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SASURIE COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi. Affiliated to Anna University, Chennai

Near NH544, Coimbatore Bypass, Near Vijayamangalam Tollgate,Tirupur 638056

SASURIE INSTITUTIONS

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION - 1

CURRICULAR ASPECTS

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

SASURIE COLLEGE OF ENGINEERING

| Criterion 1 | Curricular Aspects | 100 |

1.1 Curricular Planning and Implementation (20)

1.1.1 The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

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S.No	Description
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SASURIE
College of Engineering
Vijayamangalam, Tirupur

Department	: civil
Subject Code & Name:	CE 8703 Structural design & Drawing.
Class & Batch	IV yr
Semester	VII

CONTENTS – COURSE FILE

S.NO	PARTICULARS	REMARKS
1	Time Table	
2	Student name list	✓
3	Subject Information Record	✓
4	Syllabus	✓
5	Lesson Plan	✓
6	Test Plan for the Subject	✓
7	Result Analysis	✓
8	Corrective Action Report	✓
9	Quality objective monitoring record	✓
10	Internal test mark sheet(Consolidated)	✓
11	Internal test question paper	✓
12	Model question paper with answer key	✓
13	Sample Answer paper for all test(Min-3)	✓
14	Content beyond the syllabus	
15	Tutorial Class – schedule and content	
16	Assignment – schedule and paper	
17	PPT - handout	
18	Video - Animation - Soft copy	✓
19	Question bank	
20	Sample university question papers(min 5 QP-recent exam)	
21	Personal Log book – Updated	
22	Lecture Note	
23	Special Class if any, Approval letter, Schedule, content covered.	✓ ✓

Prepared By	Approved By
Sign: Smadhy	Smadhy
Name: S. MADHAVAN	S. MADHAVAN
Faculty	HOD

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

SASURIE COLLEGE OF ENGINEERING,VIJAYAMANGALAM-638 056.
DEPARTMENT OF CIVIL ENGINEERING
CLASS TIME TABLE

Year/Class: IV   SEM: VII Sem   Year :2022-2023

Periods		1	2		3	4		5	6	2.45pm to 3.00pm	7	8
TIME/ DAYS	9.25am to 9.30am	09.30am to10.15 am	10.15am to11.00 am	11.00am to 11.15am	11.15am to12.00 pm	12.00pm to 12.40p	12.40am to1.20pm	1.20pm to 2.00pm	2.00pm to 2.45pm		3.00pm to 3.45pm	3.45pm to 4.20pm
DAY 1	PRAYER	SDD	PLACEMENT	BREAK	ECV	RADHE	BREAK	TEM	RADHE	BREAK	ECV	LIB/NET
DAY 2		TOM	TOM		SDD	SDD		TEM	DESIGN PROJECT			
DAY 3		TEM	SDD		ECV	SDD		RADHE	DESIGN PROJECT			
DAY 4		ECV	PLACEMENT		TOM	TOM		SDD	RADHE		SEMINAR	LIB/NET
DAY 5		ECV	ECV		RADHE	TEM		TOM	TOM		RADHE	TEM

S.No	Sub Code	Name of the Subject	Name of the Staff	No of hours
1	CE8701	Estimation,Costing and valuation Engineering	MR S.MADHAVAN	6
2	CE8702	Railways,Airport docks & Harbour Engineering	MR S.MADHAVAN	6
3	CE8703	Structural Design & Drawing	MR S.MADHAVAN	6
4	CE8007	Traffic Engineering & Management	MR S.MADHAVAN	5
5	OML751	Testing of Materials	MR S.A RAMESH	6
6	CE8711	Creative & innovative Project	MR S.MADHAVAN	6
7		Net/Library	MR S.MADHAVAN	2
8		Placement	MRS PADMASANKAR	2
9		Seminar	MR S.MADHAVAN	1
			TOTAL	40

Class advisor : S.MADHAVAN

Prepared By	Verified By	Authorised By
S.MADHAVAN	S.MADHAVAN	Dr. E. NANDAKUMAR
TIME TABLE I/C	HOD I/C	Principal

SASURIE
COLLEGE OF ENGINEERING
Vijayamangalam - 638 056, Tirupur.

