Ref No:

SRI KRISHNA INSTITUTE OF TECHNOLOGY BANGALORE-90



COURSE PLAN

Academic Year 2019-20

Program:	B E – Civil Engineering
Semester :	7
Course Code:	15CV72
Course Title:	Design Of RCC and Steel Structures
Credit / L-T-P:	4 / 4-0-0
Total Contact Hours:	50
Course Plan Author:	SHIVASHANKAR R

Academic Evaluation and Monitoring Cell

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Table of Contents

15CV72 : Design of RCC and STEEL STRUCTURES	
A. COURSE INFORMATION	
1. Course Overview	
2. Course Content	
3. Course Material	
4. Course Prerequisites	
B. OBE PARAMETERS	4
1. Course Outcomes	
2. Course Applications	
3. Articulation Matrix	
4. Mapping Justification	5
5. Curricular Gap and Content	6
6. Content Beyond Syllabus	6
C. COURSE ASSESSMENT	6
1. Course Coverage	6
2. Continuous Internal Assessment (CIA)	6
D1. TEACHING PLAN - 1	7
Module - 1	7
Module – 2	7
E1. CIA EXAM – 1	8
a. Model Question Paper - 1	8
b. Assignment -1	9
D2. TEACHING PLAN - 2	9
Module – 1	9
Module – 2	
E2. CIA EXAM – 2	
a. Model Question Paper - 2	
b. Assignment – 2	
D3. TEACHING PLAN - 3	
Module – 5	12
E3. CIA EXAM – 3	13
a. Model Question Paper - 3	
b. Assignment – 3	
F. EXAM PREPARATION	
1. University Model Question Paper	
2. SEE Important Questions	14

Note : Remove "Table of Content" before including in CP Book

Each Course Plan shall be printed and made into a book with cover page Blooms Level in all sections match with A.2, only if you plan to teach / learn at higher levels

course PLAN - CAY 2019-20 15CV72 : Design of RCC and STEEL STRUCTURES

A. COURSE INFORMATION

1. Course Overview

			1
Degree:	BE	Program:	CV
Year / Semester :	2019-20/VII	Academic Year:	2019-20
Course Title:	Deisgn of RCC and steel structures	Course Code:	15CV72
Credit / L-T-P:	04	SEE Duration:	180 Minutes
Total Contact Hours:	50	SEE Marks:	80 Marks
CIA Marks:	20	Assignment	1 / Module
Course Plan Author:	SHIVASHANKAR R	Sign	Dt:
Checked By:	SHIVAPRASAD D G	Sign	Dt:
CO Targets	CIA Target : 80 %	SEE Target:	70 %

2. Course Content

Module	Module Content	Teaching	Module	Blooms
		Hours	Concepts	Level
1	Footings : design of rectangular slab type combined footing	06	Analysis of footing	L6
1	Retaining walls: design of cantilever and counterfort retaining wall	06	Analysis of retaining wall	L6
1	Water tanks: design of circular, rectangular water tanks	07	Analysis of water tanks	L6
1	Design of portal frames with fixed and hinged supports	06	Analysis of portal frame	L6
2	Roof truss: design of roof truss for different cases of loading	09	Analysis of roof trusses	L6
2	Plate girder: design of welded plate girder with intermediate stiffener	08	Analysis of plate girder	L6
2	Gantry girder: design of gantry girder with all necessary checks	08	Analysis of gantry girder	L6

3. Course Material

Mod	Details	Available
ule		
1	Text books	
	N krishnaraju Design of RCC structures	In Lib
	N subramanian design of steel structures	Available
2	Reference books	
	Dayarathnam P design of steel structures	In dept
	S N sinha reinforced concrete design	
3	Others (Web, Video, Simulation, Notes etc.)	
	NPTEL videos	Not Available

4. Course Prerequisites

	Code				Level
1	15CV72	Design of RCC &	1. Knowledge on limit state method	7	L2
		steel structures	<u> </u>		

Note: If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.

B. OBE PARAMETERS

1. Course Outcomes

#	COs	Teach.	Concept	Instr	Assessmen	Blooms'
		Hours		Method	t Method	Level
15CV72	Students should be able to Analyze	06	Analysis of	Lecture	slip Test	L6
	and design the components of footing		footing			
.2	Students should be able to Analyze	06	Analysis of	Lecture	Assignment	L6
	and design the components of		retaining			
	retaining walls		wall			
.3	Students should be able to Analyze	07	Analysis of	Lecture	Assignment	L6
	and design the components of water		water tank		and slip	
	tank				Test	
CO4	Students should be able to Analyze	06	Analysis of	Lecture /	Assignment	L6
	and design the components of portal		portal frame	PPT		
	frame					
CO5	Students should be able to Design the	09	Analysis of	Lecture	slip test	L6
	members of a truss according to their		roof truss			
	nature					
CO6	Students should be able to Analyze	08	Analysis of	Lecture	Assignment	L6
	and design the suitable built up		plate girder	and		
	section for plate girder			Tutorial		
CO7	Students should be able to Choose	08	Analysis of	Lecture	Assignment	L6
	the suitable built up section for gantry		gantry		and Slip	
	girder		girder		Test	
-	Total	50	-	-	-	-

Note: Identify a max of 2 Concepts per Module. Write 1 CO per concept.

