E.G.S. PILLAY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi | Affiliated to Anna University, Chennai Accredited by NAAC with 'A' Grade | Accredited by NBA(CSE, EEE, MECH, IT, CIVIL, ECE) NAGAPATTINAM – 611002



B.E. CIVIL ENGINEERING <u>R-2019</u>

Final Year – Eighth Semester

Course Code	Course Name	L	Т	Р	C	Maximum Marks			Catego
						CA	ES	Total	ry
Theory Course									
1902CE015	Pre-Stressed Concrete (PC Elective)	3	0	0	3	40	60	100	PCE
1902CE019	Coastal Zone Management (PC Elective)	3	0	0	3	40	60	100	PCE
Laboratory Course									
1902CE851	Project Work	0	0	14	7	50	50	100	EEC

1902CE015	PRE-STRESSED CONCRETE	L	T 0	P	C
Course Object	1005.	3	U	0	3
	n the principles, materials, methods and systems of prestressing				
	n the design of prestressed concrete beams for flexural, shear and tension and	to cal	lculat	e ultir	nate
flexura	l strength of beam				
3. Useful	course for structural engineers in designing economical structures.				
Unit I	INTRODUCTION – THEORY AND BEHAVIOUR			9 Ho	
	ots - Historical development - classification and types - advantage				
	ncrete – Prestressing Materials – Loads – Design Concepts – Prestres	sing	Tech	nniqu	es –
Systems of Pr	estressing – Loss of Prestress.				
Unit II	DESIGN FOR FLEXURE AND CABLE LAYOUT			9 Ho	ours
Basic assump	tions - permissible stresses in steel and concrete as per IS 1343-1980) cod	e - D	esign	n of
sections of po	st-tensioned and pre-tensioned beams (Type I and II) - check for stre	ength	ı limi	it stat	e
based on IS 1	343 – 1980 code - Layout of cables in post-tensioned beams - location	on of	wire	es in p	ore-
tensioned bea	ms.				
Unit III	SHEAR AND DEFLECTION			9 Ho	ours
Design for sh	ear based on IS 1343 - 1980 code - Factors influencing deflections -	shor	t tern	n	
	uncracked members - prediction of long-term deflections - check fo				/
limit state of	deflection- Anchorage Zone				
Unit IV	COMPOSITE CONSTRUCTION			9 Ho	ours
Composite Se	ctions – Types – Advantages – Analysis and Design – Shear Keys.				
Unit V	CIRCULAR PRESTRESSING			9 Ho	ours
Prestressed C	oncrete Tanks - Columns – Poles – Tension Members – Masts – Pyle	ons –	Slee	pers	
	Tot	al:		45 H	ours
Further Readi					
	1.willstudyvarious methods of prestressing and the concepts of partial pre-str	essin	g.		
Course Outcor	2.will design beams, pipes, water tanks, posts and similar structures				
Course Outcor	After completion of the course, Student will be able to				
	1. Understand the concepts of pre-stressing in concrete structures and i	dentit	fv the	mater	ials
	for pre-stressing				
	2. Analyze a Pre-stressed Concrete section				
	3. Design pre-tensioned and post tensioned girders for flexure and shea	ır			
	4. Design continuous pre-tensioned and post tensioned beams				
	5. design pre-stressed concrete tanks, poles and sleepers				
References:	Deir M. "Dretterer d.Conserte" Tete McConsertitit Debliching Conserve D	- 11- : /	2007		
	a Raju N, "Prestressed Concrete", Tata McGraw Hill Publishing Company, D d G Nawy, "Prestressed Concrete", A Fundamental Approach, 3rd Edition, Pre				r
	River, NewJersy, 2000		man,	, oppe	-1
	palan N, "Prestressed Concrete", Narosa Publishing House, New Delhi, 2002.				
	N C and Roy S K, "Fundamentals of Prestressed Concrete", S Chand & Co, 19				
	Y and Ned H Burns, "Design of Prestressed Concrete Structures", John Wiley		New	York	,
6. Mallik	S K and Gupta A P, "Prestressed Concrete", Oxford & IBH Publishing Co., P , 1986.	vt. Lt	d., In	dia, 2	nd

Course Objective: 3 0 0 3 Course Objective: 3 0 0 3 At the end of the semester, 1. The student shall be able to understand the coastal processes 3. The student shall be able to understand impacts of structures like docks, harbours and quays leading to simple management perspectives along the coastal zone 9 Hours Coastal zone - Coastal zone regulations - Beach profile - Surf zone - Off shore - Coastal waters - Estuaries - Wet lands and Lagoons - Living resources - Non living resources. 9 Hours Wave classification - Airy's Linear Wave theory - Deep water waves - Shallow water waves - Wave pressure - Wave energy - Wave Decay - Reflection, Refraction and Diffraction of waves - Breaking of wave - Wave force on structures - Vertical - Sloping and stepped barriers - Force on piles. 9 Hours Unit II WAVE FORECASTING AND TIDES 9 Hours Forcion and depositional shore features - Methods of protection - Littoral currents - Coastal aquifers - Sea water intrusion - Impact of sewage disposal in seas. 9 Hours Unit V I ARBOURS 9 Hours Structures near coast - Selection of site - Types and selection of break waters - Need and mode of dredging - Selection of dredgers - Effect of Mangalore Forest. 9 Hours Unit V HARBOURS 9 Hours Structures near coast - Selection of of recers and selection of break waters - Need and mode of dredging - Selection of dredgers - Eff	1902CE019	COASTAL ZONE MANAGEMENT	L	Т	Р	С		
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PROJECT WORK

1902CE851

Course Objectives:

To guide the students such a way that the they carry out a comprehensive work on the chosen topic which will stand them in good stead as they face real life situations. The project work so chosen by the student shall culminate in gaining of major design experience in the related area of specialization. **Course Outcomes (COs)**

Upon completion of the course, the student should be able to,

a) Formulate a real-world problem, identify the requirement and develop the design solutions.

b) Express the technical ideas, strategies and methodologies of civil engineering.

c) Utilize the new tools, softwares and techniques that contribute to obtain the solution of the project.d) Test and validate through conformance of the developed prototype and analysis the cost

d) Test and validate through conformance of the developed prototype and analysis the cost effectiveness.

e) Prepare report and present the oral demonstrations.

The students in a group of 3 to 4 works on a topic approved by the head of the department under the guidance of a faculty member and prepares a comprehensive project report after completing the work

to the satisfaction of the supervisor. The progress of the project is evaluated based on a minimum of three reviews. The review committee may be constituted by the Head of the Department. A project report is required at the end of the semester. The project work is evaluated based on oral presentation and the project report jointly by external and internal examiners constituted by the Head of the Department.

Total: 180 Periods