SRI BHARATHI

ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Kaikkurichi, Pudukkottai -622 303

www.sbec.edu.in

NAAC DOCUMENTS

Quality Indicator Frame Work

Criterion – 1

CURRICULAR ASPECTS

Submitted by

IQAC

Internal Quality Assurance Cell

Sri Bharathi Engineering College for Women

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

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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SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

DEPARTMENT OF CIVIL ENGINEERING

PREFACE OF THE COURSE FILE

Batch	: 2017-2021
Academic Year	: 2019-2020 / EVEN
Program	: BE CIVIL ENGINEERING
Year & Semester	: III Year / VI Semester
Course Code	: CE8601 **NBA COURSE CODE:C409**
Name of the Course	: Design of Steel Structural Elements
Faculty in-charge	: Ms.G.GAYATHRI AP/CIVIL

Signature of the Faculty

HOD / CIVIL
HOD / CIVIL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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DEPARTMENT OF CIVIL ENGINEERING

REVIEW OF COURSE FILE

(to be pasted on the inner side of the file-backside).(#-State Yes/No.)

S.NO	Details Date:	R-I-*	R-II-*&	R-III-*&	R-IV-*&$	R-V-*&$@
1.	Preface of the course file	Yes				
2.	Vision, Mission, PEOs, POs, PSOs, Blooms taxonomy	Yes				
3.	Subject handlers of yesteryears					
4.	Timetable/Workload of the staff – Distribution of teaching load – Roles and Responsibilities	Yes				
5.	Syllabus signed by staff & HoD	Yes				
6.	Lecture Schedule signed by staff & HoD	Yes				
7.	Course Committee meeting circular and minutes	Yes				
8.	Identification of Curricular gap and Content Beyond the syllabus	Yes				
9.	Self-study topics	Yes				
10.	Previous AU Question papers	Yes				
11.	Unit wise Q&A and Objective type questions	Yes				
12.	Unit wise course material	Yes				
13.	Assignment question paper with sample answer sheets and mark entry		Yes			
14.	Tutorial question paper with key and mark entry		Yes			
15.	Class test/IA test Q Paper with Key, sample answer papers and mark entry		Yes			
16.	IA Test- result analysis-CAP-evidence-root cause analysis.		Yes			
17.	Retest –Q paper-Attendance-marks		Yes			
18.	AU Web portal entry sheet		Yes			
19.	Very poor performance in first two tests-action taken.-communication to parents-evidence					
20.	Absence for two tests-action taken-communication to parents-evidence.					
21.	Indiscipline of student reported, if any					
22.	Special class/coaching class/remedial class/attendance-CAP					
23.	Conduct of Seminar, Quizzes - proof					
24.	Content beyond the syllabus - proof				Yes	
25.	Student feedback on faculty				Yes	
26.	Course end survey					
27.	Internal Assessment sheet				Yes	
28.	AU question paper with students feedback					
29.	Discrepancy of the question paper and correspondence, if any					
30.	AU result analysis-Details of arrear students.					
31.	AU grade sheet					Yes
32.	CO – PO & PSO attainment sheet					Yes
	Signature of Course handling faculty	G.M	G.M	G.M	G.M	G.M
	Signature of HoD/Civil	R.Dy	R.Dy	R.Dy	R.Dy	R.Dy

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INDIVIDUAL STAFF WORKLOAD FOR EVEN SEMESTER (2019-2020)

Sl. No	STAFF NAME	SUB.CODE & SUB.NAME	YEAR / SEM	HRS	TOT. HRS
1	Mr.S.Rajapandian	CE8403 - Applied Hydraulics Engineering	II/ IV	05	14
		BE8252 - Basic Civil and Mechanical Engineering	I/II	03	
		CE8461 - Hydraulic Engineering Laboratory	II/ IV	03	
		GE8261 - Engineering Practices Laboratory	I /II	03	
2	Ms.R.Manju	MG6851 - Principles of Management	IV/ VIII	05	15
		EN8592 - Wastewater Engineering	III/ VI	05	
		CE8612 - Irrigation and Environmental Engineering Drawing	III/ VI	05	
3	Mrs.R.Priya	CE6021 - Repair and Rehabilitation of structures	IV/ VIII	05	14
		BE8252 - Basic Civil and Mechanical Engineering	I/II	03	
		CE8461 - Hydraulic Engineering Laboratory (Skilled)	II/ IV	03	
		CE8211- Computer Aided Building Drawing (Skilled)	I/II	03	
4	Mrs.Kayalvizhi	CE6016- Prefabricated Structures	IV/ VIII	05	13
		CE8402 - Strength of Materials II	II/ IV	05	
		CE8611- Highway Engineering Laboratory (Skilled)	III/ VI	03	
5	Ms.G.Gayathri	CE8601 - Design of Steel Structural Elements	III/ VI	06	14
		CE8402 - Strength of Materials II	II/ IV	05	
		CE8481 - Strength of Materials Laboratory	II/ IV	03	
		CE8211- Computer Aided Building Drawing	I/II	03	
6	Mrs.P.Dennis Flora	CE8404 - Concrete Technology	II/ IV	05	13
		CE8491 - Soil Mechanics	II/ IV	05	
		GE8261 - Engineering Practices Laboratory (Skilled)	I	03	
7	Ms.N.Chithirai selvi	CE8401- Construction Techniques And Practices	II/ IV	05	13
		GE8292 - Engineering Mechanics	I/II	05	
		CE8612 - Irrigation and Environmental Engineering Drawing	III/ VI	03	

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8	Mrs.R.Padma Rani	CE8602 - Structural Analysis II	III/ VI	05	13
		CE8604 - Highway Engineering	III/ VI	05	
		CE8611- Highway Engineering Laboratory	III/ VI	03	
9	Ms.T.Ananthi	CE8005 - Air Pollution and Control Engineering	III/ VI	05	13
		CE8603 - Irrigation Engineering	III/ VI	05	
		CE8481 – Strength of Materials Laboratory (Skilled)	II/ IV	03	

HoD/Civil

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DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN

Subject code & Name: CE8601 –DESIGN OF STEEL STRUCTURAL ELEMENTS

Branch/Year/Sem: B.E CIVIL / III / IV **Batch:2017 -2021**

Staff Name: Ms.G.Gayathri **Academic year:2019-2020**

COURSE OBJECTIVE

- To introduce the students to limit state design of structural steel members subjected to compressive, tensile and bending loads, including connections. Design of structural systems such as roof trusses, gantry girders as per provisions of current code (IS 800 - 2007) of practice for working stress and Limit state Method.

TEXT BOOK:

T1. Subramanian.N, "Design of Steel Structures", Oxford University Press, New Delhi, 2013.
T2. Gambhir. M.L., "Fundamentals of Structural Steel Design", McGraw Hill Education India Pvt. Ltd.,2013
T3. Duggal. S.K, "Limit State Design of Steel Structures", Tata McGraw Hill Publishing Company, 2005

REFERENCES:

R1. Narayanan.R.et.al. "Teaching Resource on Structural Steel Design", INSDAG, Ministry of Steel Publications, 2002
R2. Sai Ram. K.S. "Design of Steel Structures " Dorling Kindersley (India) Pvt. Ltd., New Delhi,2nd Edition, 2015
R3. Shiyekar. M.R., "Limit State Design in Structural Steel", Prentice Hall of India Pvt. Ltd, Learning Pvt.Ltd.,2nd Edition, 2013
R4. Bhavikatti.S.S, "Design of Steel Structures" By Limit State Method as per IS:800– 2007, IK International Publishing House Pvt. Ltd., 2009
R5. Shah.V.L. and Veena Gore, "Limit State Design of Steel Structures", IS 800–2007, Structures Publications, 2009.
R6. IS800 :2007, General Construction in Steel - Code of Practice, (Third Revision), Bureau of Indian Standards, New Delhi, 2007
R7. SP 6(1) Hand book on structural Steel Sections.