Academic year-2018-2019

Department of civil engineering

IIYEAR

S.No.	Reg.No	Name of the student	
1	732417103001	K.Baskaran	9
2	732417103002	N.Gayathri	2
3	732417103003	P.Gowtham	5
4	732417103004	M.Lavanya	6
5	732417103005	S.Naveena	1
6	732417103006	S.Nivetha	5
7	732417103007	G.Sankar	7
8	732417103008	N.Surya	9
9	732417103009	J.Tharun kumar	2
10	732417103010	P.Vaishnavi	6
11	732417103011	M.Vallarasu	4
12	732417103012	S.Vijay	8

Sign		
Name	T. Nivetha	N. Satheeshkumar
	Class Advisor	HD/IC

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SUBJECT INFORMATION RECORD

Department : Civil

Subject : CE8703 Structural design & Drawing

Year : IV

Semester : VII

Last year handled by : —

Percentage of Result (last year) : —

Quality Objectives : —

Reference Book: Structural design & drawing, G.V Krishna

Publications

	Prepared By	Approved By
Sign:	Smadly	Smadly
Name:	S. MADHAVAN	S. MADHAVAN
	Faculty	HOD

CE8703 STRUCTURAL DESIGN AND DRAWING L T P C
3 0 2 4

OBJECTIVE:
This course aims at providing students with a solid background on the principles of structural engineering design. Students will be acquire the knowledge of liquid retaining structures, bridges components, retaining wall and industrial structures.

UNIT I RETAINING WALLS 9+6
Reinforced concrete Cantilever and Counter fort Retaining Walls–Horizontal Backfill with Surcharge–Design of Shear Key-Design and Drawing.

UNIT II FLAT SLAB and BRIDGES 9+6
Design of Flat Slabs with and without drops by Direct Design Method of IS code- Design and Drawing - IRC Specifications and Loading – RC Solid Slab Bridge – Steel Foot-over Bridge-Design and Drawing.

UNIT III LIQUID STORAGE STRUCTURES 9+6
RCC Water Tanks - On ground, Elevated Circular, underground Rectangular Tanks–Hemispherical Bottomed Steel Water Tank —Design and Drawing

UNIT IV INDUSTRIAL STRUCTURES 9+6
Structural steel Framing - Steel Roof Trusses – Roofing Elements – Beam columns – Codal provisions - Design and Drawing.

UNIT V GIRDERS AND CONNECTIONS 9+6
Plate Girders – Behaviour of Components-Design of Welded Plate Girder-Design of Industrial Gantry Girders – Design of Eccentric Shear and Moment Resisting connections.

TOTAL: 75 PERIODS
Design and Drawing Exercises for practical component
Part A - RCC Structures
1. Rectangular Column and Footing
2. Combined footing with Two columns
3. RCC one way &Two way Slab and beam system

4. Cantilever Retaining wall
5. RCC T beam bridge deck
6. Underground Rectangular Water Tank
7. Elevated circular water Tank

Part B- Steel Structures
1. Built up column, column base and Foundation
2. Simple Steel Roof Trusses
3. Industrial building Elements
4. Plate Girder (welded)
5. Framed Connections and Detailing
6. Gantry girder
7. Steel water Tank

STRUCTURAL DESIGN AND DRAWING	Theory Examination		Practicals	
Question paper Pattern	Marks to awarded	Question paper Pattern		Marks to awarded
This paper is a theory cum practical course weightage for theory 80% and for practical 20%	Five Either/Or type questions 5 x20 = 100 marks : covering all the five units Total Duration of Examination will be 3 hours Each Question include Design – 12 Marks Free hand Drawing (Not to scale) – 8 marks	Theoretical component Marks will carry 80% weightage. End Semester Examination will be conducted by COE	2 Questions, one from Part A - RCC Structures & one from Part B- Steel Structures	Practical component Marks will carry 20% weightage. Practical Examination will be conducted by the respective institution as internal mode.

TEST PLAN FOR SUBJECT

Subject : CE8703 Structural design & drawing   Faculty: S. Madha'

Semester : VII

Year: IV yr.

