

**DEPARTMENT OF MECHANICAL ENGINEERING**  
**NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**

**COURSE PLAN – PART I**

<b>Name of the programme and specialization</b>	B.Tech / Civil Engineering		
<b>Course Title</b>	BASICS OF MECHANICAL ENGINEERING		
<b>Course Code</b>	MEIR11	<b>No. of Credits</b>	2
<b>Course Code of Pre-requisite subject(s)</b>	NIL		
<b>Session</b>	July 2022	<b>Section</b>	A
<b>Name of Faculty</b>	Mr. Nagarjuna Kumma	<b>Department</b>	Mechanical Engineering
<b>Email</b>	411119007@nitt.edu	<b>Telephone No.</b>	
<b>Name of Course Mentor (if, applicable)</b>	Dr. K S S Harish		
<b>E-mail</b>	harish@nitt.edu	<b>Telephone No.</b>	
<b>Course Type</b>	<input type="checkbox"/> Core course	<input type="checkbox"/> Elective course	<input checked="" type="checkbox"/> GIR course

**Syllabus (approved in BoS)**

Introduction to Mechanical Engineering, Thermal Engineering, Design, manufacturing Engineering

IC Engines–2 Stroke and 4 stroke systems in IC Engines. Automobiles -Transmission systems, Suspension system, E-Vehicles

Energy Systems - Power plants, Types, Gas Turbines, Steam Turbines, Utility boilers, R & A/C system-Green Energy production and Devices

Engineering materials, Machine elements, Transmission, Fasteners, Support systems.

Manufacturing, Classification, Metal forming, Casting, Lathe, Drilling machines, Milling machines, Metal joining.

**REFERENCE BOOKS:**

1. P.K.Nag, Karthikeya Tripathi, C.S.Pawar , Basic Mechanical Engineering, Tata McGraw Hill Publishing Company, 2009.
2. "Basic Mechanical engineering" by G Shanmugam et. al. McGraw Hill Education 2011
3. Lecture notes prepared by Department of Mechanical Engineering, NITT.
4. K. Venugopal, 'Basic Mechanical Engineering'.

<b>COURSE OBJECTIVES</b>	
<ul style="list-style-type: none"> <li>➤ To introduce and define the basics concept of mechanical engineering.</li> <li>➤ To familiarize the working principles of IC engines and automobile systems.</li> <li>➤ To enable the students to understand the details about the energy systems and its components.</li> <li>➤ To demonstrate the various machine elements, materials and its function.</li> <li>➤ To help the students acquire knowledge about the various manufacturing process.</li> </ul>	
<b>COURSE OUTCOMES (CO)</b>	
<b>Course Outcomes</b>	<b>Aligned Programme Outcomes (PO)</b>
At the end of the course student will be able to	
1. To identify the basic concept and fundamentals of mechanical engineering.	i, l
2. To understand the working principle of IC engines and Energy systems.	i, l
3. To appreciate the process and materials involved in the manufacture of various machine element components.	i, l

### **COURSE PLAN – PART II**

<b>COURSE OVERVIEW</b>			
<p>Basic Mechanical Engineering covers the creation, design, and analysis of many types of systems, technologies, and materials. This course will introduce students to the fundamentals of Mechanical Engineering, It is evident from the diverse needs of mankind shows the importance of interdisciplinary knowledge, furthermore with that knowledge engineers develop new technologies.</p>			
<b>COURSE TEACHING AND LEARNING ACTIVITIES</b>			
<b>S.No.</b>	<b>Week/Contact Hours</b>	<b>Topic</b>	<b>Mode of Delivery</b>
1.	1 <sup>st</sup> Week	Introduction to Mechanical Engineering, Thermal Engineering, Design, Manufacturing Engineering	PPT Presentations / Chalk & Talk
2.	2 <sup>rd</sup> Week	IC Engines – 2 Stroke and 4 stroke systems in IC Engines.	PPT Presentations / Chalk & Talk
3.	3 <sup>th</sup> Week	Automobiles -Transmission systems, Suspension system, E-Vehicles.	PPT Presentations / Chalk & Talk