WEB RESOURCES

W1: https://www.youtube.com/watch?v=mtRR-5fzKo8&list=PLB9C067175F5014A8
W2: https://www.youtube.com/watch?v=v_G6JMj_yq8&list=PLB9C067175F5014A8&index=14
W3:https://www.youtube.com/watch?v=V0BNSr2mTDg&list=PLB9C067175F5014A8&index=8

TEACHING METHODOLOGIES:

- BB - BLACK BOARD
- PPT - POWER POINT PRESENTATION

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DEPARTMENT OF CIVIL ENGINEERING

CE8601 DESIGN OF STEEL STRUCTURAL ELEMENTS L T P C
3 2 0 4

OBJECTIVE:

- To introduce the students to limit state design of structural steel members subjected to compressive, tensile and bending loads, including connections. Design of structural systems such as roof trusses, gantry girders as per provisions of current code (IS 800 - 2007) of practice for working stress and Limit state Method.

UNIT I INTRODUCTION AND ALLOWABLE STRESS DESIGN 9+6

Structural steel types – Mechanical Properties of structural steel- Indian structural steel products-Steps involved in the Deign Process -Steel Structural systems and their Elements- -Type of Loads on Structures and Load combinations- Code of practices, Loading standards and Specifications - Concept of Allowable Stress Method, and Limit State Design Methods for Steel structures-Relative advantages and Limitations-Strengths and Serviceability Limit states.

Allowable stresses as per IS 800 section 11 -Concepts of Allowable stress design for bending and Shear – Check for Elastic deflection-Calculation of moment carrying capacity –Design of Laterally supported Solid Hot Rolled section beams-Allowable stress deign of Angle Tension and Compression Members and estimation of axial load carrying capacity.

UNIT II CONNECTIONS IN STEEL STRUCTURES 9+6

Type of Fasteners- Bolts Pins and welds- Types of simple bolted and welded connections Relative advantages and Limitations-Modes of failure-the concept of Shear lag-efficiency of joints- Axially loaded bolted connections for Plates and Angle Members using bearing type bolts –Prying forces and Hanger connection– Design of Slip critical connections with High strength Friction Grip bolts.-Design of joints for combined shear and Tension- Eccentrically Loaded Bolted Bracket Connections- Welds-symbols and specifications- Effective area of welds-Fillet and but Welded connections-Axially Loaded connections for Plate and angle truss members and Eccentrically Loaded bracket connections.

UNIT III TENSION MEMBERS 9+6

Tension Members - Types of Tension members and sections –Behaviour of Tension Members-modes of failure-Slenderness ratio- Net area – Net effective sections for Plates ,Angles and Tee in tension –Concepts of Shear Lag- Design of plate and angle tension members-design of built up tension Members-Connections in tension members – Use of lug angles – Design of tension splice.

UNIT IV COMPRESSION MEMBERS 9+6

Types of compression members and sections–Behaviour and types of failures-Short and slender columns-Current code provisions for compression members- Effective Length, Slenderness ratio
–Column formula and column curves- Design of single section and compound Angles-Axially Loaded solid section Columns- Design of Built up Laced and Battened type columns – Design of column bases – Plate and Gusseted bases for Axially loaded colums- Splices for colums.

UNIT V DESIGN OF FLEXURAL MEMBERS 9+6

Types of steel Beam sections- Behaviour of Beams in flexure- Codal Provisions – Classification of cross sections- Flexural Strength and Lateral stability of Beams –Shear Strength-Web Buckling, Crippling and defection of Beams- Design of laterally supported Beams- Design of solid rolled section Beams- Design of Plated beams with cover plates - Design Strength of Laterally unsupported Beams – Design of laterally unsupported rolled section Beams- Purlin in Roof Trusses-Design of Channel and I section Purlins.

TOTAL: 75 PERIODS

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DEPARTMENT OF CIVIL ENGINEERING

Topic No	Topic Name	Books For reference	Page No	Teaching Methodology	No of periods required	Cumulative periods
UNIT I	**INTRODUCTION AND ALLOWABLE STRESS DESIGN**					**(9+6)**
1.	Structural steel types	T1	8	BB	1	1
2.	Mechanical Properties of structural steel	T1	8-16	BB	1	2
3.	Indian structural steel products	T1	20-28	BB	1	3
4.	Steps involved in the Deign Process	T1	46-47	BB	1	4
5	Steel Structural systems and their Elements	T1	48-58	BB	1	5
6	Type of Loads on Structures and Load combinations, Code of practices, Loading standards and Specifications	T1	66-83	BB	1	6
7	Concept of Allowable Stress Method, and Limit State Design Methods for Steel structures-Relative advantages and Limitations-Strengths and Serviceability Limit states	T1	88-100	BB	1	7
8	Allowable stresses as per IS 800 section 11	T3	267-270	BB	1	8
9	Concepts of Allowable stress design for bending and Shear –Check for Elastic deflection	T3	267-270	BB	1	9
10	Calculation of moment carrying capacity	T3	833-835	BB	1	10
11	Design of Laterally supported Solid Hot Rolled section beams	T3	838-840	BB	1	11
12	Allowable stress deign of Angle Tension	T3	581-582	BB	1	12
13	Allowable stress deign of Compression Members	T3	742-745	BB	1	13
14	estimation of axial load carrying capacity	T3	742-745	BB	1	14
15	estimation of axial load carrying capacity	T3	742-745	BB	1	15
UNIT –I I	**CONNECTIONS IN STEEL STRUCTURESS**					**(9+6)**
16	Type of Fasteners ,Bolts Pins and welds	T1	458-460	BB	1	16

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17	Types of simple bolted and welded connections Relative advantages and Limitations-Modes of failure	T1	470, 551	BB	1	17
18	Modes of failure,the concept of Shear lag	T1	470-472	BB	1	18
19	efficiency of joints- Axially loaded bolted connections for Plates and Angle Members using bearing type bolts	T1	473-479	BB	1	19
20	efficiency of joints- Axially loaded bolted connections for Plates and Angle Members using bearing type bolts	T1	473-479	BB	1	20
21	Prying forces and Hanger connection	T1	480-484	BB	1	21
22	Design of Slip critical connections with High strength Friction Grip bolts	T1	480-484	BB	1	22
23	Design of joints for combined shear and Tension- Eccentrically Loaded Bolted Bracket Connections-	T1	495-505	BB	1	23
24	Design of joints for combined shear and Tension- Eccentrically Loaded Bolted Bracket Connections-	T1	495-505	BB	1	24
25	Welds-symbols and specifications	T1	563-564	BB	1	25
26	Effective area of welds-Fillet and but Welded connections	T1	567-579	BB	1	26
27	Axially Loaded connections for Plate and angle truss members	T1	572-578	BB	1	27
28	Axially Loaded connections for Plate and angle truss members	T1	572-578	BB	1	28
29	Eccentrically Loaded bracket connections	T1	579-586	BB	1	29
30	Eccentrically Loaded bracket connections	T1	579-586	BB	1	30

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UNIT – III TENSION MEMBERS						(9+6)
31	Tension Members - Types of Tension members and sections	T1	114	BB	1	31
32	Behaviour of Tension Members-modes of failure	T1	117	BB	1	32
33	Slenderness ratio- Net area , Net effective sections for Plates ,Angles and Tee in tension	T1	115-117	BB	1	33
34	Concepts of Shear Lag	T1	118-120	BB	1	34
35	Design of plate and angle tension members	T1	125-128	BB	1	35
36	Design of plate and angle tension members	T1	125-128	BB	1	36
37	Design of plate and angle tension members	T1	125-128	BB	1	37
38	design of built up tension Members	T1	129-130	BB	1	38
39	design of built up tension Members	T1	129-130	BB	1	39
40	Connections in tension members – Use of lug angles	T1	131	BB	1	40
41	Connections in tension members – Use of lug angles	T1	131	BB	1	41
42	Connections in tension members – Use of lug angles	T1	131	BB	1	42
43	Design of tension splice	T1	132	BB	1	43
44	Design of tension splice	T1	132	BB	1	44
45	Design of tension splice	T1	132	BB	1	45

