RGPV (D WING)			OBE CUR	FORMAT-	Shee No.				
Branch		C	VIL ENGINEERING	G	Semester	6 <sup>th</sup>			
Course Code			Course Name	Design	of Steel Stru	ctures			
Course Outco	me 1		rate design philo	osophies, analyze steel structures.	and design	Teach Hrs	Marks		
Learning Out	come 1		ribe details of strussophies.	uctural steel and ex	xplain design	5	5		
Content		prope 2062) load	erties of structural , rolled steel section combinations, phil	s and disadvantages steel, types of stru- ons, use of steel tab osophy of working ads), partial safety fa	ctural steel, go lle, types of lo stress and lim	rades of s ads on st nit state	steel (IS: eel and method,		
Method of Ass	essment	Exter	nal Theory Exam –	Pen Paper Test					
Learning Out	come 2		• • •	s, calculate strength lying the principles c	_	10	10		
Content		Gaug types rivete rivete	e distance, Edge di of riveted joints, ed joints, specificat ed connection, desi	pes of rivets, definition istance, End distance, failure of riveted joins as per IS: 800 – gn of riveted connected connected on riveted or oblems or oblems.	e, permissible pints, assumpt 1984, strength tion for axially	stresses i ions in d and effic	n rivets, esign of ciency of		
Method of Ass	essment	Internal Theory Exam – Mid Semester Test I							
Course Outc	ome 2	Anal	yze and design co	onnections in steel	structures.	Teach Hrs	Marks		
Learning Out	come 1		Describe types of bolts, calculate strength and design bolted connections applying the principles of LSM.			10	10		
Content		Bolted Connections: types of bolts, permissible stresses in bolts, types of bolted joints, failure of bolted joints, assumptions in design of bolted joints, specifications as per IS: 800 – 2007, strength and efficiency of bolted connection as per IS: 800 – 2007, Simple eccentric connections (Simple numerical problems), design of bolted connection for axially loaded members as per IS: 800 – 2007, simple numerical problems on bolted connections.							
Method of Ass	essment	Exter	nal Theory Exam –	Pen Paper Test					
Learning Out	Describe advantages and disadvantages of welds, their types, calculate strength and design welded connections applying principles of LSM.						10		
Content			ed or bolted joints sis of welded joint	vantages and disad , types of welds an s, strength of fillet a et and butt welded j	d welded join nd butt welde	ts, assum d joints a	ption in s per IS:		

	only as per IS: 800 – 2007, eccentric connections, simple numerical problems on welded connections.						
Method of Assessment	External Theory Exam – Pen Paper Test						
Learning Outcome 3	Prepare drawings of rolled steel sections and connections.	06					
Content	<ol> <li>Draw various rolled steel sections.</li> <li>Draw types of welds, types of bolted and welded joints.</li> </ol>						
Method of Assessment	Practical Exam : Both Internal and External						
Course Outcome 3	Analyze and design tension members, compression members and column bases and prepare drawings of laced and battened columns and column bases applying principles of LSM.						
Learning Outcome 1	Explain types of failures of tension members and analyse and design tension members applying principles of LSM.  13						
Content	Tension members: Introduction, types of sections used, net sectional area, types of failures, design strength of members- gross section yielding, net section fracture, block shear, slenderness ratio, design of single and double angle tension member with bolted and welded connection for axial load only, introduction to lug angle, splice and gusset plate.						
Method of Assessment	External Theory Exam – Pen Paper Test						
Learning Outcome 2	Explain terminologies of compression members and analyze and design single and double angles struts and compression members applying principles of LSM.	15	15				
Content	Compression members: Introduction, types of sections length, radius of gyration, slenderness ratio, design co Analysis and design of axially loaded single and double an and design of axially loaded simple and built up column angles and introduction to battens. (No numerical problem	mpressive gle strut, , Design e	e stress, Analysis of lacing				
Method of Assessment	External Theory Exam – Pen Paper Test						
Learning Outcome 3	Identify column base and design slab base applying principles of LSM.	08	10				
Content	Column Bases: Introduction, types of column bases — slabase, analysis and design of slab base subjected to axia concrete block, introduction to gusseted base ( no nume gusseted base),	al loads o	only and				
Method of Assessment	Internal Theory Exam – Mid Semester Test II						
Learning Outcome 4	Prepare drawings of laced and battened built up column, slab base and gusseted base.	12					
Content	<ol> <li>Draw plan and elevation of single and double laced built up column.</li> <li>Draw plan and elevation of battened built up column.</li> <li>Draw plan, elevation and section of slab base.</li> <li>Draw plan, elevation and section of gusseted base.</li> </ol>						
Method of Assessment	Practical Exam : Both Internal and External						

