Design of Steel Structures (GR18A3067)

III-B.Tech – II Semester

(AY 2021-22)

Dr. V.MALLIKARJUNA REDDY

Professor

Department of Civil Engineering

Gokaraju Rangaraju Institute of Engineering and Technology

Bachupally, Kukatpally, Hyderabad – 500 090.

Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

Design of steel Structures

Course File Check List

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DESIGN OF STEEL STRUCTURES

Course Code: GR18A3067 L:3 T:0 P:0C:3
III Year II Semester

Course Objectives: The objective of this course is to make the student to

1. Identify various types of structural steel and its properties. Also, able to define concepts of LSD.
2. Classify and design various types of connections.
3. Design tension and compression members for the given loads and moments.
4. Design steel beams for the given loads and moments.
5. Design eccentric connections for the given loads and moments.

Course Outcomes: After completion of this course, students will be able to

1. Identify various types of structural steel and its properties. Also, able to define concepts of LSD.
2. Classify and design various types of connections.
3. Design tension and compression members for the given loads and moments.
4. Design steel beams for the given loads and moments.
5. Design eccentric connections for the given loads and moments.

UNIT I

Materials: Properties of materials. Concepts of limit state method, loads and stresses. Types of structural steel- making of iron and steel. Deflection limits, serviceability and stability check as per IS 800-2007.

UNIT II

Bolted Connections: IS – 800 – 2007 specifications, Design strength and efficiency of joint Welded connections: Types of welded joints, specifications and design requirements.

UNIT III

Design of tension member: Design of tension members subjected to axial tension and bending, splicing of tension member and lug angle. Design of compression members: Design of columns, laced and battened columns, column- splice, column slab base and gusset base.

UNIT IV

Design of Beams: Design of flexural members, lateral stability of beams, lateral torsional buckling, shear strength of beams; web buckling, web crippling, built-up beams, lintels and purlins.

UNIT V

Eccentric and Moment connections: Introduction, beam-column connections; connections subjected to eccentric shear, bolted framed connections, bolted seat connections, bolted bracket connections, welded framed connections, welded seat connections, welded bracket connection, moment resistant connection; bolted moment connections and welded moment connections.

Text/Reference Books:

1. Design of steel structures – N. Subramanian, Oxford University Press –2009.
2. Limit State Design of steel structures, S.K.Duggal, Tata McGraw – Hill, 2010
3. Design of Steel Structures Vol. 1 & 2 – Ramchandra, Standard Publications.
4. Design of steel structures , S. S. Bhavikatti, IK int Publication House, New Delhi, 2010
5. Design of steel structures, BC Punmia A. K. Jain , Ashok Kumar Jain, Laxmi Publications

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COURSE: DESIGN OF STEEL STRUCTURES

Time Table

III YEAR II SEM **w.e.f: 17-01-2022**

Dr.V. MALLIKARJUNA REDDY (Professor) and Dr.T.SRINIVAS (Professor)

III BTech (GR18) - II Semester **AY: 2021-22** **SEC: A & B**

DAY/ HOUR	9:00 - 9.55	9.55 - 10.50	10:50 - 11:45	11:45- 12:25	12:25 - 1:15	1:15 - 2:05	2:05-2:55
Monday			DSS(A)	LUNCH BREAK		DSS(B)	
Tuesday							
Wednesday	DSS(B)	DSS(B)			DSS(A)	DSS(A)	
Thursday			DSS(A)				
Friday					DSS(B)	DSS(B)	DSS(A)
Saturday							

Signature of HOD

Date:

Signature of faculty

Date:

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Program Educational Objectives

1. Graduates of the programme will be successful in technical and professional career.
2. Graduates of the programme will have proficiency in solving real time Civil Engineering projects.
3. Graduates of the programme will continue to engage in life-long learning with ethical and social responsibility.

Program Outcomes

Graduates of the Civil Engineering programme will be able to

a. apply knowledge of mathematics, science and fundamentals of Civil Engineering.
b. analyse problem and interpret the data.
c. design a system component, or process to meet desired needs in Civil Engineering within realistic constraints.
d. identify, formulate, analyse and interpret data to solve Civil Engineering problems.
e. use modern engineering tools such as CAD and GIS for the Civil Engineering practice.
f. understand the impact of engineering solutions in a global, economic and societal context.
g. understand the effect of Civil Engineering solutions on environment and to demonstrate the need for sustainable development.
h. understanding of professional and ethical responsibility.
i. work effectively as an individual or in a team and to function on multi-disciplinary context.
j. communicate effectively with engineering community and society.
k. demonstrate the management principles in Civil Engineering projects.
l. recognize the need for and an ability to engage in life-long learning.

Program Specific Outcomes (PSO's)

PSO1: Recognize the need for a sustainable environment and design smart infrastructure considering the global challenges.

PSO2: Create and develop innovative designs with new era materials through research and development.

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COURSE OBJECTIVES

DESIGN OF STEEL STRUCTURES

Course Code: GR18A3067 L:3 T:0 P:0 C:3 III Year II Semester
Academic Year:2021-22

Course Objectives: The objective of this course is to make the student to

1. Identify various types of structural steel and its properties. Also, able to define concepts of LSD.
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COURSE OUTCOMES

Design of Steel Structures

Academic **Y**ear : 2021-22
YEAR: III Year
Semester: II

Course Outcomes: After completion of this course, students will be able to

1. Identify various types of structural steel and its properties. Also, able to define concepts of LSD.
2. Classify and design various types of connections.
3. Design tension and compression members for the given loads and moments.
4. Design steel beams for the given loads and moments.
5. Design eccentric connections for the given loads and moments.

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STUDENT ROLL LIST

B.Tech Civil Engg. III yr-II Sem- Section A(GR18) 2021 -22

S.No.	Roll No.	Name of the Student
1	18241A0151	Soheb Patel
2	18241A0152	Sriram Shiva Aditya
3	19241A0101	Rahail Ahmed Lone
4	19241A0102	A Sai Teja
5	19241A0103	V shiva Karthik
6	19241A0104	B Varun Teja Goud
7	19241A0105	Bhukya Vamshi
8	19241A0106	B Venkata Rohith
9	19241A0107	B Praneeth Kumar
10	19241A0108	C Rahul
11	19241A0109	D Kiran
12	19241A0110	D Ragnesh
13	19241A0111	E Manish Goud
14	19241A0112	E Sai Priya
15	19241A0113	G Deepika
16	19241A0114	G Sai
17	19241A0115	G Santosh
18	19241A0116	G Sai Kumar
19	19241A0117	G Sridhar

20	19241A0118	I Hemanth Kumar
21	19241A0119	J Vaishnavi
22	19241A0120	J Cheran
23	19241A0122	J Sreevani
24	19241A0123	K Sowmya
25	19241A0124	K Krishnasri sai
26	19241A0125	K Akshay
27	19241A0126	K Sai Kumar
28	19241A0127	K Tejaswi
29	19241A0128	K Srija
30	19241A0129	K Vivek
31	19241A0130	K Vijay Palange
32	19241A0131	M Akhil Reddy
33	19241A0132	M Sravan Kumar
34	19241A0133	M Ajay Sagar
35	19241A0134	Chandana M
36	19241A0135	M Chinni
37	19241A0136	M Vijay Kumar
38	19241A0137	M Obaid Kahif
39	19241A0138	N Madhav Kumar
40	19241A0139	N Arshitha
41	19241A0141	P Siddartha
42	19241A0142	P Ajay Kumar
43	19241A0143	P Naveen
44	19241A0144	P Sanath Kumar
45	19241A0145	P Pranay
46	19241A0146	P Swapnil

47	19241A0147	P Saahas
48	19241A0148	S Saiteja
49	19241A0149	M Saineeraj
50	19241A0150	SSS Prasanna Reddy
51	19241A0151	Shaik Bilal
52	19241A0152	Shaik Firdous Ayesha
53	19241A0153	Soora Vikas
54	19241A0154	TSSP Roshini
55	19241A0155	T Swaranya
56	19241A0156	T V Vayunandhan
57	19241A0157	U Nikhil Reddy
58	19241A0158	V Gayathri
59	19241A0159	V V Siddhartha Raju
60	19241A0160	K Yaswanth

B.Tech Civil Engg. III yr-II Sem- Section B (GR18) 2021 -22

S.No.	Roll No.	Name of the Student
1	19241A0161	ABDUL RAHEEM
2	19241A0162	ANEMONI MURALI MANOHAR
3	19241A0163	ASKANY HARISH SAGAR
4	19241A0164	BODLA AKSHITH
5	19241A0165	BURRA VAMSHI KRISHNA
6	19241A0166	CHERLAKOLA AKHILA
7	19241A0167	CHINTAPALLI VIKRAM
8	19241A0168	CHIRRIBOYINA DHANYA
9	19241A0169	D SREE MADHURI
10	19241A0170	GADDAM SAHITHI
11	19241A0171	GAJJALA SUKENDHAR REDDY
12	19241A0172	YASHASWI GANGAVARAM
13	19241A0173	GINDHAM ADITYA KUMAR
14	19241A0174	GUDHETI NARENDAR REDDY
15	19241A0175	GUMMADI SAI PRATEEK REDDY
16	19241A0176	HANMAPUR DHEERAJ GOUD
17	19241A0177	JAVVAJI AISHWARYA
18	19241A0178	JULAPALLY NITHIN RAO
19	19241A0179	K NAVEEN
20	19241A0180	K RAJESHWARI
21	19241A0181	KACHAVA SURENDAR
22	19241A0182	KODATHALA INDU
23	19241A0183	KOTARU SRINIVASA VARAPRASAD
24	19241A0184	MALOTH RAHUL
25	19241A0185	MATURI SATHVIK

26	19241A0186	MD ABDUL MAAJID
27	19241A0187	MEDARI DAYANA
28	19241A0188	NARSINGA SANDEEP
29	19241A0189	PALANATI ROHITH
30	19241A0190	PURALASETTY BHAVANA
31	19241A0191	RODDA MALAVIKA REDDY
32	19241A0192	SAPRAM NAGA SRILOWKYA MUKTHA
33	19241A0193	SHAIK PARVEZ ANSARI
34	19241A0194	SIDDELA THARUN KUMAR
35	19241A0195	TALARI CHANDANA SREE
36	19241A0196	VALLEPU KALYAN
37	19241A0197	VRASHAB PATEL
38	19241A0198	YELLAVULA NARENDER
39	19241A0199	BADDELA SAI THARUN
40	20245A0101	Aamanchi Bowmi
41	20245A0102	Aviraboina Sai Chaithanya
42	20245A0103	Bairy B S Anirudh
43	20245A0104	Daddu Tejasree
44	20245A0105	Dopathi Raviteja
45	20245A0106	Eruventi Niharika
46	20245A0107	Gaddamidi Aanil
47	20245A0108	Gandla Rishik Raj
48	20245A0109	Gone Naveen Kumar
49	20245A0110	Kota Vishal
50	20245A0111	Kummari Mahesh
51	20245A0112	Lakavath Anil
52	20245A0113	Madavaram Rohith
53	20245A0114	Mandala Akshitha

54	20245A0115	M Manjunath
55	20245A0116	Porandla Nagabhushanam
56	20245A0117	Pulishetty Bhavani
57	20245A0118	Racha Kranthi Ranadeer
58	20245A0119	S Manoj Kumar
59	20245A0120	Samudrala Manideep
60	20245A0121	Sangepaga Goutham
61	20245A0122	Sodadasi Rahul
62	20245A0123	Vanga Harshith
63	20245A0124	Choleti Vineetha
64	20245A0125	Gangula Grishma
65	20245A0126	Bollampalli Sai Poojith
66	20245A0127	Pamulapati Sumanth
67	20245A0128	T Sanghamithra
68	20245A0129	Ambeda Akanksha
69	20245A0130	Doppalapudi Ramvineeth Sai
70	20245A0131	Pilly Uday Kiran

Signature of HOD

Date:

Signature of faculty

Date:

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GUIDELINES TO STUDY THE COURSE/SUBJECT

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.MALLIKARJUNA REDDY

Dept.: Civil Engineering; Designation: Professors

Guidelines to students

Guidelines to study the Course: Design of Steel Structures

The course helps the students to learn and understand the importance of Steel Structures in different phases of construction. One can learn to determine the various engineering properties of Steel Structures. This course makes the students to understand about various properties of steel and its use in structures,

So the students should have the prerequisites

- knowledge of various building materials
- knowledge of design.