2. Course Applications

SNo	Application Area	CO	Level
1	In the construction site	CO1	L4
2	Is used in subways	CO2	L4
3	Water retaining structures such as below and above ground level and elevated	CO3	L4
	water tanks		
4	Multistoried buildings	CO4	L4
5	Adopted in case of industrial structures.	CO5	L4
6	In long span bridges such as sub water ways , railways	CO6	L4
7	For the movement of heavy materials in industries	CO7	L4
8			
9			
10			

Note: Write 1 or 2 applications per CO.

3. Articulation Matrix

(CO – PO MAPPING)

-	Course Outcomes					Program Outcomes											
#		COs				PO2	PO3	PO4	PO ₅	PO	PO7	PO	PO9	PO1	PO1	PO1	Level
										6		8		0	1	2	
15CV72 PC.1	Analyze	and	design	the	2	2	3	-	3	-	-	-	-	-	-	-	L4
	componer	nts of fo	oting														
15CV72	Analyze	and	design	the	2	2	3	-	3	-	-	-	-	-	-	-	L4
PC.2	componer	nts of re	etaining wa	lls													
15CV72	Analyze	and	design	the	2	2	3	-	3	-	-	-	-	-	-	-	L4
PC.3	componer	nts of w	ater tank														
15CV72	Analyze	and	design	the	2	2	3	-	3	-	-	-	-	-	-	-	L4
PC.4	components of portal frame																
15CV72	Design the members of a trust				2	2	3	-	3	-	-	-	-	-	-	-	L4
PC.5	according	to their	r nature														
15CV72	Analyze a	nd des	ign the sui	itable	2	2	3	-	3	-	-	-	-	-	-	-	L4
PC.6	built up se	ection fo	or plate gird	der													
15CV72	Choose t	he sui	table buil	t up.	2	2	3	-	3	-	-	-	-	-	-	-	L4
PC.7	section for	r gantry	' girder														
15CV72PC.	Average				2	2	3	-	3	-	-	-	-	-	-	-	
Note: Mention the mapping strength as 1, 3,4 or 5																	

4. Mapping Justification

Мар	ping	Justification	Mapping
СО	PO		
CO1	PO1	Engineering fundamentals & knowledge of maths required	L1
CO1	PO2	Problem analysis is required	L3
CO1	PO3	Should do the design	L4
CO1	PO5	Autocad tool is required for the drawing	L5
CO2	PO1	Engineering fundamentals & knowledge of maths required	L1
CO2	PO2	Problem analysis is required	L3
CO2	PO3	Should do the design	L4
CO2	PO5	Autocad tool is required for the drawing	L5
CO3	PO1	Engineering fundamentals & knowledge of maths required	L1
CO3	PO2	Problem analysis is required	L3
CO3	PO3	Should do the design	L4
CO3	PO5	Autocad tool is required for the drawing	L5
CO4	PO1	Engineering fundamentals & knowledge of maths required	L1
CO4	PO2	Problem analysis is required	L3
CO4	PO3	Should do the design	L4
CO4	PO5	Autocad tool is required for the drawing	L5
CO5	PO1	Engineering fundamentals & knowledge of maths required	L1
CO5	PO2	Problem analysis is required	L3
CO5	PO3	Should do the design	L4
CO5	PO5	Autocad tool is required for the drawing	L5
CO6	PO1	Engineering fundamentals & knowledge of maths required	L1
CO6	PO2	Problem analysis is required	L3
CO6	PO3	Should do the design	L4
CO6	PO5	Autocad tool is required for the drawing	L5
CO7	PO1	Engineering fundamentals & knowledge of maths required	L1
CO7	PO2	Problem analysis is required	L3
CO7	PO3	Should do the design	L4
CO7	PO5	Autocad tool is required for the drawing	L5

Note: Write justification for each CO-PO mapping.

5. Curricular Gap and Content

SNo	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
1					
2					
3					
4					
5					

Note: Write Gap topics from A.4 and add others also.

6. Content Beyond Syllabus

SNo	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Note: Anything not covered above is included here.