Course Outcome 4	Design beams, calculate load on roof truss and analyze roof truss by graphical method.	Teach Hrs	Marks			
Learning Outcome 1	Classify beams and sections and analyze and design simple beams.	12	15			
Beams: Introduction, types of sections, classification of cross section plastic, compact, semi — compact, slender, types of beams — lat supported beams, laterally unsupported beams, plastic modulus numerical problem on plastic modulus), web buckling, web crip deflection, Analysis and design of laterally supported beams subject uniformly distributed load, Introduction to plate girder. (No num problem on plate girder)						
Method of Assessment	External Theory Exam – Pen Paper Test					
Learning Outcome 2	GOutcome 2 Identify trusses, calculate loads on trusses and analyze roof truss by graphical method.					
Content	Roof Truss: types of steel truss, loads on roof truss, lo combination of loads, calculation of loads on roof truss, analysis of roof truss using graphical method, connections, of purlin (No numerical problem)	spacing	of truss,			
Method of Assessment	Internal Theory Exam – Assignments/Quiz/Seminars/Prese	ntation				
Learning Outcome 3	Prepare drawings of beam to beam connections, beam to column connections, plate girder and roof truss.	09				
<ol> <li>Draw seated and framed beam to beam connections and seated a framed beam to column connections.</li> <li>Draw plan and elevation of plate girder showing all details.</li> <li>Draw a roof truss showing details of joints, purlins and roofing.</li> </ol>						
Method of Assessment						

Note: 1. Internal marks of practical exam is mentioned in Format 4.

2. External practical exam will be of maximum 30 marks and any of the practical mentioned in LO's can be assessed.

# List of Suggested Books: -

S. No.	Authors	Title	Publisher
1.	P. Dayarathnam	Design of Steel Structures	S. Chand and Company
2.	Prof. S. K. Duggal	Design of Steel Structures	McGraw Hill Education
			(India) Pvt. Ltd.
3.	Prof. S. K. Duggal	Limit State Design of Steel Structures	McGraw Hill Education
			(India) Pvt. Ltd.
4.	Prof. S. S. Bhavikatti	Design of Steel Structures (By Limit	I. K. International
		State Method As Per Is: 800-2007)	Publishing house Pvt. Ltd.,
5.	Bureau of Indian	IS-800 – 2007, General Construction in	BIS, New Delhi.
	Standard	steel,	
6.	Bureau of Indian	Handbook on Steel – SP-6	BIS, New Delhi.
	Standard		
7.	Bureau of Indian	IS – 875, 1987, Part-1 to 5: Indian	BIS, New Delhi.
	Standard	Standard Code for Loading Standards	
8	N. Subramanian	Design of Steel Structures: Theory	Oxford University Press
		And Practice	(2010)

# SCHEME FOR LEARNING OUTCOME

В	ranch (	Code	Course	Code	CO Code	LO Code	<b>A</b>
С	0	3			1	1	Format No. 4

COURSE NAME	Design of Steel Structur	re							
<b>CO Description</b>	Illustrate design philoso	ophies, analyze and design riveted connec	ion ir	1 ste	el struc	tures	<b>S.</b>		
LO Description	Describe details of structure	ctural steel and explain design philosophic	s.						

### **SCHEME OF STUDY**

S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remark s
1	Introduction, advantages and disadvantages of steel as structural material, properties of structural steel, types of structural steel, grades of steel (IS: 2062), rolled steel sections, use of steel table, types of loads on steel and load combinations, philosophy of working stress and limit state method, characteristic actions(loads), partial safety factors for loads and materials.	classroom teaching, assignments, quiz,	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.	5	0	Text book, video lectures, chalk board.	NIL

### **SCHEME OF ASSESSMENT**

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to explain different properties of structural steel and grade of steel, list types of loads.	05	Test Paper + Rating scale	Question paper + rating scale	External

### ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

# SCHEME FOR LEARNING OUTCOME

<b>A</b>	LO Code	CO Code	de	Course Co	Code	ranch (	Е
Format No. 4	2	1			3	0	c

COURSE NAME	Design of Steel Structure
<b>CO Description</b>	Illustrate design philosophies, analyze and design riveted connection in steel structures.
<b>LO Description</b>	Describe types of rivets, calculate strength and design riveted connections applying the principles of WSM.