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PRINCIPAL
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UNIT IV	COMPRESSION MEMBERS					(9+6)
46	Types of compression members and sections	T1	196	BB	1	46
47	Behaviour and types of failures	T1	197	BB	1	47
48	slender columns	T1	199	BB	1	48
49	Current code provisions for compression members	T1	197	BB	1	49
50	Effective Length, Slenderness ratio	T1	207-215	BB	1	50
51	Column formula and column curves	T1	204-206	BB	1	51
52	Design of single section and compound Angles	T1	220	BB	1	52
53	Design of single section and compound Angles	T1	220	BB	1	53
54	Axially Loaded solid section Columns	T1	216-218	BB	1	54
55	Design of Built up Laced and Battened type columns	T1	220-227	BB	1	55
56	Design of Built up Laced and Battened type columns	T1	220-227	BB	1	56
57	Design of column bases	T1	228-234	BB	1	57
58	Gusseted bases for Axially loaded colums	T1	228-234	BB	1	58
59	Gusseted bases for Axially loaded colums	T1	228-234	BB	1	59
60	Splices for colums	T1	228-234	BB	1	60

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UNIT V	DESIGN OF FLEXURAL MEMBERS					(9+6)
61	Types of steel Beam sections	T1	268	BB	1	61
62	Behaviour of Beams in flexure	T1	270-274	BB	1	62
63	Codal Provisions – Classification of cross sections	T1	269	BB	1	63
64	Flexural Strength and Lateral stability of Beams –Shear Strength	T1	281-282	BB	1	64
65	Web Buckling, Crippling and defection of Beams	T1	297	BB	1	65
66	Design of laterally supported Beams	T1	281-283	BB	1	66
67	Design of solid rolled section Beams	T1	281-283	BB	1	67
68	Design of Plated beams with cover plates	T1	281-283	BB	1	68
69	Design of Plated beams with cover plates	T1	281-283	BB	1	69
70	Design Strength of Laterally unsupported Beams	T1	283-291	BB	1	70
71	Design Strength of Laterally unsupported Beams	T1	283-291	BB	1	71
72	Purlin in Roof Trusses-	T1	626	BB	1	72
73	Design of Channel and I section Purlins	T1	626-644	BB	1	73
74	Design of Channel and I section Purlins	T1	626-644	BB	1	74
75	Design of Channel and I section Purlins	T1	626-644	BB	1	75

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PRINCIPAL
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DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOME

At the end of the course, the student should be able to:

C310.1 explain the concepts of various design philosophies
C310.2 Design common bolted and welded connections for steel structures
C310.3 Design tension members and explain the effect of shear lag.
C310.4 explain the design concept of axially loaded columns and column base connections.
C310.5 explain specific problems related to the design of laterally restrained and unrestrained steel beams.
C310.6 Design of purlin in roof trusses and also design channel and I section purlins

CONTENT BEYOND THE SYLLABUS

Performance of Steel Structures Subjected to Fire Following Earthquake

INTERNAL ASSESSMENT DETAILS

ASSESMENT NUMBER	I	II	III	MODEL
UNIT	Unit 1 &2	Unit 3& half unit in Unit 4)	Unit 5	All 5 units

ASSIGNMENT DETAILS

ASSIGNMENT NUMBER	I	II	III
DEAD LINE	08.01.2020	23.01.2020	14.02.2020

ASSIGNMENT NUMBER	UNIT	DESCRIPTIVE QUESTIONS/TOPIC (Minimum of 8 Pages)
I	II	Rivet joint and angle section problems
II	III	Design of plate and angle tension members
III	IV	Design of Built up Laced and Battened type columns

PREPARED BY
12/12/2019
G. Gayathri, AP/Civil

APPROVED BY 12/12/19
Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT

VERIFIED BY
12/12/19
HoD/ Civil

HOD / CIVIL
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DEPARTMENT OF CIVIL ENGINEERING

Identification of Curricular Gap & Content Beyond Syllabus(CBS)

Name of the Faculty : Ms.G.Gayathri., AP/CIVIL

Course Code & Name : CE8601 –DESIGN OF STEEL STRUCTURAL ELEMENTS

Academic Year : 2019 -2020 /EVEN SEM

Degree & Program : B.E/CIVIL **Year/ Semester: III/VI**

I.Mapping of Course Outcomes with POs & PSOs.(before CBS)

Table.1 Mapping of COs, PSOs with POs - before CBS.

CO	PROGRAM OUTCOMES												PSO		
CE8601	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
C310.1	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.2	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.3	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.4	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.5	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.6	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310	**3**	**3**	**3**	**2**	**-**	**-**	**-**	**-**	**1**	**2**	**-**	**1**	**3**	**2**	**2**

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II. Identification of content beyond syllabus.

Table.2 Identification of content beyond syllabus

Details of Content Beyond Syllabus(CBS) added	POs strengthened/ vacant filled	CO/Unit
Performance Of Steel Structures Subjected To Fire Following Earthquake	PO 8 (2) Vacant filled	C310.5 & C310.6 / V

III. Mapping of Course Outcomes with POs & PSOs. (After CBS)

Table.3 Mapping of COs, PSOs with POs- after CBS.

CO	PROGRAM OUTCOMES												PSO		
CE8601	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
C310.1	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.2	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.3	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.4	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.5	3	3	3	2	-	-	-	2*	1	2	-	1	3	2	2
C310.6	3	3	3	2	-	-	-	2*	1	2	-	1	3	2	2
C310	**3**	**3**	**3**	**2**	**-**	**-**	**-**	**2***	**1**	**2**	**-**	**1**	**3**	**2**	**2**

G. L 12/12/19
Signature of the Faculty

R. 12/12/19
HoD/Civil

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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2019-2020 (EVEN SEM)

Assignment Question Paper

Assignment – 01			Date of Issue:	13.01.2020	Marks	10
Course code	CE8601	Course Title	Design of steel structures			
Year	III	Semester	VI	Date of Submission:	21.01.2020	

Q.No	Questions	CO
1.	Two sections 10mm and 18mm thick are to be jointed by double cover butt joint. The joint is double riverted with cover plate each 8mm thick. The load to be transferred by the joint is 500KN. Design the joint and riverts to packings.	C310.2
2.	A tie member consisting of angle section ISA 80mmX50mmX8mm(fy=250mpa) is welded to a 12mm gusset plate. Design welds to transmit a load equal to the full strength of the member.	C310.2

13/01/2020

Name and Signature of the Faculty Incharge

13/1/20

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PRINCIPAL
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COLLEGE FOR WOMEN
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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2019-2020 (EVEN SEM)

Assignment Answer Sheet

Name of the Student : Monika.k

AU Register Number: 912617103005

Assignment – 01			Date of Issue:	13.01.2020	Marks	10
Course code	CE8601	Course Title	Design of steel structures			
Year	III	Semester	VI	Date of Submission:		21.01.2020

Q.No	Questions	CO
1.	Two sections 10mm and 18mm thick are to be jointed by double cover butt joint. The joint is double riverted with cover plate each 8mm thick. The load to be transferred by the joint is 500KN. Design the joint and riverts to packings.	C310.2
2.	A tie member consisting of angle section ISA 80mmX50mmX8mm(fy=250mpa) is welded to a 12mm gusset plate. Design welds to transmit a load equal to the full strength of the member.	C310.2