C. COURSE ASSESSMENT

1. Course Coverage

Mod	Title	Teaching		No. of question in Exam				CO	Levels	
ule		Hours	CIA-1	CIA-2	CIA-3	Asg	Extra	SEE		
#							Asg			
1	Footings	06	1	-	-	1	1	2	CO1,	L4
2	Retaining wall	06	1	-	-	1	1	2	CO2,	L2, L3
3	Water tank , roof truss	16	-	2	-	1	1	2	CO3,	L3, L4
									CO5	
4	Gantry girder , plate girder	16	-	-	1	1	1	2	CO6,	L2, L3
									C07	
5	Portal frame	06	-	-	1	1	1	2	CO4	L4, L5
-	Total	50	2	2	2	5	5	10	-	-

Note: Distinct assignment for each student. 1 Assignment per chapter per student. 1 seminar per test per student.

2. Continuous Internal Assessment (CIA)

Evaluation	Weightage in Marks	СО	Levels
CIA Exam – 1	15	CO1, CO2, CO3, CO5	L4
CIA Exam – 2	15	CO6, CO7,	L4
CIA Exam – 3	15	CO4	L4
Assignment - 1	05	CO1, CO2, CO3, CO5	L4
Assignment - 2	05	CO6, CO7,	L4

		N - CAY 2010-20	,
Assignment - 3	05	CO4	L4
Seminar - 1	05	CO1, CO2, CO3, CO5	L4
Seminar - 2	05	CO6, CO7,	L4
Seminar - 3	05	CO4	L4
Other Activities – define –		CO1 to Co7	L4
Slip test			
Final CIA Marks	20	-	-

Note : Blooms Level in last column shall match with A.2 above.

D1. TEACHING PLAN - 1

Module - 1

Title:	Footings	Appr	12 Hrs
	Cauraa Outaamaa	Time:	Disama
a	Course Outcomes	-	Blooms
-	I ne student should be able to:	-	Level
1	Analyze and design the components of footing	CO1	L4
2	Design the slab type combined footing	CO2	L4
b	Course Schedule	-	-
Class No	Module Content Covered	СО	Level
1	footings	C01	L4
2	Combined footing	CO2	L4
	Ť		
С	Application Areas	СО	Level
1	In the construction of buildings	CO1	L4
2	Where the site area is less	CO2	L4
d	Review Questions	-	-
1	Design a combined footing for two columns to support an axial load of	CO1	L4
	1200KN each and spaced at 5m c/c. one of the column is at a distance of 1m		
	from the property line. Safe bearing capacity of the soil is 150KN/m2. Use		
	M20 concrete mix and Fe415 grade steel.		
2	Design slab type combined footing	CO2	L4
3	Design cantilever type retaining wall	CO2	L4
e	Experiences	-	-
1		CO1	L2
2			
3			
4		CO3	L3
5		-	_

Module – 2

Title:	Retaining wall	Appr	13 Hrs
		Time:	
a	Course Outcomes	-	Blooms
-	The student should be able to:	-	Level
1	Analyze and design the cantilever retaining wall	CO3	L4
2	Analyze and design the counterfort retaining wall	CO4	L4

b	Course Schedule	-	-
Class No	Module Content Covered	CO	Level
1	cantilever retaining wall	CO3	L4
2	counterfort retaining wall	CO3	L4
С	Application Areas	CO	Level
1	To avoid land sliding	CO3	L4
2	In case of hilly areas	CO3	L4
d	Review Questions	-	-
1	Design a counter fort retaining wall based on the following data	CO3	L4
	height of wall above G.L=10m, SBC of soil=160KN/m2, angle of		
	internal friction=30 degree, density of soil=16KN/m3, spacing of		
	counter forts=3mc/c, coefficient of friction=0.6 adopt M20 grade		
	concrete and Fe415 steel		
2	Design a cantilever retaining wall retaining wall based on the following	CO3	L4
	data height of wall above G.L=6m, SBC of soil=160KN/m2, angle of		
	internal friction=30 degree, density of soil=16KN/m3, spacing of		
	counter forts=3mc/c. coefficient of friction=0.6 adopt M20 grade		
	concrete and Fe415 steel		
е	Experiences	-	
1		CO1	
2			
3			
4		CO3	L3
5			