Department : Civil

S. No.	Description	Planned Date/Month	Actual Conducted Date / Month	Remarks
1	Internal test-I	22.8.22	24.9.22	—
2	Internal test-II	14.9.22	16.9.22	—
3	Model Exam	20.11.22	22.11.22	—

	Prepared By	Approved By
Sign:	Smadhy	Smadhy
Name:	S. MADHAVAN	S. MADHAVAN
	Faculty	HOD

RESULT ANALYSIS OF TEST

Subject	CE 8703 Structural design & Drawing
Date	24.09.2022
Class	IV yr
Department	Civil
Semester	VII
Exam details & date	Internal Test- I & 24.09.20:
Faculty	S. Madhavan
Number of students	02
No. of students attended	02
No. of students absent	Nil
No. of students passed	02
No. of students failed	—
Percentage of failures	—

RESULT DATA:

Marks	0-25	26-50	51-75	76-90	91-100
No. of Students	—	—	1	1	—

	Prepared By	Approved By
Sign:	Smadhy	Smadhy
Name:	S. Madhavan	S. Madhavan
	Faculty	HOD

RESULT ANALYSIS OF TEST

Subject : CE 8703 Structural design & Drawing

Class : IV yr   Date

Semester : VII   Department : Civil

Exam details & date : 15.10.2022 & Internal Assessment -II

Faculty : S. Madhavan

Number of students : 02

No. of students attended : 02

No. of students absent : —

No. of students passed : 02

No. of students failed : —

Percentage of failures : —

RESULT DATA:

Marks	0-25	26-50	51-75	76-90	91-100
No. of Students	—	—	1	1	—

	Prepared By	Approved By
Sign:	Smadh	Smadh
Name:	S. Madhavan	S. Madhavan
	Faculty	HOD

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RESULT ANALYSIS OF TEST

Subject : CE 8703 Structural design & drawing   Date : 24.9.2022

Class : IV yr civil   Department : Civil

Semester : VII

Exam details & date : Internal test - I

Faculty : S. Madhavan

Number of students : 2

No. of students attended : 2

No. of students absent : —

No. of students passed : 2

No. of students failed : —

Percentage of failures : —

RESULT DATA:

Marks	0-25	26-50	51-75	76-90	91-100
No. of Students			1	1	

	Prepared By	Approved By
Sign:	S. madh	S. madh
Name:	S. MADHAVAN	S. MADHAVAN
	Faculty	HOD

CORRECTIVE ACTION PLAN REPORT

Dept. : Civil Engineering.   Year : IV

Subject : CE 8705 Structural design & drawing   Semester: VII

S.No	Internal Test	Precentage of Marks	Root Cause (Metrics)	Corrective Action	Deadline Date	Remarks
1	Internal test -1	100%	—	—	—	—
2	Internal test 2	100%	—	—	—	—
3	Model Exam	50%	—	—	—	—

	Prepared By	Approved By
Sign:	Smady	Smady
Name:	S. MADHAVAN	S. MADHAVAN.
	Faculty	HOD

QUALITY OBJECTIVE MONITORING RECORD

Department : Civil Engineering

Year : 2022 - 2023

Semester : VII

Subject : civil

S.No	Quality Objective	Internal Test-I		Internal Test-II		Model exam	
		Expecting result	Obtained result	Expecting result	Obtained result	Expecting Result	Obtained result
1	Internal test -I	100%	100%	100%	100%	100%	100%
2	Internal test-II	100%	100%	100%	100%	100%	100%
3	Model Exam	100%	100%	100%	100%	100%	100%

	Prepared By	Approved By
Sign:	Smady	Smady
Name:	S. MADHAVAN	S. MADHAVAN
	Faculty	HOD

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INTERNAL TEST 2		Date/Session	01.12.2022	Marks	100
Course code	CE8703	Course Title	Structural designing and drawing		
Regulation	2017	Duration	3 Hours	Academic Year	2022-2023
Year	III	Semester	VII	Department	CIVIL

COURSE OUTCOMES

C703.1	Design retaining walls, considering factors such as wall height, soil type, surcharge loads, and seismic forces, to ensure structural stability and safety.
C703.2	Design rectangular water tanks, considering factors such as tank dimensions, wall thickness, reinforcement detailing, and foundation design, to ensure structural integrity and water-tightness.
C703.3	Analyze the behavior of water tanks under various loading conditions using structural analysis methods and computer software tools, ensuring stability and serviceability under design loads.
C703.4	Interpret and apply relevant building codes, standards, and guidelines governing the design and construction of staircases, flat slabs, mat foundations, box culverts, and road bridges, ensuring compliance with safety and performance requirements.
C703.5	Analyze and design square, rectangular, circular, and triangular slabs for various structural applications, considering factors such as span-to-depth ratios, boundary conditions, support conditions, and loading conditions.