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Content Quality	6	5
Presentation Quality	2	1
Timely submission	2	1
Total marks	10	7

G. 22/01/2020
Name and Signature of the Faculty Incharge

R. 22/1/20
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DEPARTMENT OF CIVIL ENGINEERING

Tutorial Question Paper

Tutorial – 01			Date of Issue:	02.01.2020	Marks	10
Course code	CE8601	Course Title	Design of steel structures			
Year	III	Semester	VI	Date of Submission:	04.01.2020	

Q.No	Questions	CO
1.	A double riveted double cover butt joint is used to connect plates 12mm thick.determine the dia of the rivet; rivet value, pitch and efficiency of the joint.	C310.2
2.	An equal 75mm x 75mm @ 11kg/m is subjected to a load of 180KN, Whose line of action passed through a centroid of section., which is at 22.2mm from the heel. This angle is to be welded to a gusset plate. If the size of wheel is to be 8mm, find the length of the side fillet weld.	C310.2

02/01/2020

Name and Signature of the Faculty Incharge

HoD/Civil 2/1/20

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DEPARTMENT OF CIVIL ENGINEERING

Tutorial Answer sheet

Name of the Student : KASTHURI. K

AU Register Number: 912617103004

Tutorial – 01			Date of Issue:	02.01.2020	Marks	10
Course code	CE8601	Course Title	Design of steel structures			
Year	III	Semester	VI	Date of Submission:	04.01.2020	

Q.No	Questions	CO
1.	A double riveted double cover butt joint is used to connect plates 12mm thick.determine the dia of the rivet; rivet value, pitch and efficiency of the joint.	C310.2
2.	An equal 75mm x 75mm @ 11kg/m is subjected to a load of 180KN, Whose line of action passed through a centroid of section., which is at 22.2mm from the heel. This angle is to be welded to a gusset plate. If the size of wheel is to be 8mm, find the length of the side fillet weld.	C310.2

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Problem solving approach	6	4
Correction of answer	2	1
Timely submission	2	1
Total marks	10	6

G. 6/01/2020
Name and Signature of the Faculty Incharge

R. 6/1/20
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IQAC Academic Audit Form

ACADEMIC YEAR: 2019-2020 EVEN SEMESTER

Name of Department :	CIVIL	Year / Sem :	III / VI	No. of Students Registered :	11
Details of Examination :	Cycle Test -1 / Cycle Test -2 / Cycle Test -3 / Model Test				

S.No.	Course Code & Name	List of Reg.No Verified	Course Log Book Verified (Y / N)	Course File Verified (Y / N)	No of students Passed	No of Absentees	No of Failures	Pass %	Remarks
1.	CE 8601 Design of Steel Structural elements	912617103001	Yes	Yes	8	NIL	3	72.72%	–
2.	CE 8602 Structural analysis II	912617103003	Yes	Yes	9	NIL	2	81.81%	–
3.	CE 8603 Irrigation Engg	912617103005	Yes	Yes	10	NIL	1	90.90%	–
4.	CE 8604 Highway Engineering	912617103006	Yes	Yes	10	NIL	1	90.90%	–
5.	EN 8592 Waste water Engineering	912617103007	Yes	Yes	10	NIL	1	90.90%	–
6.	CE 8005 Air Pollution & Control Engg	912617103008	Yes	Yes	10	NIL	1	90.90%	–

Verified by

External Member Name and Signature:	C. Palani 13/2/20 [C. PALANIAPPAN AP/ECE]
Internal Member Name and Signature:	13/2/20, P. Pennu Flora, AP [CIVIL

Overall Remarks:

R. 13/02/20
HoD/ Civil
HOD / CIVIL
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PUDUKKOTTAI - 622 303

13/2/20
IQAC Coordinator

13/02/20
Principal
PRINCIPAL
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KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT

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DEPARTMENT OF CIVIL ENGINEERING

Academic Year 2019-2020 (EVEN SEMESTER)

SUBJECT CODE & TITLE: CE8601 –Design of Steel Structural Elements
YEAR/SEM: III/VI

STUDENT FEEDBACK ON FACULTY

S.NO.	DESCRIPTION	SCORED OUT OF 4	SCORED OUT OF 100
1.	Syllabus coverage as prescribed by University	3.5	88
2.	Technical knowledge of the teacher	3.7	93
3.	Teacher's communication skill	3.8	95
4.	Regularity in taking classes	3.6	90
5.	Helping the students in conducting the experiment through set of instructions and demonstrations	3.6	90
6.	Tendency of inviting opinion and questions on subject matter from students.	3.8	95
7.	Knowledge of the teacher in latest development of field	3.8	95
8.	Perfectness of valuation	3.5	88
OVERALL SCORE		**3.6**	**91.7**

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REPORT SHEET

S.NO	REG.NO	NAME	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1	912617103001	Chandrika C	4	4	4	3	3	4	3	4
2	912617103002	Dhesikaparthi D	3	3	4	4	4	4	4	3
3	912617103003	Karthika K	3	4	4	4	4	4	4	4
4	912617103004	Kasthuri K	4	4	3	4	4	3	4	4
5	912617103005	Monika K	4	4	4	3	3	4	4	3
6	912617103006	Muthumeena P	4	4	3	4	4	3	4	4
7	912617103007	Pothumpen A	4	4	4	3	3	4	4	3
8	912617103008	Priyadharshini S	3	3	4	4	4	4	4	3
9	912617103009	Rajeswari J	3	4	4	4	4	4	4	4
10	912617103010	Sivapriya S	4	4	4	3	3	4	3	4
11	912617103701	Lakshmi A	3	3	4	4	4	4	4	3
		AVERAGE	3.5	3.7	3.8	3.6	3.6	3.8	3.8	3.5
		PERCENTAGE	90	95	95	90	90	95	95	90

EXCELLENT	VERY GOOD	GOOD	AVERAGE	POOR
4	3	2	1	0

Signature of the Faculty

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Circular Date: 21.01.2020

The first cycle test will be conducted from 25.01.2020 to 31.01.2020 for the IV, VI & VIII semester (II, III & IV year) students.

The following instructions are to be followed by the faculty members.

- Total marks for which the question paper to be set will be for 100 marks.
- It is the responsibility of the question paper setter to take the Xerox copies of the required number of question papers with the help of Ms. Keerthana. P & Ms. Sowmiya. N and it should be handed over to the Exam Coordinator Mr. J. Sathyaraj A.P/ EEE on two days before their examination
- The Exam Coordinators (exam cell) are requested to make necessary arrangements (hall arrangements, invigilation duty etc.,) for conducting the test.
- Faculty members are requested to handover the valued answer scripts to the students on or before 01.02.2020 and the class in-charges are requested to send the consolidated mark sheet to the parents on or before 03.02.2020.

PRINCIPAL

21.1.20

Cc:

- All faculty
- Exam cell
- Office file

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Circular

Date: 21.01.2020

The first cycle test will be conducted from 25.01.2020 to 31.01.2020 the VI semester (III year) B.E/ B.Tech students for 100 marks as per the timetable given below. Students are directed to prepare well and score good marks.