E1. CIA EXAM – 1

a. Model Question Paper - 1

Crs (Code:	15CV72	Sem:	7	Marks:	15	Time:	75 n	ninute	S	
Cour	rse:	Design of R	CC and stee	el structures							
-	-	Note: Answ	er any 1 qu	estion, each	carry equa	l marks.		N	Marks	со	Level
1		Design a co	ombined foo	ting for two	o columns te	o support a	n axial load	of	15	CO1	L4
		1200KN ead	ch and space	ed at 5m c/c	. one of the	e column is a	at a distance	of			
		1m from th	e property	ine. Safe be	aring capacit	ty of the soi	l is 150KN/n	n2.			
		Use M20 co	ncrete mix a	nd Fe415 gra	ade steel.						
2		Design a co	ounter fort	retaining wa	all based on	the followi	ng data		15	CO3	L4
		height of	wall above	e G.L=10m	. SBC of s	oil=160KN/	m2. angle	of			
		internal fr	iction=30	degree de	nsity of sc	il=16KN/m ²	3. spacing	of			
		counter fo	rts-3mc/c	coefficient	of friction	n-06 adon	t M20 σra				
		counter it	n (3-5116/6,			1-0.0 adop		iuc			
		concrete a	nu reals si	eei						~ ~	
3		Design a	cantilever	retaining	wall retain	ing wall b	ased on t	the	15	CO3	L4
		following a	lata height	of wall abo	ove G.L=6m	, SBC of so	il=160KN/n	n2,			
		angle of	internal fr	iction=30	degree, de	nsity of s	oil=16KN/n	n3,			

spacing of counter forts=3mc/c, coefficient of friction=0.6 adopt M20 grade concrete and Fe415 steel

b. Assignment -1

Note: A distinct assignment to be assigned to each student.

	Model Assignment Questions									
Crs C	ode:	15CV72	Sem:	7	Marks:	5	Time: g	90 - 120	minute	S
Cours	se:	Design a	and Analysis c	of Algorithm	S					
Note:	Each	student	to answer 2-3	assignmen	ts. Each assi	gnment carı	ries equal ma	rk.		
SNo USN Assignment Description						Marks	СО	Level		
1			Design a cou	inter fort re	etaining wa	I based on	the following	g 5	CO1	L4
			data height o	of wall abo	ve G.L=10m	, SBC of soi	l=160KN/m2	,		
			angle of	internal	friction=30	degree,	density o	f		
			soil=16KN/m	n3, spacing	of counter	forts=3mc,	/c, coefficien	t		
			of friction=0	.6 adopt M	20 grade co	ncrete and	Fe415 steel			
2			Design a com	bined footir	ng for two co	olumns to su	ipport an axia	l 5	CO2	L4
			load of 1200k	(N each and	l spaced at 5	m c/c. one	of the colum	ו		
			is at a distai	nce of 1m	from the pi	operty line.	Safe bearing	3		
			capacity of tl	ne soil is 15	50KN/m2. U	se M20 con	crete mix and	ł		
			Fe415 grade s	steel.						
3			Design a cou	inter fort re	etaining wal	I based on	the following	3		
			data height d	of wall abo	ve G.L=10m	, SBC of soi	l=160KN/m2	,		
			angle of	internal	friction=30	degree,	density o	f		
			soil=16KN/m	n3, spacing	of counter	forts=3mc,	/c, coefficien	t		
			of friction=0	.6 adopt M	20 grade co	ncrete and	Fe415 steel			

D2. TEACHING PLAN - 2

Module – 1

Title:	Water tanks	Appr	16 Hrs
		Time:	D
a	Course Outcomes	-	Blooms
-	The student should be able to:	-	Level
1	Analyze and design the components of water tank	CO4	L4
2	Analyze and design the components of circular water tank	CO4	L4
3	Analyze and design the components of rectangular water tank	CO4	L4
b	Course Schedule		
Class No	Module Content Covered	CO	Level
1	circular water tank	CO4	L4
2	rectangular water tank	CO4	L4
3		CO4	L4
С	Application Areas		
1	Used to store water		
2	Overhead tanks		
3	Underground water tanks		
С	Review Questions	CO	Level
	Design of circular water tank	CO4	L4
	Design of rectangular water tank	CO4	L4
	Water tanks		
d	Review Questions	-	-
1	Design a rectangular water tank of capacity 1000m3 resting on the	CO4	L4
	ground and having a fixed base condition due to a rigid joint		
	between the wall and the base slab. The materials to be used are		
	M25 grade concrete and HYSD steel of grade Fe415. Use the method		

	recommended in IS 3370 (part IV).		
2	Design a circular water tank of capacity 400m3 resting on the ground and having a fixed base condition due to a rigid joint between the wall and the base slab. The materials to be used are M25 grade concrete and HYSD steel of grade Fe415. Use the method recommended in IS 3370 (part IV).	CO4	L4
е	Experiences	-	-
1		CO1	L2
2			
3			
4		CO3	L3
5			