4.	4 <sup>th</sup> – 6 <sup>th</sup> Week	Energy Systems - Power plants, Types, Gas Turbines, Steam Turbines, Utility boiler.	PPT Presentations / Chalk & Talk
5.	7 <sup>th</sup> Week	Green Energy production and Devices.	PPT Presentations / Chalk & Talk
6.	8 <sup>th</sup> Week	Engineering materials, Machine elements.	PPT Presentations / Chalk & Talk
7.	9 <sup>th</sup> Week	Transmission, Fasteners, Support systems.	PPT Presentations / Chalk & Talk
8.	10 <sup>th</sup> Week	Manufacturing, Classification, Casting, Metal joining.	PPT Presentations / Chalk & Talk
9.	11 <sup>th</sup> Week	Metal forming, Lathe.	PPT Presentations / Chalk & Talk
10.	12 <sup>th</sup> Week	Drilling machines, Milling machines.	PPT Presentations / Chalk & Talk

#### **COURSE ASSESSMENT METHODS**

<b>S.No.</b>	<b>Mode of Assessment</b>	<b>Week/ Date</b>	<b>Duration</b>	<b>% Weightage</b>
1.	Assignment-1	-	-	10%
2.	Cycle Test-1	6 <sup>th</sup> Week	60 minutes	20%
3.	Assignment-2	-	-	10%
4.	Cycle Test-2	10 <sup>th</sup> Week	60 minutes	20%
CPA	Compensation Assessment	11 <sup>th</sup> Week	60 minutes	20%
5.	End-SEM	As per institute policy		40%

## **COURSE EXIT SURVEY**

- Feedback from the students during class committee meeting.
- At the end of every cycle test, feedback will be obtained for the lecture improvement.
- End semester feedback on Course Outcomes.

## **COURSE POLICY**

### **MODE OF CORRESPONDENCE (email/ phone etc)**

- All the communication (schedule of assessment/ course material/any other information regarding this course) will be intimated through the class representative.
- The Faculty is available for consultation after contact hours with prior intimation through Phone: 9177883432 / email: 411120012@nitt.edu

### **COMPENSATION ASSESSMENT POLICY**

- Attending all the assessments (1, 2, 3, 4, 5) are mandatory for every student. Flexibility is given to the students to fix the date for each mode of evaluation convenient to majority of the students.
- If any student fails to attend the cycle test 1 and 2 due to genuine reason like medical emergency, the student may be permitted to appear for the compensation assessment (CPA) on submission of appropriate documents as proof. (Not valid for students having attendance lag).
- Students not having 75 % minimum attendance at the end of the semester and also didn't attend cycle test 1 and 2 will be awarded 'V' Grade and have to REDO the course.
- In any case, compensation assessment (CPA) is not considered as an improvement test.
- The minimum marks for passing this course and grading pattern will adhere to the regulations of the institute.





### **ATTENDANCE POLICY** (A uniform attendance policy as specified below shall be followed)

- All the students are expected to attend all the contact hours. Students should maintain 75% minimum physical attendance by the end of the course to attend the end semester examination.
- Absence due to medical reason and institutional activities will be considered when the student falls below 75% of physical attendance and it should be supported by a letter (in professional letterhead) from the concerned authorities. Any preparatory works in view of institution activities should not be taken up in class contact hours.
- Students not having 75% minimum attendance at the end of the semester will be awarded 'V' Grade and have to REDO the course.

## ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

### FOR APPROVAL

			
Mr. Nagarjuna Kumma (RS/ME)	Dr. K S S Harish (AP/ME)	Dr. R Senthil Kumar	Dr. S. T. Ramesh
Course Faculty	Course Mentor	CC - Chairperson	HOD (CE)

### Guidelines:

- The number of assessments for a course shall range from 4 to 6.
- Every course shall have a final assessment on the entire syllabus with at least 30% weightage.
- One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered. Details of compensation assessment to be specified by faculty.
- The passing minimum shall be as per the regulations.
- Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- Necessary care shall be taken to ensure that the course plan is reasonable and is objective.

1. The first part of the document discusses the importance of maintaining accurate records.

2. It is essential to ensure that all data is entered correctly and consistently.

3. Regular audits should be conducted to verify the accuracy of the information.

Date	Description	Amount	Balance
2023-01-01	Opening Balance	1000.00	1000.00
2023-01-15	Payment received	250.00	1250.00
2023-02-01	Expense incurred	150.00	1100.00
2023-02-15	Payment received	300.00	1400.00
2023-03-01	Expense incurred	200.00	1200.00
2023-03-15	Payment received	150.00	1350.00
2023-03-31	Closing Balance		1350.00