

Course Number and Name												
<b>BCE504 - REINFORCED CONCRETE STRUCTURES – I</b>												
Credits and Contact Hours												
<b>4 &amp; 60</b>												
Course Coordinator's Name												
Mr.T.P.Maikandaan												
Text Books and References												
<b>TEXT BOOKS:</b>												
1. Krishna Raju, N., “Design of Reinforced Concrete Structures”, CBS Publishers & Distributors, New Delhi, 2003												
<b>REFERENCES:</b>												
1. Jain.A.K. Limit State Design of R.C.Structures, Nerchand Publications												
2. BIS 456 – 2000												
3. S.P.16 of BIS												
4. W.H. & R.S. Mosely, J.H.Bungcy an R.Hulse, Reinforced Concrete Design, 5 <sup>th</sup> Edition, Macmillan Co.												
5. Ramamrutham S, Design of Steel <i>Structures</i> , Dhanpat Rai <i>Publishing Co.</i> , New. Delhi, 2001												
6. Dr.Purushothaman P Reinforced Concrete Structures Tata McGraw-Hill, 1984												
Course Description												
<ul style="list-style-type: none"> <li>To impart knowledge on common method of erecting reinforced structure investigation and design of RC Structure and to acquire the capacity of the footing with the suitable code and to investigate and design a suitable foundation.</li> </ul>												
Prerequisites						Co-requisites						
Theory Of Structures						NIL						
required, elective, or selected elective (as per Table 5-1)												
Course Outcomes (COs)												
CO1	Design RC concrete structural elements using various methods.											
CO2	Design reinforced concrete slabs and beams by WSD for flexure											
CO3	Design various basic elements of reinforced concrete structures like slabs, beams, columns and footings by LSD											
CO4	Design reinforced concrete slabs and beams for shear and torsion by LSD											
CO5	Design reinforced concrete Footing											
Student Outcomes (SOs) from Criterion 3 covered by this Course												
	COs/SOs	a	b	c	d	e	f	g	h	i	j	k
	CO1	M		H	M							
	CO2	M		H	M							

	CO3	M		H	M								
	CO4	M		H	M								
	CO5	M		H	M								
<b>List of Topics Covered</b>													
<b>UNIT I</b>	<b>INTRODUCTION</b>												<b>12</b>
Actual and idealized stress- strain diagrams of concrete and steel (Mild Steel, High Strength deformed bars) – behavior of R.C.beam in bending – introduction to the ESD philosophy – Design of rectangular beams, tee beams, shear, development length- design of one way slab, two way slabs BIS 456 2000.													
<b>UNIT II</b>	<b>WORKING STRESS METHOD</b>												<b>12</b>
Design of continuous beams and slabs – axially and eccentrically loaded column footings for individual columns and combined rectangular footings for two columns.													
<b>UNIT III</b>	<b>DESIGN OF BEAMS</b>												<b>12</b>
Limit state design of rectangular T and L shaped beams for flexure, shear, bond torsion, - design of one way slab – Lintels – sun shades.													
<b>UNIT IV</b>	<b>LSM: DESIGN OF SLABS &amp;COLUMNS</b>												<b>12</b>
Limit state design of two way slab using BIS 456 – limit state design of short rectangular and circular columns for axial and eccentric loads using SP- 16 design of long columns.													
<b>UNIT V</b>	<b>LSM: DESIGN OF FOOTING</b>												<b>12</b>
Limit state design of square / rectangular footings for axially and eccentrically loaded columns combined rectangular footings for two columns.													