Date	SUBJECTS (1.15 pm - 4.15 pm)
25.01.2020 (AN)	CE8005 Air Pollution and Control Engineering (Civil) EE8601 Solid State Drives (EEE) EC8691 Microprocessors and Microcontrollers(ECE) CS8651 Internet Programming (CSE) CS8592 Object Oriented Analysis and Design (IT)
27.01.2020 (AN)	CE8601 Design of Steel Structural Elements (Civil) EE8602 Protection and Switchgear (EEE) EC8095 VLSI Design(ECE) CS8691 Artificial Intelligence (CSE) CS8091 Big Data Analytics (IT)
28.01.2020 (AN)	CE8603 Irrigation Engineering (Civil) GE8075 Intellectual Property Rights (EEE & ECE) CS8601 Mobile Computing (CSE) IT8602 Mobile Communication (IT)
29.01.2020 (AN)	CE8604 Highway Engineering (Civil) EE8691 Embedded Systems (EEE) MG8591 Principles of Management(ECE) CS8602 Compiler Design (CSE) CS8092 Computer Graphics and Multimedia (IT)
30.01.2020 (AN)	EN8592 Wastewater Engineering (Civil) EE8005 Special Electrical Machines (EEE) GE8075 Intellectual Property Rights(CSE & IT) EC8652 Wireless Communication(ECE)
31.01.2020 (AN)	CE8602 Structural Analysis II (Civil) EC8651 Transmission Lines and RF Systems(ECE) CS8603 Distributed Systems (CSE) IT8601 Computational Intelligence (IT)

PRINCIPAL 21/1/20

Cc:

- All III year B.E / B.Tech Classes
- All faculty
- Exam cell
- Notice Board
- Office file

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Register Number:												

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

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Cycle Test - I			Date/Session	27.01.2020/AN	Marks	60
Course code	CE8601	Course Title	DESIGN OF STEEL STRUCTURAL ELEMENTS			
Regulation	2017	Duration	120 minutes	Academic Year	2019-2020(Even Sem)	
Year	III	Semester	VI	Department	Civil	

COURSE OUTCOMES

C310.1	explain the concepts of various design philosophies
C310.2	Design common bolted and welded connections for steel structures
C310.3	Design tension members and explain the effect of shear lag.
C310.4	explain the design concept of axially loaded columns and column base connections.
C310.5	explain specific problems related to the design of laterally restrained and unrestrained steel beams.
C310.6	Design of purlin in roof trusses and also design channel and I section purlins

Q.No.	Question	CO	BTL
	PART A (Answer all the Questions 10 x 2 = 20 Marks)		
1	Recall the recommendations as per IS 800:2007 the minimum pitch bolts in a row.	C310.1	K1
2	What is the allowable deflection of purlins and girder as per IS 800:2007 for the elastic cladding?	C310.1	K2
3	Are all imposed loads, gravity loads? Justify.	C310.1	K2
4	What is mean by composite construction?	C310.1	K2
5	Draw stress strain curve of mild steel and label the important points.	C310.1	K1
6	List three advantages of steel structures.	C310.1	K1
7	How is the ductility of steel measured?	C310.1	K2
8	Why the bolted connection will be 100% efficient?	C310.1	K2
9	Write the use of lug angle.	C310.2	K1
10	What is tension splice.	C310.2	K2
	PART B (Answer all the Questions 2 x 13 = 26 Marks)		
11.a	Explain about the partial safety factor for loads with respect to strength and serviceability and partial safety factors for materials for limit state method.	C310.1	K2
	OR		
11.b	What is mean by hot rolled sections? List out any 5 numbers of hot rolled sections with neat sketch and mark their salient features.	C310.1	K2
12.a	Explain the advantages of steel as a structural material.	C310.1	K2
	OR		
12.b	Explain the types of loads on structures and load combinations with respect to the code of practice.	C310.1	K2
	PART C (Answer all the Questions 1 x 14 = 14 Marks)		
13a	Two flats of size 220mm x10mm each are to be connected using 20mm diameter bolt of grade 4.6 by lap joint to carry force of 300KN. Design the joint. Take steel of grade Fe 410.	C310.2	K3
	OR		

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13b	Design a lap between the two plates each of width 120mm, if the thickness of one plate is 16mm and other is 12mm . The joint has to transfer a design load of 160KN. The plates are of Fe 410 Grade. Use bearing type bolts	**C310.2**	K3

24/01/2020

Course Faculty

(Name /Sign / Date)

24/1/20

HoD/Civil

(Name /Sign / Date)

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CYCLE TEST - I

DESIGN OF STEEL STRUCTURAL ELEMENTS

Ans Key

PART - A

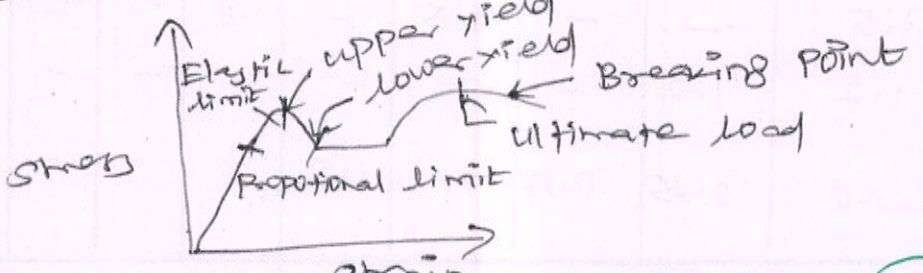
1) minimum pitch [IS 800 : 2007] : 2.5 times the nominal diameter of Bolt

2) Allowable deflection of purlin and girts for Elastic cladding : span/150

3 All imposed loads are gravity loads :- Gravity forces that are not steady like the dead loads, keep on changing position. So all ~~gravity~~ load imposed loads are gravity load

4. composite construction:
TWO different materials bound together & act as a single unit.

5. stress strain curve for mild steel :-



6) Advantages of steel structures :-
i) speed construction
ii) safety
iii) Adaptability
iv) Ductility

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7) Ductility of steel is measure:
Determining the percent of elongation & the percent reduction of area during a tensile test.

8) Efficiency of Bolted connection:-

Efficiency of Bolted connection is 50% because the reduction of area of member.

9) use of lug angle:-

To reduce the length of connection to the gusset plate. and to reduce shear lag effect.

10) Tension splice:

The peak tension force that can be transferred b/w the spliced bars through the bond action.

PART-B

11)

a) Partial safety factors for loads w.r.t strength & serviceability :-(10)

combination	strength					serviceability			
	DL	LL		WL/EL	AL	DL	LL		WL/EL
		Leading	Accompanying				Leading	Accompanying	
DL+LL+CL	1.5	1.5	1.05	–	–	1.0	1.0	1.0	–
DL+LL+CL+WL/EL	1.2	1.2	1.05	0.6	–	1.0	0.8	0.8	0.8
	1.2	1.2	0.53	1.2	–	–	–	–	–
DL+WL/EL	1.5	–	–	1.5	–	1.0	–	–	1.0
DL+ER	1.2	1.2	–	–	–	–	–	–	–
DL+LL+AL	1.0	0.35	0.35	–	1.0	–	–	–	–

Partial safety factor for material: – (3)

Steel = 1.15

Concrete = 1.5

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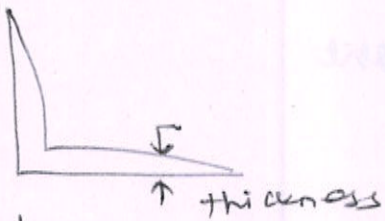
11)

b) Hot rolled section:- - (3)

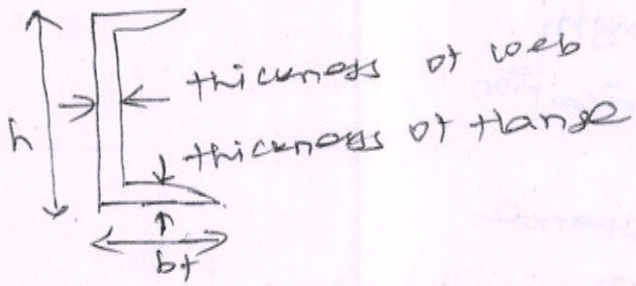
steel that has been rolled-pressed at very high-temperature.