### **SCHEME OF STUDY**

S. I	No. Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Riveted Connections: types of rivets, definition of term used in rivets – Pitch, Gauge distance, Edge distance, End distance, permissible stresses in rivets, types of riveted joints, failure of riveted joints, assumptions in design or riveted joints, specifications as per IS: 800 – 1984 strength and efficiency of riveted connection, design or riveted connection for axially loaded members only simple numerical problems on riveted connections.	classroom teaching, assignments, quiz, presentation.	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.	10	0	Text book, video lectures, chalk board.	NIL

#### **SCHEME OF ASSESSMENT**

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to define various terms used in riveting connections, explain failure of riveted connection, calculate efficiency of riveted connection.	10	Test Paper + Rating scale	Question paper + rating scale	Internal

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Internal Exam – Mid Semester Test-I

# SCHEME FOR LEARNING OUTCOME

В	Branch Code		Course Code		CO Code	LO Code	
C	0	3			2	1	Format No. 4

COURSE NAME	Design of Steel Structure									
CO Description Analyze and design connections in steel structures.										
LO Description	Describe types of bolts,	calculate strength and design bolted conn	ections a	pplying	the p	rincip	oles o	f LSM	•	
(	CO Description	CO Description Analyze and design con	CO Description Analyze and design connections in steel structures.	CO Description Analyze and design connections in steel structures.	CO Description Analyze and design connections in steel structures.	CO Description Analyze and design connections in steel structures.	CO Description Analyze and design connections in steel structures.	CO Description Analyze and design connections in steel structures.	CO Description Analyze and design connections in steel structures.	CO Description Analyze and design connections in steel structures.

#### **SCHEME OF STUDY**

S. No	. Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Bolted Connections: types of bolts, permissible stresses in bolts, types of bolted joints, failure of bolted joints, assumptions in design of bolted joints, specifications as per IS: 800 – 2007, strength and efficiency of bolted connection as per IS: 800 – 2007, Simple eccentric connections (Simple numerical problems), design of bolted connection for axially loaded members as per IS: 800 – 2007, simple numerical problems on bolted connections.	classroom teaching, assignments, quiz, presentation.	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.	10	0	Text book, video lectures, chalk board.	NIL

### **SCHEME OF ASSESSMENT**

S. No	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to explain assumptions in design of bolted connections, check safety of bolt for the given loading condition.	10	Test Paper + Rating scale	Question paper + rating scale	External

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal			FOR LEARNING Branch Code		Course Code		CO LO Code Code			Л		
KGP	v (Dibio	ma wing) Bhopai	OL	JTCOME	c 0	3	2 2 For		Forma	nat No. <b>4</b>		
COURS	E NAME	<b>Design of Steel Structure</b>										
CO Des	cription	Analyze and design conne	structures.									
LO Description Describe advantages and disadvantages principles of LSM.		disadvantages	of welds, the	ir types, calculate s	strengt	th and o	design we	lded	connec	ctions	applying	
				SCHEME OF	STUDY							
S. No.	Learning	Content		Method of teaching	Description of T	Γ-L	Teach Hrs.	Pract. /Tut Hrs.	LR	s Requi	ired	Remarks
1	Welded Connection: advantages and disadvantages of welded joints over riveted or bolted joints, types of welds		Interactive classroom	Teacher will explai contents and pr	n the ovide	10	0	Tex	t b	, l	NIL	

students; teacher will

conduct a quiz and give

assignments to practice

their knowledge.

to

the

handouts

chalk board.

#### **SCHEME OF ASSESSMENT**

teaching,

quiz,

assignments,

presentation.

and welded joints, assumption in analysis of welded

joints, strength of fillet and butt welded joints as per IS:

800 – 2007, design of fillet and butt welded joints for

axially loaded members only as per IS: 800 - 2007,

eccentric connections, simple numerical problems on

welded connections.

