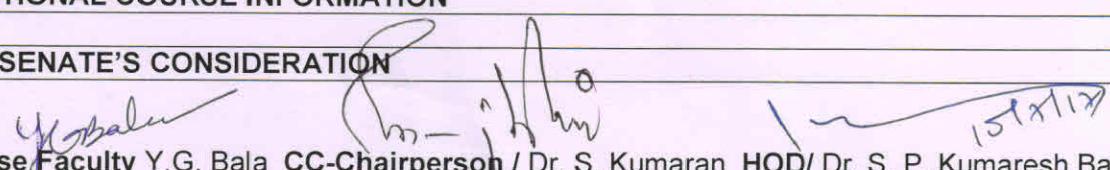


NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

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		
Programme & Semester	B.Tech & III Sem (MME)		
Course Code	MTPC11	No. of Credits	03
Department	MME	Faculty	Dr. Y.G. BALA
Pre-requisites Course Code	MTPC10 (Engineering Mechanics)		
Course Coordinator(s) (if, applicable)	Dr. S. Kumaran		
Other Course Teacher(s)/Tutor(s) E-mail	ygbala@nitt.edu	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 composite 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 – biaxial stresses doubly curved walls of pressure vessels.	Chalk & Talk
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 – C.G – centroid – M.I – lamina of different sections – parallel axis – perpendicular axis theorems	Chalk & Talk
5	9 th week	Assessment – II	
6	10 th & 11 th	Pure torsions – 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	Chalk & Talk
7	11 th and 12 th Week	Assessment III & IV	

COURSE ASSESSMENT METHODS				
S. No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment I (Unit I & Unit II)	5 th Week	1 Hr	20%
2	Assessment II (Unit III & Unit IV)	9 th Week	1 Hr	20%
3	Assessment III (Retest)	11 th Week	1 Hr	20%
4	Assignment			10%
5	Assessment IV (End Semester) (Unit I to V)	12 th Week	3 Hrs	50%
ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc				
1. Rajput. R.K., Strength of Materials, S.Chand, 1996 2. Ramamruthum. 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)				
<p>The exit survey will be assessed based on the questionnaire prepared by the Institute/class teacher and the expected attainment to be greater 75%. The feedback collected from students by the Institute is to be informed to the teacher to improve the course in future semesters.</p> <p>Students can meet the faculty at any stage in the course duration in case he/she find difficulty in understanding the concepts</p>				
COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)				
1.Examination <ol style="list-style-type: none"> Students who have missed the Assessment I and II or both can register the Assessment III examination which shall be conducted after the completion of the Assessment II and before the end semester examination. Assessment III shall be conducted for 20 marks comprising the syllabus of both first and second Assessment. The students are expected to attend all the classes except for medical reasons. Minimum attendance of 75% (including the concession for on-duty and medical reasons) is required for writing the semester examination. Students should submit the assignment on the assigned topic related to this course. Weightage to the assignment would be zero for the case of the students not submitting the assignment before the prescribed date. The grading policy will be followed and the passing minimum marks will be fixed based on Institute guidelines. The passing mark and the grading will be assigned as per institute norms. 				
ADDITIONAL COURSE INFORMATION				
Nil				
FOR SENATE'S CONSIDERATION				
 Course Faculty Y.G. Bala CC-Chairperson / Dr. S. Kumaran HOD/ Dr. S. P. Kumaresh Babu				