Module – 2

Title:	roof truss	Appr	16 Hrs
		Time:	
a	Course Outcomes	-	Blooms
-	The student should be able to:	-	Level
1	Design the members in a truss for the given loading and their nature	CO5	L4
b	Course Schedule		
Class No	Module Content Covered	CO	Level
1	Members in a truss for the given loading and their nature	CO5	L4
2	Design of members for the given dead laod live load and wind load	CO5	L4
С	Application Areas	СО	Level
1	Used to construct industrial building	CO5	L4
2	network towers		
d	Review Questions	-	-
1	Design a roof truss shown in figure1(a) with forces in each member along with its nature. Also design end with gusset plate using black bolts of property class 4.6. also design the supports consisting of shoe angle and bearing plate by considering support reaction of 150KN. Anchor bolts are subjected to an uplift of 15KN at each support. M20 concrete is used at the supports. The central line diagram of a steel truss is shown in the figure. The magnitude and nature of forces on different member of the truss are given in the table the size of the truss is 300 [*] 300mm.use M20 concrete for column .design the truss using bolted or welded connection .also design anchor bolts for an uplift force of 15KN at each support.	CO5	L4
е	Experiences	-	-
1		C07	L2
2			
3			
4		CO8	L3
5			

E2. CIA EXAM – 2

a. Model Question Paper - 2

Crs (Code:	15CV72	Sem:	7	Marks:	15	Time:	75 minutes	5		
Course: Design of RCC & steel structures											
-	-	Note: Answer any 1 question, each carry equal marks. Marks CO Level									

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	41 2019-20

1	The central line diagram of a steel truss is shown in the figure. The magnitude and nature of forces on Different member of the truss are given in the table the size of the truss is 300*300mm.use M20 concrete for column .design the truss using bolted or welded connection .also design anchor bolts for an uplift force of 15KN at each support.	15	CO4	L4
2	Forces in the member are DL and LL and also WL is given below table. Design the truss and support give Upward reaction at support is equal to 180KN uplift force is equal to 50KN. Use M16 bolts for connections	15	CO4	L4
3	The central line diagram of a steel truss is shown in the figure. The magnitude and nature of forces on different member of the truss are given in the table the size of the truss is 300*300mm.use M20 concrete for column .design the truss using bolted or welded connection .also design anchor bolts for an uplift force of 15KN at each support.	15		L3
4	Forces in the member are DL and LL and also WL is given below table. Design the truss and support given Upward reaction at support is equal to 180KN uplift force is equal to 50KN. Use M16 bolts for connections	15		

b. Assignment – 2

Note: A distinct assignment to be assigned to each student.

	Model Assignment Questions												
Crs C	ode:	15CV72	Sem:	7	Marks	5	/ 10	Time:	90 -	120	minutes	5	
Cours	se:	Design of	of RCC & stee	el structi	ures								
Note:	Each	student	to answer 2-	3 assigni	nents. Eacl	h assign	ment o	arries equal m	ark.				
SNo		USN		A	ssignment	Descrip	otion		M	arks	co	Level	
1			The central	line diag	ram of a st	teel trus	s is sh	own in the figu	re.	5	CO8	L2	
			The magnitu	de and r	nature of fo	rces on	Differe	nt member of t	he				
			truss are	given ir	the tabl	e the	size	of the truss	is				
			300*300mm	use M2	0 concrete	for co	lumn .	design the tru	iss				
			using bolted	or weld	ed connecti	on .also	desigr	n anchor bolts	for				
	an uplin force of TSKN at each support.												
2			Forces in the	membe	r are DL an	d LL and	d also \	VL is given bel	ow	5	CO9	L3	
			table. Desig	n the tru	ss and sup	oport giv	ve Upv	vard reaction	at				
			support is	equal to	180KN ι	uplift for	rce is	equal to 50K	N.				
			Use M16 bo	olts for c	onnection	S		-					
3			Design a ro	of truss	shown in	figure1	(a) wit	h forces in ea	ich		CO10	L4	
			member alo	ng with i	ts nature. A	lso desi	gn end	with gusset pla	ate				
			using black l	olts of p	property cla	ass 4.6. a	also de	sign the suppo	rts				
			consisting c	f shoe	angle and	bearing	g plate	e by consider	ing				
			support rea	ction of	150KN. An	chor bo	lts are	subjected to	an				
			uplift of 15k	(N at ea	ch support	. M20 c	concret	e is used at t	he				
			supports.										
4			The forces ir	the mer	nbers of the	e roof tr	uss sho	wn in figure 2(a),	5	CO9	L3	
			due to dead	load, liv	e load and	wind lo	ad is t	abulated in tal	ole				
			below. Desig	n rafter	(Lo-U3) mai	in tie (Lo	o-L5) ar	nd main sling (U	J3-				
			L2) member	s and bo	lted joints	of this t	russ. L	lse HSFG bolts	of				
			property cla	ss8.8.									
5			Design a ci	rcular w	ater tank	of capa	city 40	0m3 resting	on				
			the ground and having a fixed base condition due to a rig										
			joint betwe	en the v	wall and th	ne base	slab.	The materials	to				
			be used are	e M25 g	rade conc	rete an	d HYS	D steel of gra	de				
			Fe415. Use	the met	hod recon	nmende	ed in IS	3370 (part IV	').				
			Design a	rectangu	ılar water	r tank	of ca	pacity 1000r	n3				

resting on the ground and having a fixed base condition	
due to a rigid joint between the wall and the base slab.	
The materials to be used are M25 grade concrete and	
HYSD steel of grade Fe415. Use the method recommended	
in IS 3370 (part IV).	