Where will this subject help?

- Useful in steel structures, analyzing type of member, estimating the load and joints.
- This course let the students to work with various types of designs.
- This course let the students to determine the engineering properties of steel.
- This course let the students to design steel structure.

TEXT BOOKS:

1. Design of steel structures – N. Subramanian, Oxford University Press –2009.
2. Limit State Design of steel structures, S.K.Duggal, Tata McGraw – Hill,2010

REFERENCE BOOKS:

3. Design of Steel structures by K. S. Sai Ram, PersonEducation.

4. Design of Steel Structures Vol. 1 & 2 – Ramchandra, Standard Publications.
5. Design of steel structures, S.S.Bhavikatti,IKintPublicationHouse,NewDelhi,2010
6. Design of steel structures, BC Punmia A.K.Jain, Ashok Kumar Jain, Laxmi Publications
7. Design of steel structures, S. Ramamrutham,DhanpatRai Publishing Company (p) Limited

Course Design and Delivery System (CDD):

- The Course syllabus is written into number of learning objectives and outcomes.
- These learning objectives and outcomes will be achieved through lectures, assessments, assignments, experiments in the laboratory, projects, seminars, presentations, etc.
- Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.
- The Learning Process will be carried out through assessments of Knowledge, Skills and Attitude by various methods and the students will be given guidance to refer to the text books, reference books, journals, etc.

The faculty be able to –

- Understand the principles of Learning
- Understand the psychology of students
- Develop instructional objectives for a given topic
- Prepare course, unit and lesson plans
- Understand different methods of teaching and learning
- Use appropriate teaching and learning aids
- Plan and deliver lectures effectively
- Provide feedback to students using various methods of Assessments and tools of Evaluation
- Act as a guide, advisor, counselor, facilitator, motivator and not just as a teacher alone

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COURSE SCHEDULE

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr.T.Srinivas

Dept.: Civil Engineering

Designation: Professors

The Schedule for the whole Course / Subject is:

S. No.	Description	Duration (Date)		Total No. of Periods
		From	To	
1.	**UNIT I:**	17-01-2022	01-02-2022	8
2.	**UNIT II:**	03-02-2022	25-02-2022	14
3.	**UNIT III:**	28-02-2022	31-03-2022	21
4.	**UNIT IV:**	01-04-2022	21-04-2022	13
5.	**UNIT V:**	22-04-2022	11-05-2022	12

Total No. of Instructional periods available for the course: 68 Hours / Periods

Signature of HOD Signature of faculty

Date: Date:

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DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech** - Section A Semester: **II**

Subject: **DESIGN OF STEEL STRUCTURES**

Faculty: Dr.V.Mallikarjuna Reddy and Dr .T.Srinivas

U.No.	Lesson No.	Date	Number of periods	Topics	Objectives & Outcome Nos.	References
1	1	17/01/22	1	Introduction& importance of subject	CobNos:1,CoNos:1	Limit State Design of Steel Structures By SK Duggal IS800-2007 Steel Tables
	2	18/01/22	1	Introduction about IS800-2007	CobNos:1,CoNos:1	IS:800-2007
	3	20/01/22	1	Materials required and making of steel	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos: 1-5
	4	24/01/22	1	Types of structural steel	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos: 6-9
	5	25/01/22	1	Loads and combinations and Local buckling behavior of steel	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos:26, 40-64
	6	27/01/22	1	Concepts of LSD	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos:133-145
	7	31/01/22	1	Design strengths and deflection limits	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos: 146-150
	8	1/02/22	1	Stability check	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos: PNo:136
2	9	3/02/22	1	Introduction about connections	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:158
	10	7/02/22	1	Riveted connections & specifications	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:159-161
	11	8/02/22	1	Problems solving	CobNos:2,CoNos:2	DSS-LSD-Duggal Notes
	12	10/02/22	1	Problems solving	CobNos:2,CoNos:2	DSS-LSD-Duggal Notes
	13	14/02/22	1	Bolted connections & specifications	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:162-171
	14	16/02/22	1	Design strength	CobNos:2,CoNos:2	DSS-LSD-Duggal

	15	16/02/22	1	Efficiency of joint	CobNos:2,CoNos:2	DSS-LSD-Duggal
	16	17/02/22	1	Problems solving	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:195-214
	17	18/02/22	1	Problems solving	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:195-214
	18	21/02/22	1	Welded connections &joints	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:222
	19	23/02/22	1	About Welding, advantages of welds	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:222-230
	20	23/02/22	1	About Fillet welds	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:231-39
	21	24/02/22	1	About Groove welds	CobNos:2,CoNos:2	DSS-LSD-Duggal DSS:PNos:229
	22	25/02/22	1	About Plug and Slot welds	CobNos:2,CoNos:2	DSS-LSD-Duggal PNo:242
3	23	28/02/22	1	Introduction about Tension members	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:264-277
	24	02/03/22	1	Design of tension member	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos: 277-284
	25	02/03/22	1	Design strength	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:277
	26	03/03/22	1	Design of splice	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:287
	27	04/03/22	1	Design of lug angle	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:286
	28	07/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
	29	09/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
	30	09/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
	31	10/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
	32	11/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
	33	17/03/22	1	Introduction about Compression members	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:326-335
	34	18/03/22	1	Design of compression members	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:336-355
	35	21/03/22	1	Design of laced columns	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:355-363
	36	23/03/22	1	Design of battened columns	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos: 363-366
	37	23/03/22	1	Design of column, slab base	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:549-562
	38	24/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:371-415
	39	25/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:371-415
	40	28/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:371-415

	41	30/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:371-415
	42	30/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:570-588
	43	31/03/22	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:570-588
4	44	01/04/22	1	Introduction about beams	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:426-432
	45	04/04/22	1	Design procedure	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:439-445
	46	06/04/22	1	Bending strength of a laterally supported beam	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:439-445
	47	06/04/22	1	Shear strength of a laterally supported beam	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:439-445
	48	07/04/22	1	Deflection limits, Web buckling strength, Web crippling	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:451-454
	49	08/04/22	1	Design of built up section, Design of purlins	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:460-461
	50	11/04/22	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
	51	13/04/22	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
	52	13/04/22	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
	53	18/04/22	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
	54	20/04/22	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
	55	20/04/22	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
	56	21/04/22	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNo:470-497
5	57	22/04/22	1	Introduction about eccentric connections	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:676
	58	25/04/22	1	Design of eccentric connections	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:678
	59	27/04/22	1	Types of beam connections	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:678-681
	60	27/04/22	1	Design of framed connection using bolt	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:682-688
	61	28/04/22	1	Design of stiffened seat connection	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:697-715
	62	29/04/22	1	Design of stiffened seat connection	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos: 697-715
	63	02/05/22	1	Welded connections &joints	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:697-715
	64	04/05/22	1	Welding specifications	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:697-715

	65	04/05/22	1	Problems solving	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:717-745
	66	09/05/22	1	Problems solving	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:717-745
	67	11/05/22	1	Problems solving	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:717-745
	68	11/05/22	1	Problems solving	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:717-745

Signature of HOD

Date:

Signature of faculty

Date:

Note: 1. Ensure that all topics specified in the course are mentioned.
2.Additional topics covered, if any, may also be specified in bold
3.Mention the corresponding course objective and outcome numbers against each topic.

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech** - Section B Semester: **II**

Subject: **DESIGN OF STEEL STRUCTURES**

Faculty: Dr.V.Mallikarjuna Reddy and Dr .T.Srinivas

S. No.	Date	Unit No.	Session Duration	Topics	Objectives & Outcome Nos.	References
1	17/01/22	I	1	Introduction& importance of subject	CobNos:1,CoNos:1	Limit State Design of Steel Structures By SK Duggal IS800-2007 Steel Tables
2	18/01/22	I	1	Introduction about IS800-2007	CobNos:1,CoNos:1	IS:800-2007
3	20/01/22	I	1	Materials required and making of steel	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos: 1-5
4	24/01/22	I	1	Types of structural steel	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos: 6-9
5	25/01/22	I	1	Loads and combinations and Local buckling behavior of steel	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos:26, 40-64
6	27/01/22	I	1	Concepts of LSD	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos:133-145
7	31/01/22	I	1	Design strengths and deflection limits	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos: 146-150
8	1/02/22	I	1	Stability check	CobNos:1,CoNos:1	DSS-LSD-Duggal PNos: PNo:136
9	3/02/22	II	1	Introduction about connections	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:158
10	7/02/22	II	1	Riveted connections & specifications	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:159-161
11	8/02/22	II	1	Problems solving	CobNos:2,CoNos:2	DSS-LSD-Duggal Notes
12	10/02/22	II	1	Problems solving	CobNos:2,CoNos:2	DSS-LSD-Duggal Notes
13	14/02/22	II	1	Bolted connections & specifications	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:162-171
14	16/02/22	II	1	Design strength	CobNos:2,CoNos:2	DSS-LSD-Duggal