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to list advantages and disadvantages of welding over bolting, design weld for the given load.	10	Test Paper + Rating scale	Question paper + rating scale	Internal

### ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

# SCHEME FOR LEARNING OUTCOME

Branch Code			Course Code		CO Code	LO Code	
C	0	3			2	3	Format No. 4

COURSE NAME	Design of Steel Structure
<b>CO Description</b>	Analyze and design connections in steel structures.
LO Description	Prepare drawings of rolled steel sections and connections.

### **SCHEME OF STUDY**

S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	<ol> <li>Draw various rolled steel sections.</li> <li>Draw types of welds, types of bolted and welded joints.</li> </ol>	Interactive classroom teaching, assignments, quiz, presentation.	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.	0	06	Text book, video lectures, chalk board.	NIL

### **SCHEME OF ASSESSMENT**

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Practical exam	Student will be asked to draw bolted and welded joints.		Rating scale/ Rubrics	Question paper + rating scale	External/Intern al

### ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Practical Exam: Internal Marks for Practical: 5 Marks

RGPV (	(Diploma	Wing)	<b>Bhopal</b>
--------	----------	-------	---------------

# SCHEME FOR LEARNING OUTCOME

В	ranch	Code	Course Code	CO Code	LO Code	
C	0	3		3	1	Format No.

	COURSE NAME	<b>Design of Steel Structur</b>	e									
	CO Description	,	sion members, compression members ases applying principles of LSM.	and colur	nn b	ases ar	nd pre	pare dra	wings	of lace	d and ba	ttened
I	LO Description	Explain types of failures of	of tension members and analyze and desig	n tension	men	nbers ap	plying	principle	s of LS	M.		

### **SCHEME OF STUDY**

S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remark s
1	Tension members: Introduction, types of sections used,		Teacher will explain the	13	0	Text book,	NIL
	net sectional area, types of failures, design strength of	classroom	contents and provide			video lectures,	
	members- gross section yielding, net section fracture,	teaching,	handouts to the			chalk board.	
	block shear, slenderness ratio, design of single and	assignments,	students; teacher will				
	double angle tension member with bolted and welded	quiz,	conduct a quiz and give				
	connection for axial load only, introduction to lug angle,	presentation.	assignments to practice				
	splice and gusset plate.		their knowledge.				

### **SCHEME OF ASSESSMENT**

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to explain failures in tension member, design of tension member with bolted and welded connection for axial load	15	Test Paper + Rating scale	Question paper + rating scale	External

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

DCD/	GPV (Diploma Wing) Bhopal		<b>SCHEME</b>	FOR LEARNING Branch		Branch Code		se Code	CO Code	LO Code	
KGP	סוקוט) ע	ma wing) bhopai	OL	JTCOME	C 0	3			3	<b>1</b>   Fo	rmat No. 4
COURS	URSE NAME Design of Steel Structure  Analyze and design tension members		!								
CO Des	cription	Analyze and design tensi columns and column bas		•	mbers and column	bases a	nd prep	are draw	ings o	of laced a	nd battene
LO Des	cription	Explain terminologies of members applying princi	•	embers and a	nalyse and design	single	and dou	ble angl	es str	uts and c	ompressio
			-	SCHEME OF	STUDY						
S. No.	Learning	Content		Method of teaching	Description of Process	T-L	Teach Hrs.	Pract. /Tut Hrs.		s Require	d Remai
1	Compression members: Introduction, types of sections used, effective length, radius of gyration, slenderness ratio, design compressive stress, Analysis and design of axially loaded single and double angle strut, Analysis and design of axially loaded simple and built up column, Design of lacing angles and introduction to battens. (No numerical problem on battening)		Interactive	Teacher will expla	ain the	15	0	Tex	t boo eo lecture	·	

#### SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to define terms, calculate load carrying capacity of column, design column for the given data.	15	Test Paper + Rating scale	Question paper + rating scale	External

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

DCDV/Dista	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SCHEIME FOR LEARNING	SCHEIVIE FOR LEARNING Branch Code			Col	Course Code		Code	
KGPV (DIPIO	ma Wing) Bhopal	OUTCOME C 0 3						3	3	Format No. <b>4</b>
COURSE NAME Design of Steel Structu		2					·			
CO Description	,	ion members, compression members and sees applying principles of LSM.	d colu	mn k	oases a	nd pre	epare dra	wings	of lac	ed and battened
LO Description Identify column base and design slab base applying principles of LSM.										