D3. TEACHING PLAN - 3

Module – 5

Title:	Gantry and plate girder	Appr Time	16 Hrs
а	Course Outcomes	-	Blooms
-	The student should be able to	_	Level
1	Design the suitable builtup section for plate girder	COg	L4
2	Design the plate girder with intermediate stiffener	COg	L4
	Design the gatry girder for industrial building	CO10	L4
b	Course Schedule		
Class No	Module Content Covered	СО	Level
1	Gantry girder for industrial structures with bolted connection		
2	Plate gider with intermediate stiffeners		
3	Plate gider without intermediate stiffeners		
4	Plate gider with end stiffeners		
5	Gantry girder for industrial structures with welded connection		
6	Welded plate girder		
7	bolted plate girder		
С	Application Areas	CO	Level
1	Industrial buildings	CO10	L4
2	Long span bridges	CO9	L4
d	Review Questions	-	-
1	Design a gantry girder for a mill building to carry an electric overhead	CO10	L4
	travelling crane having the following data:		
	a) crane capacity=250KN b) weight of crane excluding crab=200KN c)weight		
	of crab=60KN d) span of crane between rails=20m e) minimum hook		
	approach=1.1m f) wheel base=3.4m g) span of gantry girder=7m h) mass of		
	rail section=30Kg/m I) height of rail section=75mm j) fy=250N/mm2 and		
	E=2X10^5.		
2	Design a welded plate girder for a mill building to carry an electric overhead	CO9	L4
	travelling crane having the following data:		
	a) crane capacity=250KN b) weight of crane excluding crab=200KN c)weight		
	of crab=60KN d) span of crane between rails=20m e) minimum hook		
	approach=1 1m f) wheel base=3 4m g) span of gaptry girder=7m h) mass of		
	rail section= 30 Kg/m I) height of rail section=75mm i) fv= 250 N/mm2 and		
	$F=2\times10^{5}$		
3	Design a holted plate girder for a bridge with intermediate stiffener baying	COo	11
	the following data:	000	
	a) crane canacity-250KN b) weight of crane excluding crah-200KN c)weight		
	a) crahe capacity - 250kW b) weight of crahe excluding crab-200kW () weight of crahe $60kW$ d) span of crahe botwoon rails - 20m o) minimum book		
	or crap-outing up sparr or crane between rais-2011 ep minimum nook		
	approaction 1.1111 () where base=5.4111 g) span of gantry girder=/m n) mass of		
	rail section=30kg/m i) neight of rail section=75mm j) fy=250N/mm2 and		
	E=ZX1U''5.		
e	Experiences	-	-
		0100	
2			

3		
4	CO9	L3
5		

E3. CIA EXAM – 3

a. Model Question Paper - 3

Crs C	Code:	CS501PC	Sem:	I	Marks:	30	Time:	75 minute	es	
Cour	se:	Design of g	antry girder							
-	-	Note: Answ	er any 2 que	estions, eac	h carry ec	qual marks.		Marks	CO	Level
1		Design a ga travelling cr a) crane cap of crab=60 approach=1 rail section= E=2X10^5	antry girder ane having th bacity=250KN KN d) span .1m f) whee =30Kg/m I) I	for a mill the following I b) weight of of crane the base=3.4m height of ra	ouilding to data: of crane ex petween r g) span of il section=	carry an ele ccluding crab=2 ails=20m e) r f gantry girder= 75mm j) fy=2	ctric overhe 200KN c)wei ninimum ho =7m h) mass 50N/mm2 a	ead 15 ght pok of ind	CO9	L4
2		Design a workead tr a) crane cap of crab=601 approach=1 rail section= E=2X10^5.	velded plate avelling cran bacity=250KN KN d) span .1m f) wheel =30Kg/m I) l	girder for e having the l b) weight of of crane b base=3.4m neight of ra	a mill bu following of crane ex petween r g) span of il section=	uilding to carr data: cluding crab=2 rails=20m e) r f gantry girder= 75mm j) fy=2	y an elect 200KN c)wei ninimum ho =7m h) mass 50N/mm2 a	tric 15 ght pok of ind	CO10	L4

b. Assignment – 3

Note: A distinct assignment to be assigned to each student.