15	16/02/22	II	1	Efficiency of joint	CobNos:2,CoNos:2	DSS-LSD-Duggal
16	17/02/22	II	1	Problems solving	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:195-214
17	18/02/22	II	1	Problems solving	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:195-214
18	21/02/22	II	1	Welded connections &joints	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:222
19	23/02/22	II	1	About Welding, advantages of welds	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:222-230
20	23/02/22	II	1	About Fillet welds	CobNos:2,CoNos:2	DSS-LSD-Duggal PNos:231-39
21	24/02/22	II	1	About Groove welds	CobNos:2,CoNos:2	DSS-LSD-Duggal DSS:PNos:229
22	25/02/22	II	1	About Plug and Slot welds	CobNos:2,CoNos:2	DSS-LSD-Duggal PNo:242
23	28/02/22	III	1	Introduction about Tension members	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:264-277
24	02/03/22	III	1	Design of tension member	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos: 277-284
25	02/03/22	III	1	Design strength	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:277
26	03/03/22	III	1	Design of splice	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:287
27	04/03/22	III	1	Design of lug angle	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:286
28	07/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
29	09/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
30	09/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
31	10/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
32	11/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:289-315
33	17/03/22	III	1	Introduction about Compression members	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:326-335
34	18/03/22	III	1	Design of compression members	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:336-355
35	21/03/22	III	1	Design of laced columns	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:355-363
36	23/03/22	III	1	Design of battened columns	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos: 363-366
37	23/03/22	III	1	Design of column, slab base	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:549-562
38	24/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:371-415
39	25/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:371-415
40	28/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:371-415
4	30/03	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal

1	/22					PNos:371-415
42	30/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:570-588
43	31/03/22	III	1	Problems solving	CobNos:3,CoNos:3	DSS-LSD-Duggal PNos:570-588
44	01/04/22	IV	1	Introduction about beams	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:426-432
45	04/04/22	IV	1	Design procedure	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:439-445
46	06/04/22	IV	1	Bending strength of a laterally supported beam	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:439-445
47	06/04/22	IV	1	Shear strength of a laterally supported beam	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:439-445
48	07/04/22	IV	1	Deflection limits, Web buckling strength, Web crippling	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:451-454
49	08/04/22	IV	1	Design of built up section, Design of purlins	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:460-461
50	11/04/22	IV	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
51	13/04/22	IV	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
52	13/04/22	IV	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
53	18/04/22	IV	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
54	20/04/22	IV	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
55	20/04/22	IV	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:470-497
56	21/04/22	IV	1	Problems solving	CobNos:4,CoNos:4	DSS-LSD-Duggal PNo:470-497
57	22/04/22	IV	1	Introduction about eccentric connections	CobNos:4,CoNos:4	DSS-LSD-Duggal PNos:676
58	25/04/22	V	1	Design of eccentric connections	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:678
59	27/04/22	V	1	Types of beam connections	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:678-681
60	27/04/22	V	1	Design of framed connection using bolt	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:682-688
61	28/04/22	V	1	Design of stiffened seat connection	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:697-715
62	29/04/22	V	1	Design of stiffened seat connection	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos: 697-715
63	02/05/22	V	1	Welded connections &joints	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:697-715
64	04/05/22	V	1	Welding specifications	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:697-715
65	04/05/22	V	1	Problems solving	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:717-745
66	09/05/22	V	1	Problems solving	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:717-745

67	11/05/22	V	1	Problems solving	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:717-745
68	11/05/22	V	1	Problems solving	CobNos:5,CoNos:5	DSS-LSD-Duggal PNos:717-745

Signature of HOD

Date:

Signature of faculty

Date:

Note: 1. Ensure that all topics specified in the course are mentioned.
2.Additional topics covered, if any, may also be specified in bold
3.Mention the corresponding course objective and outcome numbers against each topic.

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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DEPARTMENT OF CIVIL ENGINEERING

UNIT PLAN -1

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech** - Section A Semester: **II**

Subject: **DESIGN OF STEEL STRUCTURES**

Faculty: Dr.V.Mallikarjuna Reddy and Dr .T.Srinivas

Lesson No.	Date	Number of periods	Topics	Objectives & Outcome Nos.	Blooms Taxonomy	References
1	17/01/22	1	Introduction& importance of subject	CobNos:1,CoNos:1	K2	Limit State Design of Steel Structures By SK Duggal IS800-2007 Steel Tables
2	18/01/22	1	Introduction about IS800-2007	CobNos:1,CoNos:1	K1	IS:800-2007
3	20/01/22	1	Materials required and making of steel	CobNos:1,CoNos:1	K2	DSS-LSD-Duggal PNos: 1-5
4	24/01/22	1	Types of structural steel	CobNos:1,CoNos:1	K2	DSS-LSD-Duggal PNos: 6-9
5	25/01/22	1	Loads and combinations and Local buckling behavior of steel	CobNos:1,CoNos:1	K2	DSS-LSD-Duggal PNos:26, 40-64
6	27/01/22	1	Concepts of LSD	CobNos:1,CoNos:1	K2	DSS-LSD-Duggal PNos:133-145
7	31/01/22	1	Design strengths and deflection limits	CobNos:1,CoNos:1	K2	DSS-LSD-Duggal PNos: 146-150
8	1/02/22	1	Stability check	CobNos:1,CoNos:1	K2	DSS-LSD-Duggal PNos: PNo:136

Signature of HOD

Date:

Signature of faculty

Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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DEPARTMENT OF CIVIL ENGINEERING

UNIT PLAN-2

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech** - Section A Semester: **II**

Subject: **DESIGN OF STEEL STRUCTURES**

Faculty: Dr.V.Mallikarjuna Reddy and Dr .T.Srinivas

Lesson No.	Date	Number of periods	Topics	Objectives & Outcome Nos.	Blooms Taxonomy	References
1	3/02/22	1	Introduction about connections	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal PNos:158
2	7/02/22	1	Riveted connections & specifications	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal PNos:159-161
3	8/02/22	1	Problems solving	CobNos:2,CoNos:2	K3	DSS-LSD-Duggal Notes
4	10/02/22	1	Problems solving	CobNos:2,CoNos:2	K3	DSS-LSD-Duggal Notes
5	14/02/22	1	Bolted connections & specifications	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal PNos:162-171
6	16/02/22	1	Design strength	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal
7	16/02/22	1	Efficiency of joint	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal
8	17/02/22	1	Problems solving	CobNos:2,CoNos:2	K3	DSS-LSD-Duggal PNos:195-214
9	18/02/22	1	Problems solving	CobNos:2,CoNos:2	K3	DSS-LSD-Duggal PNos:195-214
10	21/02/22	1	Welded connections &joints	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal PNos:222
11	23/02/22	1	About Welding, advantages of welds	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal PNos:222-230
12	23/02/22	1	About Fillet welds	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal PNos:231-39
13	24/02/22	1	About Groove welds	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal DSS:PNos:229
14	25/02/22	1	About Plug and Slot welds	CobNos:2,CoNos:2	K2	DSS-LSD-Duggal PNo:242

Signature of HOD
Date:

Signature of faculty
Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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DEPARTMENT OF CIVIL ENGINEERING

UNIT PLAN-3

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech** - Section A Semester: **II**
Subject: **DESIGN OF STEEL STRUCTURES**
Faculty: Dr.V.Mallikarjuna Reddy and Dr .T.Srinivas

Lesson No.	Date	Number of periods	Topics	Objectives & Outcome Nos.	Blooms Taxonomy	References
1	28/02/22	1	Introduction about Tension members	CobNos:3,CoNos:3	K2	DSS-LSD-Duggal PNos:264-277
2	02/03/22	1	Design of tension member	CobNos:3,CoNos:3	K4	DSS-LSD-Duggal PNos: 277-284
3	02/03/22	1	Design strength	CobNos:3,CoNos:3	K4	DSS-LSD-Duggal PNos:277
4	03/03/22	1	Design of splice	CobNos:3,CoNos:3	K4	DSS-LSD-Duggal PNos:287
5	04/03/22	1	Design of lug angle	CobNos:3,CoNos:3	K4	DSS-LSD-Duggal PNos:286
6	07/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:289-315
7	09/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:289-315
8	09/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:289-315
9	10/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:289-315
10	11/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:289-315
11	17/03/22	1	Introduction about Compression members	CobNos:3,CoNos:3	K2	DSS-LSD-Duggal PNos:326-335
12	18/03/22	1	Design of compression members	CobNos:3,CoNos:3	K4	DSS-LSD-Duggal PNos:336-355
13	21/03/22	1	Design of laced columns	CobNos:3,CoNos:3	K4	DSS-LSD-Duggal PNos:355-363
14	23/03/22	1	Design of battened columns	CobNos:3,CoNos:3	K4	DSS-LSD-Duggal PNos: 363-366
15	23/03/22	1	Design of column, slab base	CobNos:3,CoNos:3	K4	DSS-LSD-Duggal PNos:549-562
16	24/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:371-415
17	25/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:371-415

18	28/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:371-415
19	30/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:371-415
20	30/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:570-588
21	31/03/22	1	Problems solving	CobNos:3,CoNos:3	K5	DSS-LSD-Duggal PNos:570-588

Signature of HOD
Date:

Signature of faculty
Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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DEPARTMENT OF CIVIL ENGINEERING

UNIT PLAN-4

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech** - Section A Semester: **II**
Subject: **DESIGN OF STEEL STRUCTURES**
Faculty: Dr.V.Mallikarjuna Reddy and Dr .T.Srinivas

Lesson No.	Date	Number of periods	Topics	Objectives & Outcome Nos.	Blooms Taxonomy	References
1	01/04/22	1	Introduction about beams	CobNos:4,CoNos:4	K2	DSS-LSD-Duggal PNos:426-432
2	04/04/22	1	Design procedure	CobNos:4,CoNos:4	K2	DSS-LSD-Duggal PNos:439-445
3	06/04/22	1	Bending strength of a laterally supported beam	CobNos:4,CoNos:4	K4	DSS-LSD-Duggal PNos:439-445
4	06/04/22	1	Shear strength of a laterally supported beam	CobNos:4,CoNos:4	K4	DSS-LSD-Duggal PNos:439-445
5	07/04/22	1	Deflection limits, Web buckling strength, Web crippling	CobNos:4,CoNos:4	K2	DSS-LSD-Duggal PNos:451-454
6	08/04/22	1	Design of built up section, Design of purlins	CobNos:4,CoNos:4	K4	DSS-LSD-Duggal PNos:460-461
7	11/04/22	1	Problems solving	CobNos:4,CoNos:4	K5	DSS-LSD-Duggal PNos:470-497
8	13/04/22	1	Problems solving	CobNos:4,CoNos:4	K5	DSS-LSD-Duggal PNos:470-497
9	13/04/22	1	Problems solving	CobNos:4,CoNos:4	K5	DSS-LSD-Duggal PNos:470-497
10	18/04/22	1	Problems solving	CobNos:4,CoNos:4	K5	DSS-LSD-Duggal PNos:470-497
11	20/04/22	1	Problems solving	CobNos:4,CoNos:4	K5	DSS-LSD-Duggal PNos:470-497
12	20/04/22	1	Problems solving	CobNos:4,CoNos:4	K5	DSS-LSD-Duggal PNos:470-497
13	21/04/22	1	Problems solving	CobNos:4,CoNos:4	K5	DSS-LSD-Duggal PNo:470-497

Signature of HOD
Date:

Signature of faculty
Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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DEPARTMENT OF CIVIL ENGINEERING

UNIT PLAN-5

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech** - Section A Semester: **II**

