

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN			
Course Title	MECHANICS OF SOLIDS		
Course Code	CEPC16	No. of Credits	03
Department	Civil - B	Faculty	M.SABARINATH
Pre-requisites Course Code	CEPC11		
Other Course Teacher(s)/Tutor(s) E-mail	sabari@nitt.edu	Telephone No.	9566559080
Course Type	Core course		
COURSE OVERVIEW			
<p>Students get exposure to the introduction on analysis part of structural members for determinate structures and from the pre-requisite course, to know the co-relation between subjects. Students will understand the evolution of theorems to determine slope and deflection determinate structural members and to calculate slope and deflection of members by using different types of theorems. Students get exposure on analysis of indeterminate structures and will do the calculations for determining the shear force and bending moment and will plot the shear force diagram and bending moment diagram. Students will know about application of lame's theorem in analysis of thick cylinders while in shrink fit and compound cylinders. Students will know about deflection of trusses by dummy unit load, strain energy and Mohr's theorem. Student get exposure on analysis of column by Euler's and Rankine's theory.</p>			
COURSE OBJECTIVES			
<ol style="list-style-type: none"> 1. To understand the concept of Principle of virtual work 2. To study the different methods of finding deflection of beam 3. To analyze the Indeterminate beams subjected to various loading 4. To study the different methods to find the deflection of truss 5. To analyze the column with different end conditions and stress in thick cylinders 			

COURSE OUTCOMES (CO)	
Course Outcomes	Aligned Programme Outcomes (PO)
1 Students get exposure to the introduction on analysis part of structural members for determinate structures and from the pre-requisite course, to know the co-relation between subjects.	1) The students can understand the importance of mechanics of solids, while studying must know the necessity.
2. Students will understand the evolution of theorems to determine slope and deflection determinate structural members and to calculate slope and deflection of members by using different types of theorems.	2) The students will be able to understand evolution of theorems and application of theorems in problems to understand practical situation.
3. Students get exposure on analysis of indeterminate structures and will do the calculations for determining the shear force and bending moment and will plot the shear force diagram and bending moment diagram.	3) This course introduces students to the analysis of indeterminate structures and they learn to plot SFD and BMD for different support conditions
4. Students will know about application of lame's theorem in analysis of thick cylinders while in shrink fit and compound cylinders.	4) The Students can explore the application of lame's theorem in pressure distribution on cylinders
5. Students will know about deflection of trusses by dummy unit load, strain energy and Mohr's theorem. Student get exposure on analysis of column by Euler's and Rankine's theory.	5) The Students can understand impact of load vs support condition on columns and deflection of trusses.

COURSE TEACHING AND LEARNING ACTIVITIES

S.no	Week	Topic	Mode of delivery
1.	1	Introduction on analysis part of structural members for determinate structures and from the pre-requisite course, to know the co-relation between subjects.	Lecture C&T/ PPT or any suitable mode
2.	2-6	Evolution of theorems to determine slope and deflection determinate structural members and to calculate slope and deflection of members by using different types of theorems.	
3.	7-11	Analysis of indeterminate structures and will do the calculations for determining the shear force and bending moment and will plot the	

		shear force diagram and bending moment diagram.	
4.	12-14	Application of lame's theorem in analysis of thick cylinders while in shrink fit and compound cylinders.	
5.	15-16	Deflection of trusses by dummy unit load, strain energy and Mohr's theorem.	
6.	17	Analysis of column by Euler's and Rankine's theory.	

COURSE ASSESSMENT METHODS

S.no	Mode of Assessment	Week/ Date	Duration	% Weightage
1.	Assessment – 1 (Descriptive Type)	6 th Week	60 Minutes	20%
2.	Assessment – 2 (Conceptual and Logical Test)	11 th Week	60 Minutes	20%
3.	Assignment (1& 2)	Before Assessment 2	----	10 %
4.	Compensation Assessment (CPA)	Before End Semester	60 Minutes	Corresponding Weightage
5.	Assessment – 4 (Descriptive)	End Semester	90 Minutes	50%

ESSENTIAL READINGS: Textbooks, reference books Website addresses, journals, etc

Text Books:

1. Vazirani V. N and Ratwani. N. M, Strength of materials, Vol II, Khanna Publishers, 1996.
2. Timoshenko, S. P and Gere J.M Mechanics of Materials, Tata McGraw Hill, 1992.
3. Rajput R. K, Strength of Materials, S. Chand & Co. Ltd., 1996.

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

- Feedback from the students during class committee meetings.
- Anonymous feedback through questionnaire and unknown formats.

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

CORRESPONDENCE

All the students are advised to come to the class regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/any other information regarding this course) will be intimated in the Class only.

ATTENDANCE

1. Attendance will be taken by the faculty in all the contact hours. Every student should maintain minimum of 75 % physical attendance in these contact hours along with assessment criteria to attend the end semester examination.
2. Any student, who fails to maintain 75% attendance need to appear for the compensation assessment (CPA). Student who scores more than 60 % marks in the CPA along with assessment criteria will be eligible for attending the end semester examination.
3. Those students who have attendance lag and also missed any of the continuous assessments (CAs) can appear for CPA to get eligibility for writing the end semester examination as quoted in Pt. 2. Their scores in the CPA WILL NOT be taken into account for computing marks for CA.
4. Students not having 75% minimum attendance at the end of the semester and also fail in CPA (scoring less than 60%) will have to RE DO the course.

ASSESSMENT

5. Attending all the assessments are MANDATORY for every student.
6. If any student is not able to attend any of the Assessments due to genuine reason, student is permitted to attend the Repeat assessment (RA) with Corresponding weightage.
7. Student who fails to score 60% in RA will take up additional assignments to get eligibility for writing End Semester examination.

Finally, every student is expected to score minimum 1/3rd of the top rank holder of the class (Including all the assessments) to pass the course. Otherwise the student would be declared fail and 'F' grade will be awarded. Further he can take up only FORMATIVE ASSESSMENT.

8. Please refer B.Tech Regulations 2015(B.12.1) for the letter grades and the corresponding grades

ACADEMIC HONESTY & PLAGIARISM

1. All the students are expected to be genuine during the course work. Taking of information by means of copying simulations, assignments, looking or attempting to look at another student's paper or bringing and using study material in any form for copying during any assessments is considered as dishonest.
2. Tendering of information such as giving one's program, assignments to another student to use or copy is also considered as dishonest.
3. Preventing or hampering other students from pursuing their academic activities is Also considered as academic dishonesty.
4. Any evidence of such academic dishonesty will result in the loss of marks on that assessment. Additionally, the names of those students so penalized will be reported to the class committee chairperson and HoD of the concerned department.

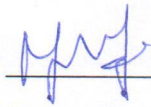
5. Students who honestly producing ORIGINAL and OUTSTANDING WORK will be REWARDED.

ADDITIONAL COURSE INFORMATION

1. The faculty is available for consultation at times as per the intimation given by the faculty.
2. Queries (if required) to the course teacher shall only be emailed to the email id specified by the teacher(sabari@nitt.edu)

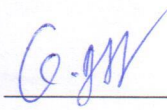
FOR SENATE'S CONSIDERATION

Course Faculty



(M. SABARINATH)

CC-Chairperson



HOD


1/3/2017