Different forms of Rolled steel sections:-

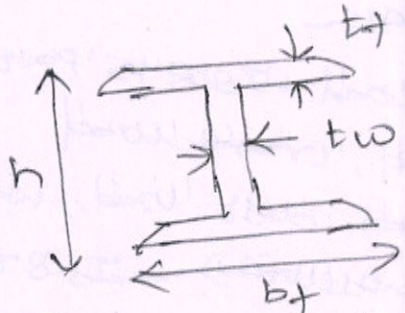
1) Rolled Angle sections:- - (2)



2) Rolled channel sections:- - (2)



3) Rolled I-section:- - (2)



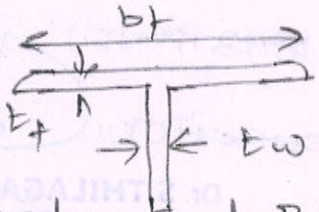
tf = thickness of flange

tw = thickness of web

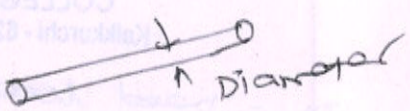
bf = width of flange

h = overall depth

4) Rolled T-sections:- - (2)



5) Rolled Round Bars:- - (2)



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12)
a) Advantage of steel as a structural material:- (13)

i) speed of construction
ii) safety
iii) sustainability
iv) Flexibility
v) High strength
vi) steel is lightweight
vii) cost savings
viii) Ductility
ix) Durability
x) Fatigue strgth
xi) Easy fabrication
xii) Efficient
xiii) fire resistance
xiv) Recyclable

12)
b) Types of loads on structures:- (7)

i) Dead load : permanent load - IS 875 Part 1
ii) Imposed loads : live load, crane load
snow load, dust load, wave load
earth pressure) - IS 875 Part 3
iii) wind loads - IS 875 part 3
iv) Earthquake loads - IS 1893 Part 1
v) Erection load - during erection.
vi) Erection load -

load combinations:-

a) DL + IL
b) DL + IL + WL / EL
c) DL + WL / EL
d) DL + Erection load

DL = Dead load
IL = Imposed load
EL = Earthquake load

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(6)

Part-C

13)

a) Size of plate = 220 x 10mm

d = 20mm

4.6 grade of Bolt

lap joint

load = 300kN

plate grade => Fe 410.

To find:- Design the connection.

solution:-

1) shear capacity of Bolt:- - (b)

$$V_{dsb} = \frac{f_{ub}}{\sqrt{3}} \frac{(n_n A_{nb} + n_s A_{sb})}{\gamma_{mb}}$$

$n_n = 1$

$$A_{nb} = 0.78 \frac{\pi \times 20^2}{4} = 245.04 \text{ mm}^2$$

$$V_{dsb} = \frac{400}{\sqrt{3}} \frac{[245.04 + 0)}{1.25} = 45.271 \text{ kN}$$

2) Bearing capacity of Bolt:- - (b)

$$V_{dpb} = \frac{2.5 k_b d t f_u}{\gamma_{mb}}$$

$$k_b = \frac{e}{3d_0}, \frac{p}{3d_0} - 0.25, \frac{f_{ub}}{f_u}, 1.0$$

$$p = 2.5d = 2.5(20) = 50$$

$$e = 2.5 d_0 = 1.5(22) = 33$$

$$k_b = 0.5, 0.507, 0.975, 1.0 \Rightarrow 0.5$$

$$V_{dpb} = \frac{2.5 \times 0.5 \times 20 \times 10 \times 410}{1.25} = 82 \text{ kN}.$$

∴ Strength of Bolt = 45.27 kN - (2)

3). number of Bolt:- $n = \frac{300}{45.27} = 6.6 = 8 \text{ nos}$

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13)

b) lap joint

$b = 120mm$

$t = 16$ & $12mm$.

Design load = 160kN

Fe410.

To find:- Design of lap joint

solution:-

1) shear strength :- — (b)

$$V_{dsb} = \frac{f_{ub}}{\sqrt{3}} \left(n_n A_{nb} + n_s A_{sb} \right) / \gamma_{mb}$$

$n_n = 1$ | $n_s = 0$

$A_{nb} = 245.04 mm^2$ | $A_{sb} = \frac{\pi \times 20^2}{4} = 314.15 mm^2$

$V_{dsb} = 45.27kN$

2) Bearing Strength:- — (b)

$$V_{dpb} = \frac{2.5 k_b dtf_u}{\gamma_{mb}} = \frac{2.5 \times 0.50 \times 20 \times 12 \times 410}{1.25}$$

$k_b = 0.50$ $= 98.4kN$.

Strength of connection = 45.27kN

3) number of Bolt: $\therefore n = \frac{\text{Design load}}{\text{Strength of connection}}$ — (2)

$$n = \frac{160}{45.27} = 3.5 = 4 nos$$

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Cycle Test Answer Book

Name	Chandrika. C			**Year/ Semester**	III / VI
Reg No.	912617103001	**Date/Session**	27.01.20/AN	**Department**	CIVIL
Course code	CE8601	**Course Title**	Design of steel structural elements		
Cycle Test (Put a tick mark)		**CT 1** ☑	**CT 2** ☐	**CT 3** ☐	**Model** ☐
Name and Signature of the Invigilator with date	P. D 27/1/20 P. Dennis Flora				

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	✓	08				08
2	✓	2	12	✓	08				08
3	✓	2	13	✓	11				11
4	✓	2	14						
5	✓	2	15						
6	✓	2	16						
7	✓	2					Total		27
8	✓	2							
9	✓	2							
10	✓	1							
Total		19	46/60 Grand Total				G. 28/01/2020 G. GAYATHRI Name and Signature of the Examiner with date		

To be filled by the examiner							
Course Outcomes	1	2	3	4	5	6	Total
Marks allotted	42	18	—	—	—	—	—
Marks Obtained	30	16	—	—	—	—	—

IQAC Audit - Remarks

—

P. SUBHA 13/2/20
Name and Signature of the IQAC member

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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2019 – 2020 (EVEN SEMESTER)

STUDENTS MARK STATEMENT- CO BASED

CYCLE TEST-I

SUBJECT CODE &TITLE: CE8601 –DESIGN OF STEEL STRUCTURAL ELEMENTS

YEAR/SEM: III/VI **MONTH & YEAR: JANUARTY & 2020**

S.NO	REG NO	STUDENT NAME	CO1 (42)	CO2 (18)	TOTAL (60)	TOTAL (100)
1	912617103001	CHANDRIKA C	30	16	46	76
2	912617103002	DHESIKAPARTHI D	20	12	32	53
3	912617103003	KARTHIKA K	20	13	33	55
4	912617103004	KASTHURI K	41	17	58	96
5	912617103005	MONIKA K	37	15	52	86
6	912617103006	MUTHUMEENA P	40	16	56	94
7	912617103007	POTHUMPEN A	16	05	21	35
8	912617103008	PRIYADHARSHINI S	15	05	20	33
9	912617103009	RAJESWARI J	35	13	48	80
10	912617103010	SIVAPRIYA S	15	09	24	40
11	912617103701	LAKSHMI A	37	17	54	90

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MARKS RANGE:

<20	20-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
-	-	3	-	2	-	2	2	2

Total No.of Candidates Present	11
Total No.of Candidates Absent	-
Total No.of Students Pass	8
Total No. of Students Fail	3
Percentage of Pass	72.72%

29/1/20

Faculty Incharge

29/1/20

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DEPARTMENT OF CIVIL ENGINEERING

ROOT CAUSE ANALYSIS

Name of the Faculty : Ms.G.Gayathri., AP/CIVIL

Degree & Program : B.E/ CIVIL **Year/ Semester: III/ VI**

Academic Year : 2019-2020 / EVEN **Cycle Test : I/II/III**

Course Code & Name : CE8601 & DESIGN OF STEEL STRUCTURAL ELEMENTS

Result Target : 100% **Result Achieved:72.72%**

S.NO	REG NO	NAME OF THE STUDENT	CAUSES FOR FAILURE	CORRECTIVE ACTION TAKEN
1	912617103007	Pothumpen-A	Confused in problems	Insist the student to solve more problems
2	912617103008	Priyadharshini.S	Not well prepared	Encouraged the student to prepare well
3	912617103010	Siva priya.S	Due to health issue	Insist the student to take care of her health

G. 29/01/2020
Signature of the Faculty

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Date: 01.02.2020

Circular

Retest for first cycle test will be conducted from **05.02.2020 to 11.02.2020** for the IV, VI & VIII semester (II, III &IV year) students.