Subject: **DESIGN OF STEEL STRUCTURES**

Faculty: Dr.V.Mallikarjuna Reddy and Dr .T.Srinivas

Lesson No.	Date	Number of periods	Topics	Objectives & Outcome Nos.	Blooms Taxonomy	References
1	22/04/22	1	Introduction about eccentric connections	CobNos:4,CoNos:4	K2	DSS-LSD-Duggal PNos:676
2	25/04/22	1	Design of eccentric connections	CobNos:5,CoNos:5	K4	DSS-LSD-Duggal PNos:678
3	27/04/22	1	Types of beam connections	CobNos:5,CoNos:5	K2	DSS-LSD-Duggal PNos:678-681
4	27/04/22	1	Design of framed connection using bolt	CobNos:5,CoNos:5	K4	DSS-LSD-Duggal PNos:682-688
5	28/04/22	1	Design of stiffened seat connection	CobNos:5,CoNos:5	K4	DSS-LSD-Duggal PNos:697-715
6	29/04/22	1	Design of stiffened seat connection	CobNos:5,CoNos:5	K4	DSS-LSD-Duggal PNos: 697-715
7	02/05/22	1	Welded connections &joints	CobNos:5,CoNos:5	K4	DSS-LSD-Duggal PNos:697-715
8	04/05/22	1	Welding specifications	CobNos:5,CoNos:5	K2	DSS-LSD-Duggal PNos:697-715
9	04/05/22	1	Problems solving	CobNos:5,CoNos:5	K5	DSS-LSD-Duggal PNos:717-745
10	09/05/22	1	Problems solving	CobNos:5,CoNos:5	K5	DSS-LSD-Duggal PNos:717-745
11	11/05/22	1	Problems solving	CobNos:5,CoNos:5	K5	DSS-LSD-Duggal PNos:717-745
12	11/05/22	1	Problems solving	CobNos:5,CoNos:5	K5	DSS-LSD-Duggal PNos:717-745

Signature of HOD
Date:

Signature of faculty
Date:

Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr .T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 1 Duration of Lesson: 1hr

Lesson Title: Introduction to Steel Structures

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. Express about steel and its importance
2. Discuss the importance of steel in construction

TEACHING AIDS : White board, marker
TEACHING POINTS :

- Steel
- Structures
- Civil Engineering
- Design

Assignment/Questions: 1. Explain about Importance of steel structures. (Cob -1, CO-1)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas
Dept.: Civil Engineering
Designation: Professors

Lesson No: 2 Duration of Lesson: 1hr
Lesson Title: Introduction about IS800-2007 and

IS Steel Tables

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discuss about use of steel code and steel tables
2. Importance of steel code for the design

TEACHING AIDS : White board, marker

TEACHING POINTS :

Types of steel members	• Steel properties • Unit weight

Assignment/Questions: 1. Explain about different steel sections. (Cob -1, CO-1)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B
Course/Subject: Design of Steel Structures Course Code: GR18A3067
Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas
Dept.: Civil Engineering
Designation: Professors

Lesson No: 3 Duration of Lesson: 1hr
Lesson Title: Introduction about IS800-2007 and

IS Steel Tables

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. Discuss about use of steel code and steel tables
2. Importance of steel code for the design

TEACHING AIDS : White board, marker

TEACHING POINTS :

Types of steel members	• Steel properties • Unit weight

Assignment / Questions: Discuss about various steel section properties. (Cob -1, CO-1)

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Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B
Course/Subject: Design of Steel Structures Course Code: GR18A3067
Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas
Dept.: Civil Engineering
Designation: Professors

Lesson No: 4&5 Duration of Lesson: 1hr and 1hr

Lesson Title: Material required & making steel

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discuss about the material used for making steel
2. Express the preparation of steel
3. Distingush between various types of steel

TEACHING AIDS : White board, marker

TEACHING POINTS :

- Mild steel, ALLOYS
- Stainless steel
- Furnace
- Temperature

Assignment / Questions: Explain about making of steel. (Cob -1, CO-1)

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LESSON PLAN

Academic **Y**ear : 2021-22
Semester: II
Name of the Program: B.Tech Civil Engineering Year: III Section: A & B
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Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas
Dept.: Civil Engineering
Designation: Professors

Lesson No: 6 Duration of Lesson: 1hr

Lesson Title: Types of structural steel,

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Explain about various types of structural steel

TEACHING AIDS : White board, marker

TEACHING POINTS :

- I-SECTION
- Channel section
- Folded sheets
- Covering sheets

Assignment / Questions: Explain about the importance of wide flange beam section. (Cob -1, CO-1)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B
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Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas
Dept.: Civil Engineering
Designation: Professors

Lesson No: 7 Duration of Lesson: 1hr

Lesson Title: Loads & combination, Local buckling behavior of steel, concepts of LSD

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Explain about Loads, classify the various types of loads
2. Describe the various modes of buckling.

TEACHING AIDS : White board, marker
TEACHING POINTS :

- Dead load,Live load,Wind load,Snow load
- Local buckling behavior of steel
- Concepts of LSD

Assignment/Questions: 1. Explain about various loads acting on steel structures. (Cob -1, CO-1)

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr.T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 8 Duration of Lesson: 1hr

Lesson Title: Design strength and Deflection limits, Stability check

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Calculate the design strength
2. Evaluate the deflection limits
3. Find the allowable deflection
4. Find the stability of steel member
5 . Interpret the method of stability check

TEACHING AIDS : White board, marker

TEACHING POINTS :

Design strength, Deflection limits and Stability check

Assignment/Questions: 1. Explain about importance of stability check. (Cob -1, CO-1)

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LESSON PLAN

Academic **Y**ear : 2021-22 Semester: II
Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T. Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 9 Duration of Lesson: 1hr

Lesson Title: Introduction about connections

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Types of connections
2. Specifications for connections

TEACHING AIDS : White board, marker

TEACHING POINTS :

Types of connections Specifications for connections

Assignment / Questions: Explain about different types of connections. (Cob -2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinvas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 10 Duration of Lesson: 1hr

Lesson Title: Rivetted connections

INSTRUCTIONAL/LESSON

OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Apply knowledge of Rivetted connections
2. Compute the strength of connections

TEACHING AIDS : White board, marker

TEACHING POINTS :

Rivetted connections & specifications

Assignment / Questions: List the advantages of Riveted connections. (Cob -2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Malliakrjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 11 Duration of Lesson: 1hr

Lesson Title: Problem solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Design of connections
2. Design the load bearing capacity of connections

TEACHING AIDS : White board, marker

TEACHING POINTS :

Problem solving

Assignment / Questions: List the steps involved in the design of Riveted connections. (Cob -2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.T.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 12 Duration of Lesson: 1hr

Lesson Title: Problem solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Compute the bearing strength of connections
2. Design the load bearing capacity of connections

TEACHING AIDS : White board, marker

TEACHING POINTS :

Problem solving

Assignment / Questions: List the steps in finding the bearing strength of connections. (Cob-2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 13 Duration of Lesson: 1hr

Lesson Title: Bolted connections & Specifications

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Classifications of Bolted connections
2. Explain the types of failure in Bolted connections

TEACHING AIDS : White board, marker

TEACHING POINTS :

Bolted connections & Specifications

Assignment / Questions: List the advantages of Bolted connections. (Cob-2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 14 Duration of Lesson: 1hr

Lesson Title: Design strength

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Assess design strength
2. Find the load bearing capacity

TEACHING AIDS : White board, marker

TEACHING POINTS :

- Design strength

Assignment / Questions:

List the steps involved in the calculation of design strength. (Cob-2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 15 Duration of Lesson: 1hr

Lesson Title: Efficiency of joint

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Calculate efficiency of the joint

2.Find the strength of joint

TEACHING AIDS : White board, marker

TEACHING POINTS :

- Efficiency of the joint

Assignment / Questions: List the steps involved in the calculation of efficiency of the joint. (Cob-2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

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Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

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Name of the Faculty: Dr.V Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 16 Duration of Lesson: 1hr

Lesson Title: Problems solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Calculate efficiency of joint
2. Design effective joint

TEACHING AIDS : White board, marker

TEACHING POINTS :

- Problems solving

Assignment / Questions:

How will you determine the efficiency of the given joint. (Cob-2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 17 Duration of Lesson: 1hr

Lesson Title: Problems solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Design of joint
2. Calculate the strength of joint.

TEACHING AIDS : White board, marker

TEACHING POINTS :

Problems solving

Assignment / Questions:

List the steps involved in the calculation of finding the strength of the joint. (Cob-2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2020-21

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 18 Duration of Lesson: 1hr

Lesson Title: Welded Connections &joints

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1 , Types of welded connections and joints

TEACHING AIDS : White board, marker

TEACHING POINTS :

Types of welded connections and joint

Assignment / Questions:

Explain about different types of welded connections. (Cob-2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinvas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 19 Duration of Lesson: 1hr

Lesson Title: Advantages and Disadvantages of welding

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Understands the Advantages and Disadvantages of welding

TEACHING AIDS : White board, marker

TEACHING POINTS :

Advantages and disadvantages of welding

Assignment / Questions:

List the advantages of welded connection. (Cob-2, CO-2)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR17A3007

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 20 Duration of Lesson: 1hr

Lesson Title: About Fillet welds

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

Types of Fillet weld and specifications

TEACHING AIDS : White board, marker

TEACHING POINTS :

Fillet welds

Assignment / Questions: Explain about different types of fillet welds. (Cob-2, CO-2)

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.T.Srinivas and Dr .V.Mallikarjuna Reddy

Dept.: Civil Engineering

Designation: Professors

Lesson No: 21 Duration of Lesson: 1hr

Lesson Title: About Groove weld

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Application of Groove weld
2. Calculate the strength of Groove weld

TEACHING AIDS : White board, marker

TEACHING POINTS :

Groove weld

Assignment / Questions: Explain about groove weld. (Cob-2, CO-2)

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Academic **Y**ear : 2021-22

Semester: II

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Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V Mallikarjuna Reddy and DrT Srinivas

Dept.: Civil Engineering

Designation: Professors
Lesson No: 22 Duration of Lesson: 1hr

Lesson Title: About Plug and Slot welds

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Know the application of plug and slot weld
2. Calculate the load& design strength of weld

TEACHING AIDS : White board, marker

TEACHING POINTS :

Slot and Plug welds

Assignment / Questions:
Explain about slot and plug weld. (Cob-2, CO-2)

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Academic **Y**ear : 2021-22

Semester: II

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Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr.T.Srinvas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 23 Duration of Lesson: 1hr

Lesson Title ; Introduction about Tension members

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Know about the different types of Tension members.

TEACHING AIDS : White board, marker

TEACHING POINTS :

Types of Tension members

Assignment / Questions:

Discuss about different tension members. (Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

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Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 24 Duration of Lesson: 1hr

Lesson Title: Design of Tension member

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

Design Tension members

TEACHING AIDS : White board, marker

TEACHING POINTS :

Design of Tension members

Assignment / Questions:

List the steps involved in the design of Tension members. (Cob-3, CO-3)

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Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 25 Duration of Lesson: 1hr

Lesson Title: Design strength of tension members

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Calculate design strength

TEACHING AIDS : White board, marker

TEACHING POINTS :

Design strength of Tension members

Assignment / Questions:

List the steps involved in the calculation of design strength of tension members.