CO LO

### **SCHEME OF STUDY**

S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Column Bases: Introduction, types of column bases – slab base, gusseted base, analysis and design of slab base subjected to axial loads only and concrete block, introduction to gusseted base (no numerical problem on gusseted base),	classroom teaching,	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.	08	0	Text book, video lectures, chalk board.	NIL

### **SCHEME OF ASSESSMENT**

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to list and explain types of column base, design of slab base subjected to axial loads only.	10	Test Paper + Rating scale	Question paper + rating scale	External

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Part of Internal Exam – Mid Semester Test-II

D.C.D.	GPV (Diploma Wing) Bhopal			SCHEME FOR LEARNING			Cou	rse Code	CO Code	LO Code	Λ.
KGP	v (Dibio	ma wing) Bhopai	Ol	OUTCOME C					3	<b>4</b> F	ormat No. <b>4</b>
COURS	E NAME	Design of Steel Structur	re								
(() Description		Analyze and design ten columns and column ba		mpression me	mbers and columr	n bases	and pre	pare draw	ings (	of laced	and battened
LO Des	cription	Prepare drawings of lac	ed and battened	built up colum	n, slab base and g	ussete	d base.				
				SCHEME OF	STUDY						
S. No. Learning Content			Method of teaching	Description of Process	f T-L	Teach Hrs.	Pract. /Tut Hrs.	LR	s Requir	ed Remarks	
1 1 Draw plan and algustion			واطنيها وموا واحتاد	Into so otivo	Too do on will own	مطاح مانم		12	Tax	مما ا	ale NIII

S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	<ol> <li>Draw plan and elevation of single and double laced built up column.</li> <li>Draw plan and elevation of battened built up column.</li> <li>Draw plan, elevation and section of slab base.</li> <li>Draw plan, elevation and section of gusseted base.</li> </ol>	classroom teaching, assignments, quiz,	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.		12	Text book, video lectures, chalk board.	NIL

#### **SCHEME OF ASSESSMENT** Method of Maximum External / S. No. **Description of Assessment Passing Criteria Resources Required** Assessment Marks Internal Student will be asked to write design steps, draw plan, section Question paper + rating and elevation of lace and battened 1 Practical exam Rating scale/ Rubrics scale Both built up column, slab base and

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

gusseted base.

Part of Practical Exam: Internal Marks for Practical: 9 Marks

# SCHEME FOR LEARNING OUTCOME

	LO Code	CO Code	Course Code	Co	Branch Code		
Format No. 4	1	4			3	0	C

COURSE NAME	Design of Steel Structure
<b>CO Description</b>	Design beams, calculate load on roof truss and analyse roof truss by graphical method.
LO Description	Classify beams and sections and analyse and design simple beams.

### **SCHEME OF STUDY**

S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Beams: Introduction, types of sections, classification of cross sections – plastic, compact, semi – compact, slender, types of beams – laterally supported beams, laterally unsupported beams, plastic modulus (No numerical problem on plastic modulus), web buckling, web crippling, deflection, Analysis and design of laterally supported beams subjected to uniformly distributed load, Introduction to plate girder. (No numerical problem on plate girder)	classroom teaching, assignments, quiz, presentation.	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.	12	0	Text book, video lectures, chalk board.	NIL

### **SCHEME OF ASSESSMENT**

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to explain plastic modulus, classify beam and section, design simple beams.		Test Paper + Rating scale	Question paper + rating scale	External

### ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diplor	na Wing)	Bhopal

# SCHEME FOR LEARNING OUTCOME

В	ranch (	Code	Cour	se Code	CO Code	LO Code	4
C	0	3			4	2	Format No. 4

COURSE NAME	Design of Steel Structure					
CO Description Design beams, calculate load on roof truss and analyse roof truss by graphical method.						
LO Description	O Description Identify trusses, calculate loads on trusses and analyze roof truss by graphical method.					

