

3. Visit was arranged by Mr. Sanjeev Chaba, Assistant Workshop Manager, Rail Spring Karkhana-Sithouli (Mob no.09752447004).


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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.

7. Feedback from students:

The students gained practical experience of the industry and understood the manufacturing process practically to create a spring. There, students saw, understood and analyzed all the measures like furnace, rolling, shot pinning, industrial crane, industrial robot etc.

S. No.	Name	Roll No.
1	Sujal Gupta	BETN1ME22001
2	AlpeshTomar	BETN1ME22002
3	Joel Singh Bhadoriya	BETN1ME22003
4	AniketKaurav	BETN1ME22004
5	JugalRawat	BETN1ME22005
6	Sanjay Singh	BETN1ME22006
7	DhruvVerma	BETN1ME22007
8	Nishant Sharma	BETN1ME22008
9	Yashvardhan Singh Sikarwar	BETN1ME22009
Faculty coordinator		
1	Mr. Arun Singh Kushwah	
2	Mr. Sateesh Kumar	


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Industrial Visits to Krishi Vigyan Kendra (KVK), Gwalior on 6th April 2023:



1. **General:** Industrial visits for students of 4th semester Mechanical & Agriculture Engineering, 2nd semester Mechanical, Agriculture & Civil Engineering were organized on 06 April 2023. The students were taken to KVK, Thatipur, Gwalior
2. **Participation:** Following faculty members and students visited the plant-
 - a) Dr. R. S. Rajput Associate Professor, Dr. Shashikant Pandey & Mr. Arun Singh Kushwah, Assistant Professor.
 - b) Students of 4th semester Mechanical Engineering, 03 in number
 - c) Students of 2nd semester Mechanical Engineering, 05 in number
3. Visit was arranged by Dr. Raj Singh Kushwah, Krishi Vigyan Kendra, Distt. Gwalior, Contact No.: +91-9575336761.
4. **Transport:** Bus for the visit was provided by University.


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5. Objective of the visit:

- a) To make students familiar with the modern trend in agriculture engineering.
- b) To show student, how natural farming is done.
- c) To show students, various aspects, machinery, used in agriculture applications.
- d) To show students, the similarity & difference between theoretical and practical concepts.

6. Learning Outcomes:

- a) Students learned about natural farming and their advantages.
- b) Students also learned about Vermi compost making process.
- c) Students visited the modern poultry form, garden, nursery, goat farm etc. in the KVK, Thatipur.
- d) Students learned about how to do organic farming.
- e) Students learned about various machinery used in agriculture, purpose.
- f) Students also learned about the various types of irrigation techniques.

7. Feedback from students:

Students gave positive feedback to words practical exposure of modern agriculture practices and natural framing.

List of present students during Industrial visit-

Name of student	Roll No.
AniketKaurav	BETN1ME22004
Sanjay Singh	BETN1ME22006

Alpesh Tomer	BETN1ME22002
Sujal Gupta	BETN1ME22001
Nishant Sharma	BETN1ME22008
Babu Ali	BETN1ME21001
Bavandeep Singh	BETN1ME21002
Vijay Kumar Sharma	BETN1ME21005



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Industrial Visits to Rail Spring Karkhana- Sithouli on 7th April 2023:

1. **General:** Industrial visits for students of 8th semester Mechanical was organized on 7th April 2023. The students were taken to Rail Spring Karkhana-Sithouli.



2. **Participation:** Following faculty members and students visited the plant
 - a. Mr. Arun Singh Kushwah and Dr. Shashikant Pandey, Assistant Professor, Department of Mechanical Engineering.
 - b. Students of 8th semester Mechanical 15 in numbers.
3. Visit was arranged by Mr. Sanjeev Chaba, Assistant Workshop Manager, Rail Spring Karkhana-Sithouli (Mob no.09752447004).
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.


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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.

7. Feedback from students:

The students gained practical experience of the industry and understood the manufacturing process practically to create a spring. There, students saw, understood and analyzed all the measures like furnace, rolling, shot pinning, industrial crane, industrial robot etc.

List of students-

ITM University, Gwalior		
Student list for Industrial visit(day 1)		
S.No.	Name	Roll No.
1	Sujal Gupta	BETN1ME22001
2	Alpesh Tomar	BETN1ME22002
3	Joel Singh Bhadoriya	BETN1ME22003
4	Aniket Kaurav	BETN1ME22004
5	Jugal Rawat	BETN1ME22005
6	Sanjay Singh	BETN1ME22006
7	Dhruv Verma	BETN1ME22007
8	Nishant Sharma	BETN1ME22008
9	Yashvardhan Singh Sikarwar	BETN1ME22009
Faculty coordinator		
1	Mr. Arun Singh Kushwah	Assistant Professor
2	Mr. Sateesh Kumar	Assistant Professor


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ITM University, Gwalior		
Student list for Industrial visit(day 2)		
S.No.	Name	Roll No.
1	Manmeet Singh	BETN1ME19011
2	Rohit Kumar Vaishya	BETN1ME19017
3	Kuldeep Yadav	BETN1ME20002
4	Suraj Kumar	BETN1ME20005
5	Aniket Dwivedi	BETN1ME20008
6	Harsh Vishwakarma	BETN1ME20009
Faculty coordinator		
1	Mr. Arun Singh Kushwah	Assistant Professor
2	Dr. Shashikant Pandey	Assistant Professor



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Industrial Visits to Engipress Rail Sleeper Factory- Morena on 14th May 2022:



1. **General:** Industrial visit for students of 4 and 6 semesters Mechanical Engineering was organized 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, prestressed 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.
6. **Learning Outcomes:**
 - (a) Students learned about manufacturing of railway sleepers.
 - (b) Students also learned casting allowances. Students learned about mechanical vibrator.


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- (c) Students learned about properties of concrete, which is an essential part of their syllabus of Material Science and Basic Civil Engineering.
- (d) Students also learned about the safety measures which are must while working in an industry and daily routine also.

List of students-

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

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

Head 
 Department of Mechanical Engineering


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