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LESSON PLAN

Academic **Y**ear : 2021-22

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Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

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Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 26 Duration of Lesson: 1hr
Lesson Title: Design of splice

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Know what is splice
2. Identify the application of splice

TEACHING AIDS : White board, marker

TEACHING POINTS :

- Design of splice

Assignment / Questions:
Explain about splicing. (Cob-3, CO-3)

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Semester: II

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Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 27 Duration of Lesson: 1hr

Lesson Title: Design of lug angle

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. know the application of lug angle
2.design the lug angle

TEACHING AIDS : White board, marker

TEACHING POINTS:

Design of lug angle

Assignment: Explain about importance of Lug angle. (Cob-3, CO-3)

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 28 Duration of Lesson: 1hrs

Lesson Title: Problem solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Solve the design problems
2.Evaluate the efficiency
3.calculate the stresses induced in the member

TEACHING AIDS : White board, marker

TEACHING POINTS :

Problem solving

Assignment: How will you assess the stress induced in Tension member. (Cob-3, CO-3)

Assignment / Questions:

Signature of faculty

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Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 29&30 Duration of Lesson: 2hr

Lesson Title: Introduction of compression member

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Differentiate between compression& tension members
2. Identify the application of compression members

TEACHING AIDS : White board, marker

TEACHING POINTS :

compression member- Problems solving

Assignment / Questions:

List the different types of compression members. (Cob-3, CO-3)

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 31 Duration of Lesson: 1hr

Lesson Title Design of laced columns

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Know what is laced columns
2. Application of laced columns
3. Design of laced columns

TEACHING AIDS : White board, marker

TEACHING POINTS :

laced columns Problem solvin

Assignment / Questions:

List the steps involved in the design of Laced column. (Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 32 Duration of Lesson: 1hr

Lesson Title: Design of battened columns

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify the battened columns
2. Design of battened columns

TEACHING AIDS : White board, marker

TEACHING POINTS :

battened columns Problem solving

Assignment / Questions:

List the steps involved in the design of Battened column. (Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 33 Duration of Lesson: 1hr

Lesson Title: Design of column,slab base

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify slab base
2. Design slab base

TEACHING AIDS : White board, marker

TEACHING POINTS :

column,slab base, problem solving

Assignment / Questions: Explain the importance of slab base. (Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 34 Duration of Lesson: 1hr

Lesson Title: Design of column,slab base

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. Identify slab base
2. Design slab base

TEACHING AIDS : White board, marker

TEACHING POINTS :

column, slab base, problem solving

Assignment: How will you design the slab base. (Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 35, 36, 37,38,39 Duration of Lesson: 1hr each

Lesson Title: Design of column,slab base

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. Identify slab base
2. Design slab base

TEACHING AIDS : White board, marker

TEACHING POINTS :

column,slab base, problem solving

Assignment: Distinguish between slab base and gusted base. (Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22 Semester: II
Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 40 Duration of Lesson: 1hr

Lesson Title: Compression members

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. Able to solve problems
TEACHING AIDS : White board, marker

TEACHING POINTS :

Problem solving

Assignment: Design a Laced column to carry a load of 14000kN(Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 41 Duration of Lesson: 1hr

Lesson Title: Compression members

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. Able to solve problems

TEACHING AIDS : White board, marker

TEACHING POINTS :

Problem solving

Assignment : Design a Battened column to carry a load of 1200kN. (Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 42 Duration of Lesson: 1hr

Lesson Title: Compression members

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. Able to solve problems

TEACHING AIDS : White board, marker

TEACHING POINTS :

Problem solving

Assignment. Design a gusseted base for a column to support a load of 1500Kn. Use M25 Concrete. (Cob-3, CO-3)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 43 Duration of Lesson: 1hr

Lesson Title: Compression members

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:
1. Able to solve problems

TEACHING AIDS : White board, marker

TEACHING POINTS :

Problem solving

Assignment: Design a splice to connect two columns of section ISMB 350. It carries a load of 1000kN.

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T .Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 44 Duration of Lesson: 1hr

Lesson Title: Introduction of beams

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify different types of beams
2. Calculate the loads on beams
3. Design steps of beams

TEACHING AIDS : White board, marker

TEACHING POINTS :

beams

Assignment: List different types of beams. (Cob-4, CO-4)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 45 Duration of Lesson: 1hr

Lesson Title: Design procedure

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1.Identify the procedure
3.Design problems

TEACHING AIDS : White board, marker

TEACHING POINTS :

Design procedure

Assignment: List the steps involved in he design of Beams. (Cob-4, CO-4)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 46 Duration of Lesson: 1hr

Lesson Title: Bending strength of a laterally supported beams

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Calculate the bending strength
2. Analyse the stresses on laterally supported beams

TEACHING AIDS : White board, marker

TEACHING POINTS :

- Bending strength beams

Assignment / Questions:
How will you find the design bending strength of a beam. (Cob-4, CO-4)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 47 Duration of Lesson: 1hr

Lesson Title: Shear strength of a laterally supported beam

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify the shear strength on laterally supported beam
2. Design of shear strength on laterally supported beam

TEACHING AIDS : White board, marker

TEACHING POINTS : Shear strength of beams.

- Bending strength beams

Assignment / Questions: How will you find the design lateral strength of a laterally supported beam? (Cob-4, CO-4)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 48 Duration of Lesson: 1hr

Lesson Title: Deflection limits, web buckling and web crippling strength

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Assess the deflection limits
2. Determine web buckling and web crippling strength

3. TEACHING AIDS : White board, marker
TEACHING POINTS : Deflection limits, web buckling and web crippling strength of beams.

Deflection limits, web buckling and web crippling strength of beams.

Assignment / Questions: Explain about web buckling and web crippling. (Cob-4, CO-4)

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LESSON PLAN

Academic **Y**ear : 2021-22Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 49 Duration of Lesson: 1hr

Lesson Title: Design of built-up section and Design of purlins.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Design the built-up section.
2. Design of purlins

3. TEACHING AIDS : White board, marker

TEACHING POINTS :

Design of built-up section and Design of purlins

Assignment / Questions: How will you design the built up section? (Cob-4, CO-4)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 50 Duration of Lesson: 1hr

Lesson Title: Problem solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Solve the problems

TEACHING AIDS : White board, marker

TEACHING POINTS :

Solving problems related to beams

Assignment / Questions: How will you design the purlin? (Cob-4, CO-4)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 51 Duration of Lesson: 1hr

Lesson Title: Problem solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Solve the problems

TEACHING AIDS : White board, marker

TEACHING POINTS :

Solving problems related to beams

Assignment / Questions: How will you design the Lintel beam? (Cob-4, CO-4)

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LESSON PLAN

Academic Year : 2021-22 Semester: II
Name of the Program: B.Tech Civil Engineering Year: III Section: A & B Course/Subject: Design of Steel Structures Course Code: GR18A3067
Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas Dept.: Civil Engineering
Designation: Professors

Lesson No: 52,53,54,55 & 56 Duration of Lesson: 1hr each

Lesson Title: Problem solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Solve the problems
TEACHING AIDS : White board, marker
TEACHING POINTS :

Solving problems related to beams

Assignment / Questions: List the steps involved in the design of Laterally unsupported beam. (Cob-4, CO-4)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 57 Duration of Lesson: 1hr

Lesson Title: Introduction about eccentric connections

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify the different types of eccentric connections

TEACHING AIDS : White board, marker

TEACHING POINTS :

Types of eccentric connections

Assignment / Questions: Explain about various types of eccentric connections. (Cob-5, CO-5)

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LESSON PLAN

(Cob-4, CO-4)

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 58 Duration of Lesson: 1hr

Lesson Title: Design of eccentric connections

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Design eccentric connections.

TEACHING AIDS : White board, marker

TEACHING POINTS :

Design eccentric connections

Assignment / Questions: List the steps involved in the design of bolted eccentric connection. (Cob-5, CO-5)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 59 Duration of Lesson: 1hr

Lesson Title: Types of beam connections

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Understand different types of beam connections.

TEACHING AIDS : White board, marker

TEACHING POINTS :

Types of beam connections

Assignment / Questions: List the steps involved in the design of beam to beam bolted connection. (Cob-5, CO-5)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 60 Duration of Lesson: 1hr

Lesson Title: Design of framed connection using bolt and nuts

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Design framed connection using bolt

TEACHING AIDS : White board, marker

TEACHING POINTS :

Design of framed connection using bolt and nuts.

Assignment / Questions: List the steps involved in the design of framed connection using bolt and nut. (Cob-5, CO-5)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 61&62 Duration of Lesson: 2hr

Lesson Title: Design of stiffened seated connection

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Design of stiffened seated connection
TEACHING AIDS : White board, marker
TEACHING POINTS :

Design of stiffened seated connection using.

Assignment / Questions: List the steps involved in the design of stiffened seated connection. (Cob-5, CO-5)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 63 Duration of Lesson: 1hr

Lesson Title: Design of welded bracket connection.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Design welded bracket connection.

TEACHING AIDS : White board, marker

TEACHING POINTS :

Design of welded bracket connection.

Assignment / Questions: List the steps involved in the design of welded bracket connection. (Cob-5, CO-5)

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 64 Duration of Lesson: 1hr

Lesson Title: Design of welded moment connection.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Design of welded moment connection

TEACHING AIDS : White board, marker

TEACHING POINTS :

Design of welded moment connection.

Assignment / Questions: List the steps involved in the design of welded moment connection. (Cob-5, CO-5)

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and DrT.Srinivas

Dept.: Civil Engineering

Designation: Professors

Lesson No: 65,66,67&68 Duration of Lesson: 1hr each.

Lesson Title: Problem solving

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Solve the problems

TEACHING AIDS : White board, marker

TEACHING POINTS :

Solving problems related to beams

Assignment / Questions: Design a bolted bracket connection to support an end reaction of 400 kN because of the factored loads supported by the beam. The eccentricity of the end reaction is as shown in fig. the steel used is of grade Fe 410. Use 4.6 grade of bolts. The thickness of bracket plate may be taken as 10 mm. the column section is ISHB 150 @ 300.19 N/m. (Cob-5, CO-5)

Signature of faculty

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TUTORIAL SHEET-1

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

1. List the advantages and disadvantages of steel structures.
2. Explain about stress strain curve for steel.

COb.: 1
CO.: 1

Signature of HOD Signature of faculty

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TUTORIAL SHEET-2

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

1. Two flats (Fe 410 Grade of steel), each 210 mm x 8 mm are to be jointed using 20 mm diameter and 4.6 grade of bolts to form a lap joint. The joint is supposed to transfer a factored load of 250 kN. Design the joint and determine suitable pitch for the bolts.
2. An ISA 100 mm x 100 mm x 10 mm carries a factored tensile force of 100 kN. It is to be jointed with a 12 mm thick gusset plate. Design a high strength bolt joint using HSFG bolts of 8.8S grade for
   a) When no slip is permitted
   b) When slip is permitted

.

