DEPARTMENT OF MECHANICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Course Title	AUTOMOBILE ENGINEERING LABORATORY		
Course Code	MELR16	**No. of Credits**	1
Course Code of Co-requisite subject(s)	MEPC25 AUTOMOBILE ENGINEERING		
Session	January 2018	**Section (if, applicable)**	A
Name of Faculty	Prof. S.S. Arulappan	**Department**	Mechanical Engineering
Email	sarul@nitt.edu	**Telephone No.**	+918220931901
Name of Course Coordinator(s) (if, applicable)			
E-mail		**Telephone No.**	
Course Type	☐ **Core course** ☐ **Elective course** ☐ Y **Lab Requirement**		

Syllabus (Approved in BoS)

1. Study on garage tools and equipments.
2. Automobile washing & greasing of vehicle.
3. Engine oil change, Coolant refilling & and other periodic maintenance of vehicle.
4. Study on battery, starting motors, alternator & electronic ignition system.
5. Study of ECU diagnostic system for fault finding
6. Dismantle any two or four stroke engine and assemble it to bring back in working condition.
7. Dismantling & assembly of Clutch (light / heavy duty vehicle).
8. Dismantling & assembly of Constant mesh gearbox and synchromesh gearbox.
9. Dismantling & assembly of Drive line (Universal joint, Propeller shaft, slip joint).
10. Dismantling & assembly Final drive & differential.
11. Dismantling & assembly of automatic transmission.
12. Dismantling & assembly of fluid flywheel & torque converter.
13. Wheel balancing and alignment.
14. Study on mechanical and power window mechanism.
15. Visit to any authorized service station for On Board Diagnosis.

COURSE OBJECTIVES

1. To understand various components of automobile engines.
2. To impart knowledge in the assembling and dismantling of any vehicles and its sub-systems.
3. To Develop students with skills needed for troubleshooting the practical automobile problems

COURSE OUTCOMES (CO)	
Course Outcomes	**Aligned Programme Outcomes (PO)**
Identify different automotive systems and subsystems	1, 2, 3, 7, 8
Ability to dismantle and assemble engine, transmission, steering, suspension, braking, electrical and electronics systems.	3, 5, 7, 10
Illustrate working and functions of various automotive components	8, 9, 11, 12

COURSE PLAN – PART II

COURSE OVERVIEW

The course provides knowledge to the students by dismantling and assembling of automobile components such as engine, clutch, gear box, propeller shaft, differential unit, brake and stearing gear box. In addition, the students learn on verification of gear ratios, tyre inspection and rotation, measurements of exhaust gas emissions / noise level of a vehicle to compare with the global standards and norms.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	1st Week	Introduction to Tools and Equipment	Demonstration
2	2nd Week	Dismantling, Inspection and Assembling of Engine assembly	Demonstration
3	3rd Week	Dismantling, Inspection and Assembling of clutch assembly	Demonstration
4	4th Week	Dismantling, Inspection and Assembling of gear box	Demonstration
5	5th Week	Dismantling, Inspection and Assembling of propeller shaft	Demonstration
6	6th Week	Dismantling, Inspection and Assembling of differential unit	Demonstration
7	7th Week	Dismantling, Inspection and Assembling of brake assembly	Demonstration

8	8th Week	Dismantling, Inspection and Assembling of steering gear box	Demonstration
9	9th Week	Verification of tire specification and tire rotation of a vehicle	Demonstration
10	10th Week	Measurement and verification of exhaust emission and noise level of a vehicle	Demonstration
11	11th Week	Measurement and verification of steering geometry	Demonstration
12	12th Week	Compensatory Lab Class for Absentees	

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Experimentation	Every week	2 hours 30 minutes	40
2	Viva Voce	Every week		20
3	Record Note	Every week		10
4	End semester examination	April second week	1 hour	30
			Total	100

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

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

1. Feedback from the students during class and class committee meeting
2. Final assessment feedback on course outcomes

COURSE POLICY
(Preferred mode of correspondence with students, policy on attendance, compensation assessment, academic honesty and plagiarism etc.)

MODE OF CORRESPONDENCE (Email / Phone etc.)

All the correspondence such as schedule of class/ schedule of assessment/ course material/ any other information regarding this course will be done through their class representative.

ATTENDANCE

1. Attendance will be taken by the faculty in all the laboratory hours.
2. Students maintaining 75% attendance are only eligible for attending the end semester examination.

ACADEMIC HONESTY & PLAGIARISM

1. All the students are expected to be genuine during the laboratory work. Copying in examination / assessment is considered as dishonest.
2. Preventing or hampering other students from pursuing their academic activities is also considered as academic dishonesty.

ADDITIONAL INFORMATION

FOR APPROVAL

Prof. S.S. ARULAPPAN **Course Faculty**	Dr. R. B. ANAND **CC-Chairperson**	Dr. S.P. SIVAPIRAKASAM **HOD**

Guidelines:

a) The number of assessments for a course shall range from 4 to 6.

b) Every 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. This is not applicable for project work/industrial lectures/internship.

d) The policy for attendance for the course should be clearly specified.

e) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.