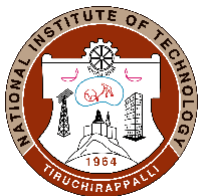




NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tch (MME)		
Course Title	Automotive Materials		
Course Code	MTPE 15	No. of Credits	3
Course Code of Pre-requisite subject(s)	NIL		
Session	January 2022	Section (if, applicable)	NA
Name of Faculty	Dr. S. Muthukumar	Department	MME
Official Email	smuthu@nitt.edu	Telephone No.	(0413)2503468
Name of Course Coordinator(s) (if, applicable)	NA		
Official E-mail		Telephone No.	
Course Type	Elective course		
Syllabus (approved in BoS)			
<p>Reciprocating engines, Otto cycle, Diesel cycle, four stroke and two stroke engines, working principle and constructional details of two stroke and four stroke engine, engine components, automobile construction, recent trends in automobile technology.</p> <p>Engine cylinder: Structure and functions, types, cylinder blocks materials and manufacturing processes, improving engine components with surface modifications, Piston: Structures and functions, types, piston materials, piston manufacturing processes</p> <p>Structure, function and materials for piston rings, camshaft, valves and valve seats, valve springs, connecting rod, crankshafts, turbocharger and exhaust manifold; tailor welds.</p> <p>Types of chassis layout and chassis materials, vehicle frames, materials used for car body, front axle and steering system, drive line, propeller shaft, universal joints, wheels and suspension system.</p> <p>Types of tires, applications of polymers in automobiles, environmental impact of emissions from IC engines and its control.</p>			
COURSE OBJECTIVES			



To understand the working principles of automobiles, different systems in automobiles and materials used in automobile components fabrication

MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
To understand air standard cycles and to estimate efficiencies of air standard cycles	1
To understand the functions of engine block and materials for engine block	3
To study various components used in automobile and selection of materials	2,4
To understand the automobile emissions and methods of controlling them	3, 4, 8

COURSE PLAN – PART II

COURSE OVERVIEW

The course covers basic functions of automobile systems and selection of materials for auto components.

COURSE TEACHING AND LEARNING ACTIVITIES

(Add more rows)

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	I-III	Automobile Introduction and Automobile Systems	MS Teams
2	IV-V	Engine and Engine components	
3	Vi-VII	Material Selection for Engine components	
4	VIII-IX	Chassis, frame, body and wheel	
5	X-XII	Tires, Polymer applications and Emission control	

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
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1	Assignment I	III		15
2	Midterm Test	VI		25
3	Assignment II	VII		15
4	Seminar Presentation/ Viva	VIII-IX		15
CPA	Compensation Assessment for Midterm Test	X		25
5	End Semester Exam (Final Assessment)	XIII		30

***mandatory; refer to guidelines on page 4**

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

The exit survey will be assessed based on the questionnaire prepared by the class teacher and expected attainment is 75% on 1-10 scale basis

COURSE POLICY (including compensation assessment to be specified)

Compensation Assessment for Midterm Test alone will be conducted only for the genuine reasons.

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

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

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



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Academic office.

- The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

NIL

FOR APPROVAL

Course Faculty S. Murthy CC- Chairperson [Signature] HOD B. [Signature]



Guidelines

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.