COb.: 2
CO.: 2

Signature of HOD Signature of faculty

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TUTORIAL SHEET-3

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

1. List out the types of tension members with the help of neat sketches.
2. List the step wise procedure of designing a tensile member.
3. Design a built-up column of 9 m long with two channels placed back- to- back to carry a factored axial load of 1080 kN. The column is restrained in position but not in direction at both the ends. Assume Fe410 grade of steel and 4.6 grade of bolt

COb.: 3
CO.: 3

Signature of HOD Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

TUTORIAL SHEET-4

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

1. Explain the design procedure for a beam which is laterally unsupported though out the section.
2. Explain the design procedure for a Purlin.

COb.: 4
CO.: 4

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TUTORIAL SHEET-5

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

1. Explain about different types of eccentric connections.
2. Design a bolted bracket connection to support an end reaction of 500 kN because of the factored loads supported by the beam. The eccentricity of the end reaction is as shown in fig. the steel used is of grade Fe 410. Use 4.6 grade of bolts. The thickness of bracket plate may be taken as 10 mm. the column section is ISHB 150 @ 300.19 N/m.

COb.: 5
CO.: 5

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ASSIGNMENT SHEET – 1

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Answer all questions:

1. Explain in detail the manufacturing methods of steel.
2. a) List out the structural elements in steel structures.
   b) Explain completely the stress - strain curve of structural steel
3. a) List out the failure of bolted joints and explain with neat sketches b) What are the advantages of welded joints over bolted or riveted joints?
4. Explain the loads and these combinations.
5. Summarize the properties of structural steel

COb.: 1
CO.: 1

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ASSIGNMENT SHEET – 2

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Answer all questions:

1. a) Explain any three failures of riveted joints with the help of figures.

b) A member of a truss consists of two angles ISA 75X75X6 placed back to back. It carries an ultimate tensile load of 250kN and is connected to a gusset plate of 10mm thick placed in between the two connected legs. Determine the number of 16mm diameter 4.6 grade ordinary bolts required for the joint. Assume Fe 410 grade of steel.

2. Calculate the strength of a 20 mm diameter of bolt of grade 4.6 for the following cases. The main plates to be jointed are 12 mm thick and use Fe410 grade of steel a) Lap Joint b) Double cover Butt joint; each of cover plate being 8 mm thick.

3. Two plates of 16 mm and 14 mm thickness are to be joined by a groove weld. The joint is subjected to a factored tensile force of 430 kN. Due to some reason the effective length of the weld that could be provided was only 175 mm. Check the safety of the joint for Single 'V' and Double 'V' groove weld.

4. An ISA 100 mm x 100 mm x 10 mm carries a factored tensile force of 100 kN. It is to be jointed with a 12 mm thick gusset plate. Design a high strength bolt joint using HSFG bolts of 8.8S grade for a) When no slip is permitted b) When slip is permitted.

5. A groove weld is to connect two plates 18 mm x 18 mm each. Determine the design bending strength of the joint, if it is subjected to a moment of 13 kN-m. Also determine the adequacy of the joint if the shear force at the joint is 200 kN. Assume the welds to be of double –U shop weld.

COb.: 2
CO.: 2

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ASSIGNMENT SHEET – 3

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Answer all questions:

1. List out the types of tension members with the help of neat sketch.
2. Explain the beam splice and column splice in detail with the help of neat sketches.
3. Discuss about beam to column connections.
4. Design a column to support a factored load of 1080 kN. The column has an effective length of 6.0 m with respect to z–axis and 4.0 m with respect to y–axis. Use Fe410 grade of steel.
5. Design a built-up column of 9 m long with two channels placed back- to- back to carry a factored axial load of 1080 kN. Provide single lacing system with bolted connections. The column is restrained in position but not in direction at both the ends. Assume Fe410 grade of steel and 4.6 grade of bolt.
6. Ttie member of a truss consists of double angle section, each 80 mm x 80 mm x 8 mm welded on the opposite side of a 12 mm thick gusset plate as shown in fig. Design a fillet weld for making the connection in the workshop. The factored tensile force in the member is 300 kN.

COb.: 3
CO.: 3

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ASSIGNMENT SHEET – 4

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Answer all questions:

1. Discuss the classifications of cross sections.
2. Explain the types of sections used as flexural member with neat sketches.
3. Explain the design procedure for a beam which is laterally unsupported though out the section.
4. A simply supported steel joist of 3.5.0 m effective span is laterally supported throughout. It carries a total uniformly distributed load of 40 kN (inclusive of self weight). Design an appropriate section using Fe410 grade of steel.
5. Design a steel beam section for supporting roof of a big hall for the following data and also apply the usual checks.
Clear span = 5.5 m, end bearings =200 mm, c/c spacing of beams =3.5 m, imposed load on beam = 12kN/m2
, dead load (inclusive of self weight) =6 kN/m2
, restrict the beam depth=375 mm, grade of
steel= Fe410 and compression flange of the beam is laterally supported throughout.
6. Design an I-section purlin, for an industrial building situated in Allahabad, to support a galvanized corrugated iron sheet roof for the following data:
Spacing of truss c/c=6.0 m, span of truss=12.0 m, spacing of purlins c/c = 1.5 m, intensity of wind pressure=2 kN/m2
, weight of galvanized sheets= 130 N/m2
and grade of steel= Fe415

COb.: 4
CO.: 4

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ASSIGNMENT SHEET – 5

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Answer all questions:

1. An ISMB 400 beam is to be connected to an ISHB 250 @537N/m to transfer an end force of 150kN. Calculate the details double plated welded connection.
2. An ISLB 350 @495 N/m transmits an end reaction of 400KN to the web of an ISMB500 @869N/m. Design a framed connection and give a neat sketch.
3. Draw the bolted seat connection.
4. Explain about plastic moment capacity.

COb.: 5
CO.: 5

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EVALUATION STRATEGY

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjua Reddy and DrT Srinivas

Dept.: Civil Engineering

Designation: Professors

1. TARGET:

A) Percentage for pass: 90%

b) Percentage of class:

Total Strength: 130

S.No.	Class / Division	No. of Students
1	First Class with distinction	70
2	First Class	50
3	Pass Class	10

2. COURSE PLAN& CONTENT DELIVERY

S.No	Plan	Brief Description
1	Practice classes	68 Theory classes for Section A, B
2	Demonstration	Demonstration of experiments in the lab
3	Assignments	Assignments for solving numerical problems

3. METHOD OF EVALUATION

3.1 Continuous Assessment Examinations

- Assignments: Assignments to assess the knowledge of the student on the basics and concepts in design of steel structures,Efficiency of various types of connections & jointsSeminars: To assess the knowledge of the student in design of steel structures.
- Quiz: To assess the knowledge of the student in various concepts and basics indesign of steel structures Internal Examination: Internal Examinations to assess their overall knowledge in Geotechnical Engineering.

3.2. Semester/End Examination

To test their abilities in the course Geotechnical Engineering and to approve their abilities learnt during the same.

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subjects in this Semester.

Introducing some practical laboratory exercises on course grained steel .

Signature of HOD

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering (AY: 2021-22)
III B.Tech. II Semester, I Mid Examinations, March, 2022
Design of Steel Structures (Sub Code: GR18A3067)

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks.
Time: 10 Min. Date of Exam: 14-03-2022 FN Marks: 5

I. Choose the correct alternative:

Question No.	Questions	Blooms Levels*	Course Outcome
1	Ultimate strength (f_{ub}) of M 10.9 grade of ordinary bolt is [ ] A.810 N/mm^2 B. 800 N/mm^2 C. 1000 N/mm^2 D. 400 N/mm^2	BL2	CO1
2	The wires connected between two poles considered as [ ] A. Compression Member B. Shear Member C. Flexural Member D. Tension Member	BL2	CO1
3	Poisson's ratio (1/m) of structural steel as per IS800-2007 [ ] A.0.3 B. 0.17 C. 0.2 D. 0.24	BL1	CO1
4	Strength of Bolt means [ ] A.Strength in bearing B. Strength in Shear C. Lesser of above two D. Maximum of above two	BL2	CO2
5	The minimum size of fillet weld when thickness of two members are 8mm and 16mm [ ] A.3 mm B. 5 mm C. 4 mm D. 6 mm	BL4	CO2
6	The partial safety factor for resistance of member to buckling (γ_{m0}) as per IS 800-2007 is [ ] A.1.5 B. 1.25 C. 1.15 D.1.1	BL3	CO2
7	The ultimate tensile strength (f_u) of Fe 410 grade of steel is [ ] A.140 MPa B. 250 MPa C. 410 MPa D. 400 MPa	BL3	CO2
8	The minimum pitch in case of bolted connection for as per IS800-2007 [ ] A.1.5d_0 B. 1.5d C. 2.5d D. 2.5 d_0	BL4	CO2
9	Design strength of tension member due rupture is depending on [ ] A. Gross area B. Net area C. Block area D. All of these	BL5	CO3
10	A gusset plate is subjected to [ ] **A.** Direct stress B. Shear stress C. Bending stress D All of these	BL5	CO3

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering (AY: 2021-22)
III B.Tech. II Semester, I Mid Examinations, March, 2022
Design of Steel Structures (Sub Code: GR18A3067)

Time: 90 Minutes **Date of Exam: 14-03-2022 FN** **Max Marks: 15**

Answer any Three Questions:

Question No.	Unit	Blooms Levels*	Course Outcome
1	a) List out the structural elements in steel structures. b) Explain completely the stress - strain curve of structural steel	BL1 BL2	CO1 CO1
2	A groove weld is to connect two plates 180 mm x 18 mm each. Determine the design bending strength of the joint, if it is subjected to a moment of 13 kN-m. Also determine the adequacy of the joint if the shear force at the joint is 200 kN. Assume the welds to be of double –U shop weld.	BL4	CO2
3	Design a splice for tension member sections 160 mm x 10 mm and 250 mm x 14 mm. The member is subjected to a factored tensile load of 300 kN. Assume Fe410 grade of steel. Provide 20 mm diameter of bolts of grade 4.6 for making the connections.	BL6	CO3
4	Calculate the strength of a 20 mm diameter of bolt of grade 4.6 for the following cases. The main plates to be jointed are 12 mm thick and use Fe410 grade of steel. a) Lap Joint b) Double cover Butt joint; each of cover plate being 8 mm thick	BL4	CO2

Signature of HOD Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering (AY: 2021-22)
III B.Tech. II Semester, II Mid Examinations, May, 2022
Design of Steel Structures (Sub Code: GR18A3067)

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks.
Time: 10 Min. Date of Exam: 12-05-2022 FN **(10 X 0.5 = 5Marks)**