	Model Assignment Questions											
Crs C	ode:	CS501P0	C Sem:		Marks:	5 / 10	Time:	90 - 120	minute	S		
Cours	se:	Design a	and Analysis	of Algorit	hms							
Note:	Each	student	to answer 2-	-3 assignm	ents. Each as	signment ca	rries equal m	ark.				
SNo		USN		As	signment Des	scription		Marks	со	Level		
1	1 Design a welded plate girder for a mill building to carry an electric overhead travelling crane having the following data: a) crane capacity=250KN b) weight of crane excluding crab=200KN c)weight of crab=60KN d) span of crane between rails=20m e) minimum hook approach=1.1m f) wheel base=3.4m g) span of gantry girder=7m h) mass of rail section=30Kg/m l) height of rail section=75mm j) fy=250N/mm2 and E=2X10^5.								COg	L2		
2			Design a electric ov data: a) crane c crab=200K between r wheel bas rail sectio fy=250N/n	gantry gi verhead t capacity=2 (N c)weig rails=20m e=3.4m gi n=30Kg/r nm2 and	rder for a m ravelling cra 250KN b) we ght of crab= e) minimum) span of gar n I) height E=2X10^5.	hill building ne having 60KN d) s n hook app ntry girder=7 of rail sec	to carry a the followin pan of crar proach=1.1m 7m h) mass ction=75mm	an 5 ng ng f) of j)	COg	L3		
3			Design a b stiffener hav a) crane crab=200KN rails=20m base=3.4m	olted plate ving the fol capacity=2 l c)weight e) minin g) span	e girder for a llowing data: 50KN b) we of crab=60KN num hook of gantry gi	a bridge wit eight of cr d) span of approach=1. rder=7m h)	h intermedia rane excludii crane betwee 1m f) whe mass of ra	te ng en rel ail	CO10	L4		

DL	/-Cv-Sh	11-61201-	102-12.2
COURSE PLAN - CAY 2019-20			
section=30Kg/m I) height of rail section=75mm j) fy=250N/mm2			
and E=2X10^5.			

F. EXAM PREPARATION

1. University Model Question Paper

Cou	rse:	Month .	/ Year	May /2	2018
Crs (Code:	CS501PC Sem: I Marks: 100 Time:		180 mi	nutes
-	Note	Answer all FIVE full questions. All questions carry equal marks.	Marks	СО	Level
1	a	The central line diagram of a steel truss is shown in the figure. The magnitude and nature of forces on different member of the truss are given in the table the size of the truss is 300*300mm.use M20 concrete for column .design the truss using bolted or welded connection .also design anchor bolts for an uplift force of 15KN at each support.		CO1	
2		Design a combined footing for two columns to support an axial load of 1200KN each and spaced at 5m c/c. one of the column is at a distance of 1m from the property line. Safe bearing capacity of the soil is 150KN/m2 Use M20 concrete mix and Fe415 grade steel.	15	CO2	
3		Design a counter fort retaining wall based on the following data height of wall above G.L=6m, SBC of soil=160KN/m2, angle of interna friction=30 degree, density of soil=16KN/m3, spacing of counter forts=3mc/c, coefficient of friction=0.6 adopt M20 grade concrete and Fe415 steel	15	CO3	
4		Design a circular water tank of capacity 400m3 resting on the ground and having a fixed base condition due to a rigid joint between the wall and the base slab. The materials to be used are M25 grade concrete and HYSD steel of grade Fe415. Use the method recommended in IS 3370 (part IV).	15	CO4	
5		Design a cantilever retaining wall retaining wall based on the following data height of wall above G.L=6m, SBC of soil=160KN/m2 angle of internal friction=30 degree, density of soil=16KN/m3 spacing of counter forts=3mc/c, coefficient of friction=0.6 adopt M20 grade concrete and Fe415 steel	15	CO5	
6		Forces in the member are DL and LL and also WL is given below table Design the truss and support give Upward reaction at support is equal to 180KN uplift force is equal to 50KN. Use M16 bolts for connections	. 15)	CO6	
7		The central line diagram of a steel truss is shown in the figure. The magnitude and nature of forces on different member of the truss are given in the table the size of the truss is 300*300mm.use M20 concrete for column .design the truss using bolted or welded connection .also design anchor bolts for an uplift force of 15KN at each support.	15	CO7	
	С	Forces in the member are DL and LL and also WL is given below table Design the truss and support given Upward reaction at support is equal to 180KN uplift force is equal to 50KN. Use M16 bolts for connections	. 15	CO8	