Q .No.	Question	CO	BTS
	PART A **(Answer all the Questions 10 x 2 = 20 Marks)**		
1	Define flat slab	C703.2	RE
2	Define liquid storage structures	C703.2	RE
3	Define column head	C703.2	RE
4	Write short note on under reinforced sections	C703.2	RE
5	Define overhead tank	C703.2	RE
6	Define underground water tank	C703.3	RE
7	Define flexural stress	C703.3	RE
8	What is meant by end anchorage	C703.3	EV
9	State four objectives of the design of reinforced concrete structure	C703.3	RE
10	What are the assumptions made in the design of long columns	C703.3	RE
	PART B **(Answer all the Questions 5 x 13 = 65 Marks)**		
11a	Design a simply supported rcc slab for a roof of a hall 4m x10m width 230mm wall thickness all around. Assume a live load of 4 kN/m^2 and a a finish 1kN/m^2.use M20 & fe415 grade.	C703.2	EV
	OR		
11b	A Circular RCC column of size 300 mm diameter carrying an axial load of 300kN IT the bearing capacity of the soil is 200kN/m2. Design a suitable footing. Use M20 concrete and Fe413 and Sketch the details of reinforcements	C703.2	RE
12a	Design & Cantilever retaining wall to retain 4m of horizontal backfill The Density of the soil is 18kN/m3 Sale Bearing Capacity of the Soil-100kN/m2 Angle of internal Friction of Soil 40" The Coefficient of friction between base slab and concrete-0.65 Use M20 concrete and Fe415 Steel. Drew cross section and longitudinal section	C703.2	UN
	OR		
12b	Design a slab over a room 12m x 6m as per LS. code. The slab is supported...		

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	walls all Round with adequate restraint and the corners are held down. The live load on the slab is 450N/m² The Slab has a bearing of 250 mm on the supporting walls. Assume the grade of materials		
13 a	Design a circular tank with flexible base for capacity of 500000 liters. The depth of water is to be 4m including a free board of 300mm. Overall height of the tank is restricted to 5m. Use M25 grade concrete and Fe415 grade steel.	C703.2	RE
	OR		
13b	Write down the design procedure as per IS code for dome, top ring beam and side walls	C703.2	RE
14a	Design a column with single lacing system to carry a factored axial load of 1500kN. The Effective height of the column is 4.2m. Use two channels placed toe to toe.	C703.3	EV
	OR		
14b	Design an Interior panel of a flat slab system for an industry workshop layout of size 20m X 30m. Column and middle strips are kept equal. Loading class is 750 kg/m2 Use M25 and Fe 250 grade of materials.	C703.3	RE
15a	Design a steel roof truss to suit the following Span of truss 10 m Type of Truss Fan-Type Roof Cover Galvanized corrugated sheet Rolled steel angles Spacing of roof truss = 4.5 m Wind Pressure 1.0 kN/m² Draw the elevation of roof and detail the joints.	C703.3	RE
	OR		
15b	Design a purlin for a roof truss having the following data: Span of the truss = 6.0 m Spacing of truss 3m c/c Inclination of roof-30" Spacing of Purlin = 2m c/c	C703.3	EV

PART C
(Answer all the Questions 1 x 15 = 15 Marks)

16a	Design a welded plate girder (with Thick web plate) of 20m span to support a UDL (live load) 70kN/m over the span with yield stress of steel as 250 N/mm².Use IS 800-2007 and Steel Codes.	C703.3	RE
	OR		
16b	Design a welded plate girder for a multi storey departmental store for a span of 20m as per NBC and IS codal provisions. Assume necessary data required.	C703.3	EV

Course Faculty Dt 11/2/22
(Name /Sign / Date)

S. Madhavan

HoD
(Name /Sign / Date)

R. Prabhakaran

Principal
(Name /Sign / Date)
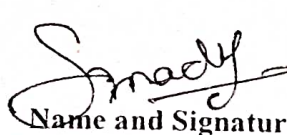
Dr.M.VIJAYAKUMAR ME
PRINCIPAL
SASURIE COLLEGE OF ENGINEE
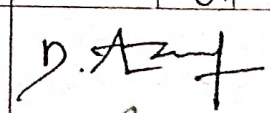Vijayamangalam - 638 056, Tirupur

SASURIE
College of Engineering
Vijayamangalam, Tiruppur.