I. Choose the correct alternative:

Question No.	Questions	Blooms Levels*	Course Outcome
1	The stress reduction factor (χ) for column buckling class 'd', f_y=250 N/mm^{2}and effective slenderness ratio = 80 is [ ] A. 0.85 B. 0.95 C. 0.521 D. 0.798	BL3	CO3
2	The column Gusset base is provided in the case of [ ] A. Axial Loads B. Axial Loads with Moments C. Moments D. None	BL2	CO3
3	Lacing shall be designed to carry a transverse shear force (V) is equal to ------- % of the total axial force on the whole compression member. [ ] A. 2.5 B. 1.5 C. 3 D. 3.5	BL1	CO3
4	Imperfection parameter (α_{LT}) for rolled steel sections as per IS 800-200 [ ] A.0.39 B. 0.29 C. 0.49 D. 0.21	BL2	CO4
5	The buckling class of built up section as per IS 800-2007 is [ ] A. Class 'a' B. Class 'b' C. Class'd' D. Class 'c'	BL2	CO4
6	The effective slenderness ratio of laced columns shall be taken as [ ] A 1.05 B. 1.10 C. 0.87 D. 0.75	BL2	CO4
7	The design bending strength of a beam can be calculated by taking β_b for plastic section is [ ] A. 0.85 B. 1.0 C. 0.9 D. 1.05	BL2	CO4
8	Equivalent slenderness ratio can be calculated by taking k_1 value for two bolts when both ends are fixed. [ ] A. 0.75 B. 0.70 C. 0.20 D. 1.25	BL4	CO5
9	The lacing bars, whether in double or single system, shall be inclined at an angle not less than [ ] A. 70° B. 40° C. 30° D. 50°	BL2	CO4
10	The beam column flexible connections are expected to resist and transfer A. only shear B. only Moment C. shear and moment D.50%shear[ ]	BL2	CO5

Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering (AY: 2021-22)
III B.Tech. II Semester, II Mid Examinations, May, 2022
Design of Steel Structures (Sub Code: GR18A3067)

Time: 90 Minutes **Date of Exam: 12-05-2022 FN** **(3 X 5 = 15 Marks)**

Answer any Three Questions: All Questions Carry Equal Marks

Question No.	Questions	Blooms Levels*	Course Outcome
1	Design a column to support a factored load of 1080 kN. The column has an effective length of 6.0 m with respect to z–axis and 4.0 m with respect to y–axis. Use Fe410 grade of steel.	BL6	CO3
2	a) Explain the design procedure for a beam which is laterally unsupported though out the section. **b)** Discuss the classifications of cross sections.	BL2 BL2	CO4
3	Classify the connections in steel structure when it is subjected to eccentric loading**.**	BL4	CO5
4	What is the design bending strength of ISLB 350@486 N/m, considering the beam to be laterally supported throughout. The unsupported length of beam is 3.0 m and design shear force V is less than design shear strength. Assume steel of grade Fe410.	BL1	CO4

Signature of HOD Signature of faculty

III B Tech II Semester Regular Examinations, May/June 2022
Design of Steel Structures
(Civil Engineering)

Time: 3 hours **Max Marks: 70**

Instructions:
1. Question paper comprises of **Part-A** and **Part-B**
2. **Part-A** (for 20 marks) must be answered at one place in the answer book.
3. **Part-B** (for 50 marks) consists of **five questions with internal choice,** answer all questions.

PART – A

(Answer ALL questions. All questions carry equal marks)

10 * 2 = 20 Marks

1. a	List the mechanical properties of steel.	**[2]**	**CO1**	**BL1**
b	Classify the steel based on percentage of carbon content.	**[2]**	**CO1**	**BL2**
c	Explain prying action.	**[2]**	**CO2**	**BL2**
d	Define efficiency of joint.	**[2]**	**CO2**	**BL1**
e	Distinguish between web splice and flange splice.	**[2]**	**CO3**	**BL4**
f	Explain about Lug angle.	**[2]**	**CO3**	**BL2**
g	Explain web buckling.	**[2]**	**CO4**	**BL2**
h	Define Purlin and Lintels.	**[2]**	**CO4**	**BL1**
i	Draw the Bolted seat connections.	**[2]**	**CO5**	**BL3**
j	Explain about plastic moment capacity.	**[2]**	**CO5**	**BL2**

PART-B

Answer ALL questions, All questions carry equal marks

10*5 Marks=50 Marks

2)	Explain about Manufacturing of steel.	**[10]**	**CO1**	**BL2**
	OR			
3)	Explain the stress and strain behavior of steel.	**[10]**	**CO1**	**BL2**
4)	A tie member of a roof truss consists of 2 ISA 100x75x8 mm. The angles are connected on either side of a 10mm gusset plates and the member is subjected to a working pull of 450kN.Design the welded connection details. Connections are made in the workshop.	**[10]**	**CO2**	**BL6**
	OR			
5)	Two flats of Fe 410 grade steel, each 210 mm x 8 mm, are to be jointed using 20mm diameter, 4.6 grade bolts, to form a lap joint. The joint has to transfer a factored load of 300kN. Analyse the joint details	**[10]**	**CO2**	**BL4**
6)	Create a built-up column 7m long to carry factored axial load of 1000 kN. The column is restrained in position but not in direction at both the	**[10]**	**CO3**	**BL6**

	ends. Design the column with two channels placed back-to-back. Provide single lacing system with 20mm diameter bolted connection. Assume steel of grade Fe 410 and bolts of grade 4.6.			
	OR			
7)	Create a single angle section for a tension member of a roof truss to carry a factored tensile force of 275kN. The member is subjected to the possible reversal of stress due to the action of wind. The length of the member is 3m. Use 20mm shop bolts of grade 4.6 for the connection.	**[10]**	**CO3**	**BL6**
8)	A compound beam is to carry a uniformly distributed dead load of 300kN and an imposed load of 500kN. The beam is simply supported over a span of 12meters. Allow 30kN for the weight of the beam. The overall depth should not exceed 700mm. The bearing plate width is 300mm and full lateral support is provided for Compression flange. Calculate the beam details and connection details.	**[10]**	**CO4**	**BL4**
	OR			
9)	Design a lintel over an opening of 3m. The lintel is made in a wall of 300mm thick. The lintel has to support a uniform load of 45kN in addition to the masonry. The weight of masonry may be assumed to be $20kN/m^3$ and height o brick work above the lintel is 4m. The steel is of grade Fe410.	**[10]**	**CO4**	**BL6**
10)	An ISMB 400 beam is to be connected to an ISHB 250 @537N/m to transfer an end force of 150kN. Calculate the details double plated welded connection.	**[10]**	**CO5**	**BL4**
	OR			
11)	An ISLB 350 @495 N/m transmits an end reaction of 400KN to the web of an ISMB500 @869N/m. Design a framed connection and give a neat sketch.	**[10]**	**CO5**	**BL6**

Signature of HOD

Signature of faculty

CODE: GR18A3067 | GR 18 | SET - 3

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DESIGN OF STEEL STRUCTURES
(Civil Engineering)

Tiipc: 3 hours JYlax *M u rim:* 70

Instruictions:

1. Question‘pâper comprises of Put I-A ant1'P1l fail
2. P@t-A (for 20 maths) iiiust be aii8werocl cii one place in the answer bunk.
3. Part-JI (for 50 rtiaiks) consists of **fivc i}l1esfi,ohs with internal choice,** answer alJ questions.

PABT — A
(Answer ALL questions. All quCslions carry equal marks)

10 * 2 = 20 Marks

1. a. List the different load combinations in steel structures. m | fiL X (2]
   b. What is limitstatemethod? {2]
   c. List the advantages of welded connections m 121
   d. Def ine "highstrengthfrictiqngrip bolts". c-m L fiL\ J2)
   e. List the types of steel sections used as tension members. mn QL \ [2J
   f. ”What do you uñderstand by net area of a section? › [2]
   g. What is meaht by laterally supported beam? ys J2J
   h. Define weberippling. R\ |2J
   i. Distinguish between rigid structure and flexible structure. y" & |2]
   j. Draw the sketch of bolted seat connection. k)2)

PART — B
(Answer ALL questions. All questions ca i i y eqiiiil nini’ks)

2. (a) List the advantages and disaclvantages of steel sir Picture ovci- conclc-I t(iJ'tiil«.p ,;,; |¿J
   (I›) hy 1.1 n* e y /o follow codes of p nciice liar ilcsigniiip ski melting’? |q}

011

3. (a) Uist the physical properties of steel strucltnc. Q i I |y)
   (b) Explain in detail about the Chemical properties of steel.]*]

4. A single bolted Double Cover Butt joint is used to connect two plates which are 8mm thick. Assuming z0mir cliaireior l›i›hs of i@« 4.6 and cover plates to be 6mm thick. Calculate the Strength and llficicncy o(.joiiii if 4 bolts are provided in the bolt line at a pitch of 45miu. assume e=30iuin. [10]

.5. Design a connection to join two plates of size 300 x 8 mm in Fe410 grade steel to mobilize the tensile strength of the plate using site fillet welds. (i) a lap joint.is used and (ii) a butt joint is used. [10J

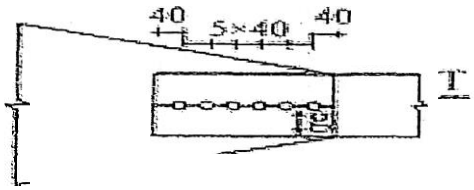
6. (a) List the steps involved in the design of Laced column. [6)

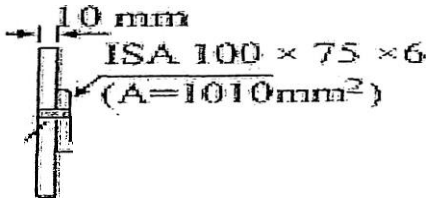
(b) What is slenderness ratio? State the relation between elastic critical stress and slendeniess ratio. [4]

OR

7. A single unequal angle 100 x 75 x 6 mm is connected to a 10 mm thick gusset plate at the ends with six 16 mm diameter bolts to transfer tension. Determine the design tensile strength of the angle assuming that the yield and the ultimate stress of steel used are [10]

250MPa and 410 MPa if gusset plate is connected to the 75 mm leg. Take g= 40mm.





8. (a) Design a simply supported beam of span 4m carrying a reinforced concrete floor capable of providing lateral restraint to the top compression flange. The uniformly distributed load is made up of 20kN/m imposed load and 20kN/m dead load. Assume fe 410 grade steel. [7]

(b) Differentiate between the bending and buckling of a beam. [3]

OR

6. Design a suitable rolled steel joist for a roof of a hall 7.5 m x 12 m consists of l00mm thick RC slab supported on steel beams spaced at 3 m apart. The finishing may be taken as 1 kN/m^2 and live load is taken as 4 kN/m ^{2}. Self-weight of beam is taken as lkN/m^2. Take limiting deflection = span/250. [10]

10. (a) Design a bolted bracket connection to support an end reaction of 400kN beCiltlSO Of [7 J the factored loads supported by the beam. The eccentricity of the end i caction is shown in the figure. The 5teé1 uséd 1s of grade FG4I'0. Use bolts of grade 4.6. The tlñcknéss of braéLet plate may be takefi as 10 nan.

(b) how are the building connections classified based on their lTlonient-rotation characteristics?

OR

11. Design a slab ,base and its connecting system to carry column axial load of 200 kN [10] (Co un 'ISHB 300). Assume M20grade concrete used for foundation. Design and detail the connecting system as per I.S code.