#### **SCHEME OF STUDY**

S. No.	Learning Content	Method of teaching	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Roof Truss: types of steel truss, loads on roof truss, load combinations, combination of loads, calculation of loads on roof truss, spacing of truss, analysis of roof truss using graphical method, connections, design procedure of purlin (No numerical problem)	classroom teaching,	Teacher will explain the contents and provide handouts to the students; teacher will conduct a quiz and give assignments to practice their knowledge.	10	0	Text book, video lectures, chalk board.	

### **SCHEME OF ASSESSMENT**

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Passing Criteria	Resources Required	External / Internal
1	Theory exam	Student will be asked to calculate loads on trusses, analyze roof truss by graphical method for the given loading condition.	10	Test Paper + Rating scale	Question paper + rating scale	Internal

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Internal Theory Exam – Assignments/Quiz/Seminars/Presentation

RGPV (Diploma Wing) Bho		SCHEME FOR LEARNING		Branch Code		Cours	e Code	de CO LO		de	1		
(Dibioiii	a willg, bilopai	JTCOME		<i>c</i> 0	3			4	<b>3</b> For		rmat No. <b>4</b>		
NAME	Design of Steel Structure	e											
cription	Design beams, calculate	load on roof trus	s and analyze	roof truss b	oy graphi	cal m	ethod.						
ription	Prepare drawings of bea	am to beam conn	ections, beam	to column	connecti	ons, p	late girde	er and ro	of tru	ISS.			
·			SCHEME OF	STUDY									
Learning Content			Method of teaching	•			Teach Hrs.	/Tut   LRs Re		s Requ	quired Rem		
<ol> <li>Draw seated and framed beam to beam connections and seated and framed beam to column connections.</li> <li>Draw plan and elevation of plate girder showing all details.</li> <li>Draw a roof truss showing details of joints, purlins and roofing.</li> </ol>			Interactive classroom teaching, assignments, quiz, presentation.	contents handouts students; conduct a assignmen	and proto to teacher quiz and ts to pro	the will give	0	09	vid	eo lec	tures,	NIL	
		S	CHEME OF ASS	ESSMENT									
	Description of	f Assessment	Maximum Marks	Passi	ing Criter	ia	Resc	ources R	equire	ed		ternal / nternal	
Student will be asked design steps of beam 1 Practical exam to beam connections		am, draw beam ons, beam to	aw beam eam to		Rating scale/ Rubrics			Question paper + rating scale				Both	
	NAME ription ription  Learning Co  1. Draw connections connections. 2. Draw all details. 3. Draw and roofing.  Method Assessme	NAME Design of Steel Structure ription Design beams, calculate ription Prepare drawings of beat Learning Content  1. Draw seated and framed connections and seated and framed connections. 2. Draw plan and elevation of pla all details. 3. Draw a roof truss showing detail and roofing.  Method of Assessment Student will be as design steps of be to beam connection column connection.	NAME Design of Steel Structure ription Design beams, calculate load on roof trus ription Prepare drawings of beam to beam connections  1. Draw seated and framed beam to beam connections and seated and framed beam to column connections.  2. Draw plan and elevation of plate girder showing all details.  3. Draw a roof truss showing details of joints, purlins and roofing.  S  Method of Assessment  Practical exam  Student will be asked to explain design steps of beam, draw beam to beam connections, beam to column connection, plate girder	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze ription Prepare drawings of beam to beam connections, beam SCHEME OF  Learning Content SCHEME OF  Learning Content Method of teaching  1. Draw seated and framed beam to beam connections and seated and framed beam to column connections.  2. Draw plan and elevation of plate girder showing assignments, quiz, presentation.  3. Draw a roof truss showing details of joints, purlins and roofing.  SCHEME OF ASS  Method of Assessment Student will be asked to explain design steps of beam, draw beam to beam connections, plate girder	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze roof truss in pription  Prepare drawings of beam to beam connections, beam to column SCHEME OF STUDY  Learning Content Method of teaching Properties and seated and framed beam to beam connections and seated and framed beam to column connections.  Draw plan and elevation of plate girder showing assignments, all details.  Draw a roof truss showing details of joints, purlins and roofing.  SCHEME OF ASSESSMENT  Method of Assessment Description of Assessment Students; and roofing assignments and roofing.  SCHEME OF ASSESSMENT  Method of Assessment Reating assignment bear their know column connections, beam to column connection, plate girder  Practical exam to beam connections, beam to column connection, plate girder	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze roof truss by graphi ription Prepare drawings of beam to beam connections, beam to column connections.  