Internal Assessment Test Answer Book

Name	V. Prakash			Year/ Semester/Section	IV/VII
Register Number	732419103001	Date/Session	01.12.2022	Department	CIVIL
Course code	CE8703	Course Title	Structual design and drawing		
Internal Assessment Test		IAT 1 ☐	IAT 2 ☑ IAT 3 ☐	Model ☐	
Name and Signature of the Invigilator with date					

Instruction to the Student: Put tick mark to the question attended in the column against question.

Part A			Part B/ Part C					Total Marks
Q. No.	✓	Marks	Q. NO.	✓	a Marks	✓	b Marks	
1	✓	2	11	✓	12			12
2	✓	2	12	✓	11			11
3	✓	2	13	✓	10			10
4	✓	2	14	✓	7			7
5	✓	2	15	✓	7			7
6	✓	2	16					
7	✓	2				Grand Total		47
8	✓	2						
9	✓	2		67				
10	✓	2				Name and Signature		
Total		20		Grand Total		of the Examiner with date		

To be filled by the examiner

Course Outcomes	1	2	3	4	5	6	Total
Marks allotted	—	49	51	—	—	—	100
Marks Obtained	—	43	24	—	—	—	67

IQAC Audit - Remarks

Marks Verified

D.Azuf
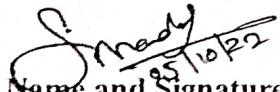
G.Anand
Name and Signature
of the IQAC member

DEPARTMENT OF CIVIL ENGINEERING
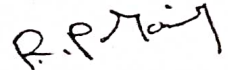
Assignment Question Paper

Assignment – 01			Date of Issue:	05.10.2022	Marks	10
Course code	CE8703	Course Title	Structural Design and drawing			
Year	III	Semester/Section	VI	Date of Submission:	15.10.2022	

Q.No	Questions	CO
1	Design and Sketch the details of reinforcements of a footing which carries a rectangular RCC column of size 200 mm x 400 mm with an axial load of 900kN. If the safe bearing capacity of the soil is 100kN/mm Use M25 concrete and Fe415.	C302.2
2	A Circular RCC column of size 300 mm diameter carrying an axial load of 300kN If the safe bearing capacity of the soil is 200kN/m. Design a suitable footing. Use M20 concrete and Fe415 grade steel. the details of reinforcements.	C302.2

Name and Signature of the Faculty Incharge

S. Madhavan

HoD/Civil

R. Prabhakaran

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SASURIE COLLEGE OF ENGINEERING,
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DEPARTMENT OF CIVIL ENGINEERING

Assignment Answer Sheet

Name of the Student : V. Prakesh

AU Register Number: 732419103001

Assignment – 01			Date of Issue:	05.10.2022	Marks	10
Course code	CE8703	Course Title	Structural Design and drawing			
Year	III	Semester/Section	VI	Date of Submission:	15.10.2022	

Q.No	Questions	CO
1	Design and Sketch the details of reinforcements of a footing which carries a rectangular RCC column of size 200 mm x 400 mm with an axial load of 900kN.If the safe bearing capacity of the soil is 100kN/mm Use M25 concrete and Fe415.	C302.2
2	A Circular RCC column of size 300 mm diameter carrying an axial load of 300kN If the safe bearing capacity of the soil is 200kN/m. Design a suitable footing. Use M20 concrete and Fe415 grade steel. the details of reinforcements.	C302.2

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Content Quality	6	6
Presentation Quality	2	2
Timely submission	2	2
Total marks	10	10

Name and Signature of the Faculty Incharge

Q. Madhavan

R.P.PK

HoD/Civil

R. Rabakaran

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