GR18 2021-22 B.Tech CE 320, Section: B GR18A3067 Design of Steel Structures Sessional Marks

S.No	Roll No	MID-I Marks	MID-II Marks	Tutorial Marks	Assessment Marks	Sessional Marks
1	19241A0161	8	9	5	5	19
2	19241A0162	5	3	3	3	10
3	19241A0163	3	3	3	3	9
4	19241A0164	10	14	5	3	20
5	19241A0165	18	19	5	5	29
6	19241A0166	13	7	5	4	19
7	19241A0167	16	14	5	3	23
8	19241A0168	15	11	5	4	22
9	19241A0169	12	5	5	3	17
10	19241A0170	10	AB	3	3	11
11	19241A0171	6	AB	3	3	9
12	19241A0172	7	AB	3	3	10
13	19241A0173	15	AB	4	3	15
14	19241A0174	11	5	4	3	15
15	19241A0175	3	AB	4	3	9
16	19241A0176	2	7	3	3	11
17	19241A0177	13	13	3	4	20
18	19241A0178	4	1	3	3	9
19	19241A0179	8	3	3	3	12
20	19241A0180	18	16	5	5	27
21	19241A0181	14	14	5	5	24
22	19241A0182	17	13	5	5	25
23	19241A0183	11	12	3	4	19
24	19241A0184	5	AB	3	3	9
25	19241A0185	19	13	5	5	26
26	19241A0186	2	8	3	3	11
27	19241A0187	16	15	5	5	26
28	19241A0188	2	3	3	3	9
29	19241A0189	4	7	3	3	12
30	19241A0190	15	5	5	3	18
31	19241A0191	13	9	3	3	17
32	19241A0192	8	AB	3	3	10
33	19241A0193	AB	AB	3	3	6
34	19241A0194	2	4	3	3	9
35	19241A0195	2	0	3	3	7
36	19241A0196	10	8	3	3	15
37	19241A0197	16	15	5	5	26
38	19241A0198	10	6	3	3	14
39	19241A0199	11	9	5	3	18
40	20245A0101	19	19	4	5	28
41	20245A0102	17	10	3	3	20
42	20245A0103	7	6	3	3	13
43	20245A0104	18	19	3	4	26
44	20245A0105	17	17	3	4	24
45	20245A0106	20	17	5	4	28
46	20245A0107	7	6	3	3	13
47	20245A0108	13	13	3	3	19
48	20245A0109	16	14	3	4	22
49	20245A0110	17	15	5	4	25
50	20245A0111	8	7	3	3	14
51	20245A0112	14	13	3	4	21

52	20245A0113	12	16	3	3	20
53	20245A0114	18	17	5	4	27
54	20245A0115	16	10	3	3	19
55	20245A0116	11	18	5	4	24
56	20245A0117	14	13	5	4	23
57	20245A0118	12	9	3	4	18
58	20245A0119	18	14	4	5	25
59	20245A0120	17	19	3	3	24
60	20245A0121	7	7	3	3	13
61	20245A0122	20	19	4	5	29
62	20245A0123	7	15	3	3	17
63	20245A0124	14	15	5	4	24
64	20245A0125	15	17	5	3	24
65	20245A0126	10	10	3	3	16
66	20245A0127	6	7	3	4	14
67	20245A0128	15	20	5	5	28
68	20245A0129	13	14	5	5	24
69	20245A0130	8	6	3	3	13
70	20245A0131	8	11	3	3	16

Faculty Signature

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59	18241A0158	15	18	5	5	27
60	18241A0159	19	18	5	5	29
61	18241A0160	15	18	5	5	27
62	18241A0161	17	15	5	2	23
63	18241A0162	17	16	5	2	24
64	18241A0163	20	19	5	5	30
65	18241A0164	15	19	5	5	27
66	18241A0165	16	19	5	5	28
67	18241A0166	19	18	5	5	29
68	18241A0167	19	16	5	2	25
69	18241A0168	19	18	5	5	29
70	18241A0169	17	16	5	5	27
71	18241A0170	18	17	5	5	28
72	18241A0171	17	15	5	5	26
73	18241A0172	17	19	5	5	28
74	18241A0173	17	18	5	5	28
75	18241A0174	19	17	5	5	28
76	18241A0175	19	18	5	5	29
77	18241A0176	17	12	5	5	25
78	18241A0177	15	14	5	5	25
79	18241A0178	18	19	5	5	29
80	18241A0179	18	18	5	5	28
81	18241A0180	19	19	5	5	29
82	18241A0181	17	19	5	5	28
83	18241A0182	17	19	5	5	28
84	18241A0183	17	19	5	5	28
85	18241A0184	18	19	5	5	29
86	18241A0185	19	19	5	5	29
87	18241A0186	14	06	5	5	20
88	18241A0187	18	19	5	5	29
89	18241A0188	18	13	5	5	26
90	18241A0189	18	19	5	5	29
91	18241A0190	19	16	5	5	28
92	18241A0191	17	14	5	5	26
93	18241A0192	19	19	5	5	29
94	18241A0193	18	18	5	5	28
95	18241A0194	18	15	5	5	27
96	18241A0195	18	18	5	5	28
97	18241A0196	17	14	5	2	23
98	18241A0197	19	14	5	5	27
99	18241A0198	19	14	5	5	27
100	18241A0199	17	19	5	5	28
101	18241A01A0	18	18	5	5	28
102	18241A01A1	18	19	5	5	29
103	18241A01A2	17	15	5	5	26
104	18241A01A3	19	15	5	5	27
105	18241A01A4	19	19	5	5	29
106	18241A01A5	19	16	5	2	25
107	18241A01A6	19	17	5	5	28
108	18241A01A7	19	18	5	2	26
109	18241A01A8	19	15	5	2	24
110	18241A01A9	18	18	5	5	28
111	18241A01B0	15	09	5	5	22
112	18241A01B1	15	15	5	2	22
113	18241A01B2	18	19	5	5	29
114	18241A01B3	18	19	5	5	29
115	18241A01B4	19	19	5	5	29
116	18241A01B5	18	19	5	5	29
117	18241A01B6	18	15	5	5	27
118	18241A01B7	17	15	5	5	26
119	18241A01B8	19	15	5	5	27
120	18241A01B9	19	18	5	5	29
121	18241A01C0	19	18	5	5	29
122	19245A0101	19	17	5	5	28
123	19245A0102	17	15	5	5	26
124	19245A0103	17	20	5	5	29
125	19245A0104	18	20	5	5	29
126	19245A0105	18	20	5	5	29
127	19245A0106	15	20	5	5	28
128	19245A0107	15	14	5	5	25
129	19245A0108	18	14	5	5	26
130	19245A0109	16	18	5	5	27
131	19245A0110	18	19	5	5	29
132	19245A0111	18	18	5	5	28
133	19245A0112	17	14	5	5	26

Gokaraju Rangaraju Institute of Engineering & Technology

III B.Tech II Sem- 2021 -22

DSS (GR18A3067)

CO's Attainment calculation

A.Y 2020-21 III Year II SEM DSS Cohort_CO_

A.Y 2021-22 III Year II SEM DSS Cohort_CO_and_PO_Attainment

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

MAPPING

GR18A3067/ **Design of Steel Structures**	**Course Outcomes**				
Course Objectives	1	2	3	4	5
1	X				
2		X			
3			X		
4				X	
5					X

1. **Assignment ,**
2. **Internal Examination**
3. **External Examination**
4. **Practical Projects**
5. **Viva**

GR18A3067/ **Design of Steel Structures**	Course Outcomes				
Assessments	1	2	3	4	5
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X
4					
5					

GR18A3067/ **Design of Steel Structures**	**Course Objectives**				
Assessments	1	2	3	4	5
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X

4					
5					

Course	**Program Outcomes**											
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**
Design of Steel Structures	X	X	X	X		X	X			X	X	X

GR18A3067/ **Design of Steel Structures**	**Program Outcomes**													**PSO**	
Course Outcomes	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**i**	**l**	**PSO1**	**PSO2**
1	M			M		M	M	M	M	H		H	M	M	M
2	H	H	H	H		M	M	M	M			M	M	M	M
3	H	H	H	H		M	M	M	M			M	M	M	M
4	H	H	H	H		M	M	M	M			M	M	M	M
5	H	H	H	H		M	M	M	M			M	M	M	M

GR18A Design of steel structures	Program Outcomes												Program Specific Outcomes	
Course Outcomes	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**	**PSO1**	**PSO2**
Identify various types of structural steel and itsproperties. Also able to define concepts of LSD.	H			M		M	M	M	M			H	M	M
Classify and design various types of connections.	H	M		M				M	M			M	M	M
Design tension and compression members for the given loads.	H	M		M				M	M			M	M	M
Design the steel beams and eccentric connectionsfor the given loads and moments.	H	M		M				M	M			M	M	M
Design the eccentric connections for the given loads and moments.	H	M		M				M	M			M	M	M

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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RUBRIC TEMPLATE

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr T Srinivas

Dept.: Civil Engineering

Designation: Professors

Objective: To learn basics and concepts of design of steel structures

Student Outcome: Learn basic concepts and engineering

			Beginning	**Developing**	**Reflecting Development**	**Accomplished**	**Exemplary**	**Score**
S. No	**Name of the Student**	**Performance Criteria**	**1**	**2**	**3**	**4**	**5**	
1	20245A0122	The level of knowledge on basic concepts of design of steel structures	Low level of knowledge on basic concepts of steel structures	Able to understand the basic concepts of steel structures	Ability to explain the basic concepts of steel structures	Full knowledge on basic concepts of steel structures	Analysing and implementing the knowledge of basic concepts of steel structures	5
2	1924 1A0115	The level of knowledge on	Low level of knowledge	Able to understand	Ability to explain engineering	Full knowledge on	Analysing and applicatio	4

		engineering properties of steel	on engineering properties of steel	engineering properties of steel	properties of steel	engineering properties of steel	n of knowledge of engineering properties of steel	
3	1924 1A01 61	The level of knowledge to analyse the behavior of steel .	Low level of knowledge to analyse the behavior of steel .	Able to understand to study the behavior of steel .	Ability to explain to the behavior of steel .	Full knowledge to analyse the behavior of steel .	Analysing and implementing the knowledge of the behavior of steel .	3
							Average Score	4

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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COURSE COMPLETION STATUS

Academic **Y**ear : 2021-22

Semester: II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Design of Steel Structures Course Code: GR18A3067

Name of the Faculty: Dr.V.Mallikarjuna Reddy and Dr.T.Srinivas

Dept.: Civil Engineering

Designation: Professors

Actual Date of Completion & Remarks, if any

Units	**Remarks**	**No. of Objectives Achieved**	**No. of Outcomes Achieved**
Unit I	01-02-2022 Unit covered on time	1	1
Unit II	25-02-2022 Unit covered on time	2	2
Unit III	31-03-2022 Unit covered on time	3	3
Unit IV	21-04-2022 Unit covered on time	4	4
Unit V	11-05-2022 Unit covered on time	5	5

Signature of HOD Signature of faculty

Date: Date:

Note: After the completion of each unit mention the number of Objectives & Outcomes Achieved.