2. SEE Important Questions

rse:	e: Design and Analysis of Algorithms Mont							onth ,	∕ Year	May /	2018	
Code:	CS501PC	Sem:	3		Marks:	10	0	Tir	ne:		180 m	inutes
Note	Answer all I	FIVE full qu	estions. All c	questio	ons carry e	equal n	narks.			-	-	
Qno.	Important (Question								Marks	CO	Year
1	Design a	cantilever	retaining	wall	retaining	wall	based	on	the	15		2004
	rse: Code: Note Qno.	rse: Design and Code: CS501PC Note Answer all I Qno. Important C 1 Design a	rse: Design and Analysis of Code: CS501PC Sem: Note Answer all FIVE full qui Qno. Important Question	Image: series of a seri	rse: Design and Analysis of Algorithms Code: CS501PC Sem: 3 Note Answer all FIVE full questions. All question Qno. Important Question 1 Design a cantilever retaining wall	InstructionInstructionCode:CS501PCSem:3Marks:NoteAnswer all FIVE full questions. All questions carry eQno.Important Question1Design a cantilever retaining wall retaining	Inse:Design and Analysis of AlgorithmsCode:CS501PCSem:3Marks:10NoteAnswer all FIVE full questions. All questions carry equal nQno.Important Question1Design a cantilever retaining wall retaining wall	Image: Design and Analysis of AlgorithmsCode:CS501PCSem:3Marks:100NoteAnswer all FIVE full questions. All questions carry equal marks.Qno.Important Question1Design a cantilever retaining wall retaining wall based	Image: second state Image: second state<	Instrumentation Month Analysis of Algorithms Month Analysis of Algorithms Month Analysis of Algorithms Code: CS501PC Sem: 3 Marks: 100 Time: Note Answer all FIVE full questions. All questions carry equal marks. Important Question Important Question 1 Design a cantilever retaining wall retaining wall based on the	Image: series series of Algorithms Month / Year Code: CS501PC Sem: 3 Marks: 100 Time: Note Answer all FIVE full questions. All questions carry equal marks. - Qno. Important Question Marks Marks 1 Design a cantilever retaining wall retaining wall based on the 15	Instrumentation Month / Year May /2 Code: CS501PC Sem: 3 Marks: 100 Time: 180 minute Note Answer all FIVE full questions. All questions carry equal marks. - - - Qno. Important Question Marks CO Marks CO 1 Design a cantilever retaining wall retaining wall based on the 15

		following data height of wall above G.L=6m, SBC of soil=160KN/m2, angle of internal friction=30 degree, density of soil=16KN/m3,		
		spacing of counter forts=3mc/c, coefficient of friction=0.6 adopt M20		
		grade concrete and Fe415 steel		
	2	Design a counter fort retaining wall based on the following data height of wall above G.L=6m, SBC of soil=160KN/m2, angle of internal friction=30 degree, density of soil=16KN/m3, spacing of counter	15	2004
		and Fe415 steel		
	3	The central line diagram of a steel truss is shown in the figure. The magnitude and nature of forces on different member of the truss are given in the table the size of the truss is 300 [*] 300mm.use M20 concrete for column .design the truss using bolted or welded connection .also design anchor bolts for an uplift force of 15KN at each support.	15	2004
	4	Design a combined footing for two columns to support an axial load of 1200KN each and spaced at 5m c/c. one of the column is at a distance of 1m from the property line. Safe bearing capacity of the soil is 150KN/m2.	15	2007
	5	The central line diagram of a steel truss is shown in the figure. The magnitude and nature of forces on different member of the truss are given in the table the size of the truss is 300*300mm.use M20 concrete for column .design the truss using bolted or welded connection .also design anchor bolts for an uplift force of 15KN at each support.	15	2007
		Forces in the member are DL and LL and also WL is given below table. Design the truss and support give Upward reaction at support is equal to 180KN uplift force is equal to 50KN. Use M16 bolts for connections	15	
2	1	Design a welded plate girder for a mill building to carry an electric overhead travelling crane having the following data: a) crane capacity=250KN b) weight of crane excluding crab=200KN c)weight of crab=60KN d) span of crane between rails=20m e) minimum hook approach=1.1m f) wheel base=3.4m g) span of gantry girder=7m h) mass of rail section=30Kg/m I) height of rail section=75mm j) fy=250N/mm2 and E=2X10^5.	15	2005
	2	Design a gantry girder for a mill building to carry an electric overhead travelling crane having the following data: a) crane capacity=250KN b) weight of crane excluding crab=200KN c)weight of crab=60KN d) span of crane between rails=20m e) minimum hook approach=1.1m f) wheel base=3.4m g) span of gantry girder=7m h) mass of rail section=30Kg/m I) height of rail section=75mm j) fy=250N/mm2	15	2005