

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

This course outline template acts as a guide for writing your course outline. As every course is different, please feel free to amend the template/ format to suit your requirements.

COURSE OUTLINE TEMPLATE			
Course Title	STRENGTH OF MATERIALS		
Course Code	MTPC11	No. of Credits	03
Department	MME	Faculty	Mrs. Y.G. BALA
Pre - requisites Course Code	MTPC10		
Course Coordinator(s) (if, applicable)			
Other Course Teacher(s)/Tutor(s) E-mail	ygbalasingam@yahoo.com	Telephone No.	9677548505
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
COURSE OVERVIEW			
<p>This course will introduce to determine stresses, strains on various structural objects, displacement in various structures and their components under the specific external loads such as axial loads, bending and shear load as well as torsion. Introduce about bending theory and applications, moment of inertia for different shapes and torsion in shafts, keys, couplings and springs.</p>			
COURSE OBJECTIVES			
<p>To learn the basic principles and to determine the stresses, strains on various structural objects, displacement in various structures and their components under the specific external loads such as axial loads, bending and shear load as well as torsion.</p>			
COURSE OUTCOMES (CO)			
Course Outcomes		Aligned Programme Outcomes (PO)	
1. Understand the different types of material behavior such have elastic, plastic, ductile and brittle		1,2	
2. Study the fundamental mechanics of solid deformable bodies		1,5,11	
3. Use the concept of moment of inertia of lamina for different shapes		1,5	
4. Able to solve the numerical and practical problems related to real world strength of materials.		1,5,8	

COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week	Topic	Mode of Delivery
1	1 st & 2 nd Week	Elastic limit – Hooke's law- poisson's ratio – bar of uniform strength – equivalent area of composites sections – temperature stresses – Hoop stress – volumetric strain- stresses due to different types of axial loading – gradually and impact loads	Chalk & Talk
2	3 rd & 4 th Week	Stresses on inclined plane- principle stresses – thin cylinders- circumferential and longitudinal stresses – wire bound pipes – thin spherical shells- bi axial stresses doubly curved walls of pressure vessels.	
3	5 th Week	Assessment -I	
4	6 th , 7 th & 8 th Week	Beams – types- shear force and bending moment diagrams- bending –theory of simple bending – practical application of bending equation – section modulus – shear stress distribution on a beam section- center of gravity – centroid – Moment of Inertia - lamina of different sections - parallel axis – perpendicular axis theorems	
5	9 th week		
6	10 th & 11 th	Assessment – II	
7		Pure torsion – theory of pure torsion – torsional moment of resistance – power transmitted by a shaft – torsional rigidity – stepped shafts – keys – couplings – shear & torsional resilience – shafts of non-circular section- closed coil helical springs	
8	12 th Week	Assessment - III	

COURSE ASSESSMENT METHODS				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment - I	5 th Week	1 Hr	20%
2	Assessment - II	8 th Week	1 Hr	20%
3	Assessment - III	12 th Week	3Hrs	50%
4	Assignments			10%

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

1. Rajput. R.K., Strength of Materials, S. Chand, 1996
2. Ramamrutham. S., Strength of Materials, 8th Edition. Dhanapat Rai, 1992
3. R.K. Bansal, Strength of Materials, Laxmi Publications.

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

1. Students can meet the faculty at any stage in the course duration in case he/she find difficulty in understanding the concepts
2. Feedback form were issued to the students to express their commands about the course before Assessment test & after completing the syllabus. Students are requested to give feedback about the course.
3. Student knowledge about the covered will be judged through marks obtained in Assessments

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

1 Assessments

- a) Students who have missed the first and second Assessment or both can register the re-test Assessment which shall be conducted after the completion of the second Assessment and before the Assessment- III.
- b) Re- test Assessment shall be conducted for 20 marks comprising the syllabus of both first and second Assessments.
- c) Students should submit Assignment before the last date of submission. Weightage to the assignment would be zero for the case of the students not submitting the particular assignment.

2.Attendance

- d) The minimum attendance for appearing for the Assessment III is 75%
- e) Those students, whose attendance falls below 75% but above 50% in a subject, shall attend mandatory classes before the Assessment - III to qualify to Assessment - III.
- f) The students who having attendance less than 50% has to redo the course in next semester
3. The institute follows relative grading with flexibility given to teachers to decide the mark ranges for grades. All Assessments of a course will be done on the basis of marks.
4. The passing mark should be $X/2$ or $X_{max}/3$ whichever is less, where X is the mean of the class and X_{max} is the maximum mark in the class.

5. The letter grades and the corresponding grade points are as follows

Letter	S	A	B	C	D	E	F	Z	W	U	V
Grade	10	9	8	7	6	5	0	-1	-2	-3	-4

Z- Absent; W- Withdrawn; U - Prevented; V -Redo the course

- Students scoring less than the passing minimum mark in the Assessment defined in the course plan shall be deemed to have not successfully completed the course and be given an F grade.
- Students awarded F grade may REDO the course.
- Students who earn a minimum of 5 grade points in a course is declared to have successfully completed the course.
- If the students fail to appear Assessment – III due to medical reasons can register for special Assessment after approval from course teacher and H.O.D. The special Assessment will be conducted within ten days after the declaration of results and before reopening of the next semester. Grade issued as per the guidelines followed for his/ her batch students.

ADDITIONAL COURSE INFORMATION

FOR SENATE'S CONSIDERATION


Course Faculty Y.G. Bala


CC-Chairperson / Dr. S. Jerome


HOD/ Dr. S. P. Kumaresh Babu