The following instructions are to be followed by the faculty members.

The following instructions are to be followed by the faculty members.

- Total marks for which the question paper to be set will be for 50 marks. **(PART A** 5X2=10, **PART B** 2X13=26 **& PART C** 1X14=14)
- It is the responsibility of the **question paper** setter to take the Xerox copies of the required number of question papers.
- Concerned Faculty members are requested to conduct the examination as per the scheduled and handover the valued answer scripts to the students on or before **12.02.2020.**

PRINCIPAL

01/02/20

Cc:

- All faculty
- Exam cell
- Office file

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Circular

Date: 01.02.2020

Retest for first cycle test will be conducted from **05.02.2020 to 11.02.2020** for the VI semester (III year) B.E students for **50 marks** as per the time table given below. Students are directed to prepare well and score good marks.

Date	04.00 pm -05.30 pm
05-02-2020	CE8601- Design of Steel Structural Elements (CIVIL) CS8651- Internet Programming (CSE) EE8691- Embedded Systems (EEE) EC8651- Transmission Lines and RF Systems (ECE) CS8592-Object Oriented Analysis and Design(IT)
06-02-2020	CE8602-Structural Analysis II (CIVIL) CS8691- Artificial Intelligence (CSE) EC8095- VLSI Design (ECE) CS8091-Big Data Analytics(IT)
07-02-2020	CE8603- Irrigation Engineering (CIVIL) CS8601- Mobile Computing (CSE) EE8601- Solid State Drives (EEE) EC8652- Wireless Communication (ECE) IT8602-Mobile Communication(IT)
08-02-2020	CE8604- Highway Engineering (CIVIL) CS8602- Compiler Design (CSE) EE8005-Special Electrical Machines (EEE) EC8691- Microprocessors and Microcontrollers (ECE) CS8092-Computer Graphics and Multimedia(IT)
10-02-2020	EN8592- Wastewater Engineering (CIVIL) GE8075- Intellectual Property Rights (CSE/EEE/ECE/IT)
11-02-2020	CE8005- Air Pollution and Control Engineering (CIVIL) CS8603- Distributed Systems (CSE) EE8602- Protection and Switchgear (EEE) MG8591- Principles of Management (ECE) IT8601-Computational Intelligence(IT)

PRINCIPAL

01/02/20

Cc:

- All III year B.E Classes
- All faculty
- Exam cell
- Notice Board
- Office file

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Register Number: | | | | | | | | | | | | |

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Cycle Test- I-Retest			Date/Session	05.02.2020/AN	Marks	50
Course code	CE8601	Course Title	DESIGN OF STEEL STRUCTURAL ELEMENTS			
Regulation	2017	Duration	90 minutes	Academic Year	2019-2020(Even Sem)	
Year	III	Semester	VI	Department	Civil	

COURSE OUTCOMES

C310.1	explain the concepts of various design philosophies
C310.2	Design common bolted and welded connections for steel structures
C310.3	Design tension members and explain the effect of shear lag.
C310.4	explain the design concept of axially loaded columns and column base connections.
C310.5	explain specific problems related to the design of laterally restrained and unrestrained steel beams.
C310.6	Design of purlin in roof trusses and also design channel and I section purlins

Q.No.	Question	CO	BTL
	PART A (Answer all the Questions 10 x 2 = 20 Marks)		
1	Recall the recommendations as per IS 800:2007 the minimum pitch bolts in a row.	C310.1	K1
2	What is the allowable deflection of purlins and girts as per IS 800:2007 for the elastic cladding?	C310.1	K2
3	Are all imposed loads, gravity loads? Justify.	C310.2	K2
4	What is mean by composite construction?	C310.2	K2
5	What is tension splice.	C310.1	K2
	PART B (Answer all the Questions 2 x 13 = 26 Marks)		
6.a	Explain about the partial safety factor for loads with respect to strength and serviceability and partial safety factors for materials for limit state method.	C310.1	K2
	OR		
6.b	What is mean by hot rolled sections? List out any 5 numbers of hot rolled sections with neat sketch and mark their salient features.	C310.1	K3
7.a	Explain the advantages of steel as a structural material.	C310.1	K3
	OR		
7.b	Explain the types of loads on structures and load combinations with respect to the code of practice.	C310.1	K3
	PART C (Answer all the Questions 1 x 14 = 14 Marks)		
8.a	Two flats of size 220mm x10mm each are to be connected using 20mm diameter bolt of grade 4.6 by lap joint to carry fgorce of 300KN. Design the joint. Take steel of grade Fe 410	C310.2	K3
	OR		
8.b	Design a lap between the two plates each of width 120mm, if the thickness of one plate is 16mm and other is 12mm . the joint has to transfer a design load of 160KN. The plates are of Fe 410 Grade.use bearing type bolts	C310.2	K3

03/02/2020

Course Faculty

(Name /Sign / Date)

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DEPARTMENT OF CIVIL ENGINEERING

ATTENDANCE SHEET - RETEST FOR CYCLE TEST-I

Name of the Faculty :Ms.G.Gayathri

Course Code & Name : CE8601 –DESIGN OF STEEL STRUCTURAL ELEMENT

Academic Year : 2019 -2020 /EVEN SEM

Degree & Program :B.E/CIVIL **Year/ Semester: III/VI**

S.NO	REG.NO	NAME	SIGNATURE
1.	912617103002	DHESIKAPARTHI D	D. Dhesiparthi
2.	912617103003	KARTHIKA K	K. karthika
3.	912617103007	POTHUMPEN A	Pothumpen
4.	912617103008	PRIYADHARSHINI S	Priyadhy
5.	912617103010	SIVAPRIYA S	S. Sivapriya

G. 5/12/20
Faculty Incharge

R. 5/12/20
HoD/Civil

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5/12/20
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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2019 – 2020 (EVEN SEMESTER)

STUDENTS MARK STATEMENT- CO BASED

RETEST FOR CYCLE TEST-I

SUBJECT CODE &TITLE: CE8601 –DESIGN OF STEEL STRUCTURAL ELEMENTS

YEAR/SEM: III/VI MONTH & YEAR: FEBRUARY & 2020

S.NO	REG NO	STUDENT NAME	CO1 (32)	CO2 (18)	TOTAL (50)	TOTAL (100)
1.	912617103002	DHESIKAPARTHI D	21	10	31	62
2.	912617103003	KARTHIKA K	21	15	36	72
3.	912617103007	POTHUMPEN A	22	04	26	52
4.	912617103008	PRIYADHARSHINI S	19	08	27	54
5.	912617103010	SIVAPRIYA S	17	09	26	52

MARKS RANGE:

<20	20-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
-	-	-	-	3	1	1	-	-

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Total No.of Candidates Present	05
Total No.of Candidates Absent	-
Total No.of Students Pass	05
Total No. of Students Fail	-
Percentage of Pass	100%

6/02/2020

Faculty Incharge

6/2/20

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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2019 – 2020(EVEN SEMESTER)

FINAL INTERNAL STUDENTS MARK STATEMENT(Out of 20)