Learning Content Method of teaching Process  1. Draw seated and framed beam to beam Interactive connections and seated and framed beam to column connections.  2. Draw plan and elevation of plate girder showing assignments, quiz, assignments, quiz, conduct a quiz and process and roofing.  SCHEME OF ASSESSMENT  Method of Assessment Description of Assessment Marks  Practical exam Student will be asked to explain design steps of beam, draw beam to beam connections, beam to column connection, plate girder  Rating scale/ Rub	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze roof truss by graphical maription Prepare drawings of beam to beam connections, beam to column connections, p  SCHEME OF STUDY  Learning Content Method of teaching Process  1. Draw seated and framed beam to beam Interactive connections and seated and framed beam to column connections. 2. Draw plan and elevation of plate girder showing all details. 3. Draw a roof truss showing details of joints, purlins and roofing.  SCHEME OF ASSESSMENT  Method of Assessment Description of Assessment Student will be asked to explain design steps of beam, draw beam to beam connections, plate girder  Practical exam Rating scale/ Rubrics	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze roof truss by graphical method. ription Prepare drawings of beam to beam connections, beam to column connections, plate girde SCHEME OF STUDY  Learning Content Method of teaching Process Tuby  1. Draw seated and framed beam to beam connections and seated and framed beam to column connections and seated and framed beam to column connections. 2. Draw plan and elevation of plate girder showing all details. 3. Draw a roof truss showing details of joints, purlins and roofing.  SCHEME OF ASSESSMENT  Method of Assessment Description of Assessment Student will be asked to explain design steps of beam, draw beam to beam to beam to column connections, beam to column connection, plate girder  Rating scale/ Rubrics  Quest	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze roof truss by graphical method. ription Prepare drawings of beam to beam connections, beam to column connections, plate girder and roof teaching Process Hrs.    Method of teaching   Description of T-L Process Hrs.   Teach Hrs.	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze roof truss by graphical method. ription Prepare drawings of beam to beam connections, beam to column connections, plate girder and roof trust SCHEME OF STUDY  Learning Content Method of teaching Process Proce	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze roof truss by graphical method. ription Prepare drawings of beam to beam connections, beam to column connections, plate girder and roof truss.  SCHEME OF STUDY  Method of teaching Process  1. Draw seated and framed beam to beam connections and seated and framed beam to column connections and seated and framed beam to column connections. 2. Draw plan and elevation of plate girder showing all details. 3. Draw a roof truss showing details of joints, purlins and roofing.  SCHEME OF ASSESSMENT  Method of Assessment  Description of Assessment  Maximum Marks  Passing Criteria  Question paper + rating scale/ Rubrics  Question paper + rating scale	NAME Design of Steel Structure ription Design beams, calculate load on roof truss and analyze roof truss by graphical method. ription Prepare drawings of beam to beam connections, beam to column connections, plate girder and roof truss.  SCHEME OF STUDY  Learning Content Method of teaching Process SCHEME OF STUDY  Learning Content Teaching Practical state of the connections and seated and framed beam to beam column connections and seated and framed beam to column connection of T-L Process Tuby  Method of teaching Practice Contents and provide classroom contents and provide teaching, assignments, assignments, assignments, assignments, assignments to the conduct a quiz and give assignments to practice their knowledge.  SCHEME OF ASSESSMENT  Method of Assessment Description of Assessment Student will be asked to explain design steps of beam, draw beam to column connection, plate girder  Student will be asked to explain design steps of beam, draw beam to column connection, plate girder  Practical exam to beam connections, beam to column connections by graphical method.  Teach Hrs. Practical exam to column connections, plate girder and roof truss.  Teacher will explain the contents and provide teacher will explain the contents and provide teaching, assignments, to the contents and provide teaching, assignments, to the conduct a quiz and give assignments to practice their knowledge.  SCHEME OF ASSESSMENT  Maximum Marks  Passing Criteria Resources Required Explain design steps of beam, draw beam to column connection, plate girder	

Part of Practical Exam: Internal Marks for Practical: 06 Marks

Note: 1. Internal marks of practical exam is mentioned in Format 4.

2. External practical exam will be of maximum 30 marks and any of the practical mentioned in LO's can be assessed.