SUBJECT CODE &TITLE:CE8601 –DESIGN OF STEEL STRUCTURAL ELEMENTS

YEAR/SEM: III/VI

S.NO	REG NO	STUDENT NAME	TOTAL (20)
1	912617103001	CHANDRIKA C	10
2	912617103002	DHESIKAPARTHI D	09
3	912617103003	KARTHIKA K	10
4	912617103004	KASTHURI K	11
5	912617103005	MONIKA K	11
6	912617103006	MUTHUMEENA P	12
7	912617103007	POTHUMPEN A	07
8	912617103008	PRIYADHARSHINI S	07
9	912617103009	RAJESWARI J	11
10	912617103010	SIVAPRIYA S	07
11	912617103701	LAKSHMI A	12

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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2019 – 2020 (EVEN SEMESTER)

ANNA UNIVERSITY RESULT STATEMENT APR/MAY-2020

SUBJECT CODE &TITLE: CE8601-DESIGN OF STEEL STRUCTURAL ELEMENTS

YEAR/SEM: III/VI

S.NO	REG NO	STUDENT NAME	GRADE
1	912617103001	CHANDRIKA C	B+
2	912617103002	DHESIKAPARTHI D	B+
3	912617103003	KARTHIKA K	A
4	912617103004	KASTHURI K	A
5	912617103005	MONIKA K	A
6	912617103006	MUTHUMEENA P	A+
7	912617103007	POTHUMPEN A	B
8	912617103008	PRIYADHARSHINI S	B
9	912617103009	RAJESWARI J	A
10	912617103010	SIVAPRIYA S	B
11	912617103701	LAKSHMI A	A+

Faculty Incharge

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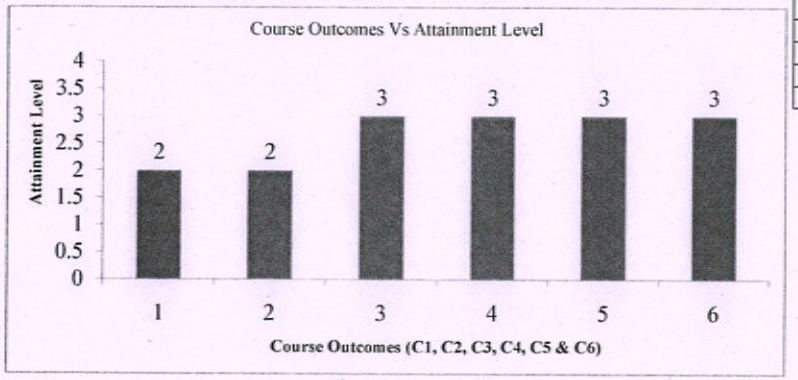
Department of Civil Engineering

Internal Assessment -Attainment of Course Outcomes (Through Direct Assessment)

ACADEMIC YEAR - 2019 - 20		BATCH	2017-2021					
COURSE CODE/TITLE	CE8601 DESIGN OF STEEL STRUCTURAL ELEMENTS	COURSE OUTCOME	1	2	3	4	5	6
YEAR/ SEMESTER	III / VI	TARGET(%)	65	65	65	65	65	65
COURSE COORDINATOR	G GAYATHRI	TOTAL STRENGTH	11					

ATTAINMENT LEVEL	Level	Range
	1	UP TO 60% of the students scored more than target
	2	61 - 79% of the students scored more than target
	3	80% & ABOVE of the students scored more than target

S.NO	REG NO	NAME OF THE STUDENT	IAT 1 - MARKS ALLOTED						IAT 2 - MARKS ALLOTED						IAT 3 - MARKS ALLOTED						Assignment / Mini Project /Tutorial / Seminar						TOTAL COURSE OUTCOME					
			C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6
			60	40							60	40									10	10			10	10	70	50	60	40	10	10
1	912617103001	CHANDRIKA C	46	30							40	27									8	8			8	7	54	38	40	27	8	7
2	912617103002	DHESIKAPARTHI D	37	24							41	28									9	9			7	9	46	33	41	28	7	9
3	912617103003	KARTHIKA K	43	29							50	33									8	8			8	8	51	37	50	33	8	8
4	912617103004	KASTHURI K	58	38							40	27									8	8			8	7	66	46	40	27	8	7
5	912617103005	MONIKA K	52	34							44	30									8	8			8	8	60	42	44	30	8	8
6	912617103006	MUTHUMEENA P	56	37							52	34									8	8			8	8	64	45	52	34	8	8
7	912617103007	POTHUMPEN A	31	20							35	24									9	9			8	7	40	29	35	24	8	7
8	912617103008	PRIYADHARSHINI S	25	17							39	26									9	9			7	8	34	26	39	26	7	8
9	912617103009	RAJESWARI J	47	32							55	37									8	8			8	8	55	40	55	37	8	8
10	912617103010	SIVAPRIYA S	27	18							40	26									9	9			7	9	36	27	40	26	7	9
11	912617103701	LAKSHMI A	53	36							59	39									9	9			7	9	62	45	59	39	7	9
		CO's Target Value																									45.5	32.5	39.0	26.0	6.5	6.5
		No. of Students scored above CO's Target Value																									8	8	10	10	11	11
		Percentage of Students scored above Target																									72.7	72.7	90.9	90.9	100.0	100.0
		CO Attainment																									2	2	3	3	3	3
		CO attainment Values to plot the Graph																									2	2	3	3	3	3



Faculty Incharge

HoD/CIVIL

HOD / CIVIL
SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FORWOMEN
DEPARTMENT OF CIVIL ENGINEERING
COURSE OUTCOME ATTAINMENT - UNIVERSITY EXAMINATION
ACADEMIC YEAR : 2019 - 2020 (ODD SEM)

CLASS /SEC: III CIVIL **Batch:2017-2021**
SUBJECT :CE8601 DESIGN OS STEEL STRUCTURAL ELEMENTS
CO Attainment Level: 1 - (UPTO 60%) 2- (61%-79%) 3-(80% and Above)
TOTAL STRENGTH : 11

S.NO	Register No	NAME	Univ. Grade
1	912617103001	CHANDRIKA C	B+
2	912617103002	DHESIKAPARTHI D	B+
3	912617103003	KARTHIKA K	A
4	912617103004	KASTHURI K	A
5	912617103005	MONIKA K	A
6	912617103006	MUTHUMEENA P	A+
7	912617103007	POTHUMPEN A	B
8	912617103008	PRIYADHARSHINI S	B
9	912617103009	RAJESWARI J	A
10	912617103010	SIVAPRIYA S	B
11	912617103701	LAKSHMI A	A+

No. of O Grade	0	0
No. of A+ Grade	2	2
No. of A Grade	4	4
No.of B+ Grade	2	2
No. of B Grade	3	3
No. of U Grade	0	0
No. of UA Grade	0	0
Target for course outcome Attainment	60	11
No of students above the target	11	
CO-Attainment University (%)	100.00	

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Overall Attainment Sheet – COs - POs & PSOs attainment calculation

CO	CO-Attainment Internal (CO-INT) (Avg. Attainment of All section) (%)	CO-Attainment University (CO-UNI) (Avg. Attainment of All section) (%)	Direct CO Attainment (0.20xCO-INT + 0.80xCO-UNI) (%)	CO Attainment Level
C310.1	72.7	100.00	94.5	3
C310.2	72.7	100.00	94.5	3
C310.3	90.9	100.00	98.2	3
C310.4	90.9	100.00	98.2	3
C310.5	100.0	100.00	100.0	3
C310.6	100.0	100.00	100.0	3

Expected CO-PO Level

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C310.1	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.2	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.3	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.4	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.5	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.6	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2

PO Attainment Level

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C310.1	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.2	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.3	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.4	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.5	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310.6	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
C310	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2

Attainment of POs and PSOs

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C310	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2
Attainment	3	3	3	2	-	-	-	-	1	2	-	1	3	2	2

Comments by Program Coordinator

1.

2.

Remarks by HoD

G. [G.GAYATHRI, AP(CM)]

Name and Signature of the Faculty Member

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