RAJIV GANDHI PROUDYOGIKI VISHVAVIDYALAYA (DIPLOMA WING) BHOPAL P05 DIPLOMA IN PRODUCTION ENGINEERING PART A:- PROCESS OF CURRICULUM DEVELOPMENT SUBJECT: STEEL FABRICATION (403)

LIST OF IDENTIFIED PROFESSIONAL ROLES

- 1. To apply knowledge of mathematics, science, and engineering.
- 2. To design and conduct experiments, as well as to analyze and interpret data.
- 3. To design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- 4. To function on multidisciplinary teams.
- 5. To identify, formulate, and solve engineering problems.
- 6. To understand professional and ethical responsibility.
- 7. To communicate effectively.
- 8. To understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- 9. To engage in lifelong learning.
- 10. To use the techniques, skills, and modern engineering tools necessary for engineering practice.

LIST OF SELECTED TERMINAL BEHAVIORS SUBJECT: STEEL FABRICATION (403)

- To apply knowledge of mathematics, science, and engineering. TB-1 To understand the general principle of steel fabrication. TB-2 Know about the working, equipments, applications and selection criteria of various welding and cutting processes
- 2. To design and conduct experiments, as well as to analyze and interpret data. TB1 Interpret various welding and symbols and their different standards.
- 3. To design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

TB-1 Selecting a suitable process for producing quality weldments based on materials and applications TB-2 Know the safe procedure for making a welded joint.

- 4. To function on multidisciplinary teams. NIL
- To identify, formulate, and solve engineering problems
 TB-1 Identify the fabrication materials, consumables based on given standard designations and vice versa.
 TB 2 Identify various defects of welding
 TB 3 Take actions to prevent various welding defects.
- 6. To understand professional and ethical responsibility. NIL
- 7. To communicate effectively. NIL
- 8. To understand the impact of engineering solutions in a global, economic, environmental, and societal context. NIL
- 9. To engage in lifelong learning. NIL
- 10. To use the techniques, skills, and modern engineering tools necessary for engineering practice. TB-1 To study procedures of inspection and testing and quality control and their standards.

SUBJECT: STEEL FABRICATION (403) COs FOR SELECTED TERMINAL BEHAVIORS

1. To apply knowledge of mathematics, science, and engineering.

TB-1 To understand the general principle of steel fabrication.

CO1 Understand the welding management and prinicple.

TB-2 Know about the working, equipment, applications and selection criteria of various welding processes.

- CO2 Understand the classification of welding and cutting processes.
- To design and conduct experiments, as well as to analyze and interpret data. TB1 Interpret various welding and symbols and their different standards. CO 3 Understand the types, features, merits, demerits and applications of various fabrication processes
- 3. To design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

TB-2 Know the safe procedure for making a welded joint.

CO 5 Understand the safety precaustion during welding operations.

- 4. To function on multidisciplinary teams. NIL
- 5. To identify, formulate, and solve engineering problems
 - TB 2 Identify various defects of welding
 - CO 4:Understand different types of defects found in the welding operation.
 - TB 3 Take actions to prevent various welding defects.
 - CO 3 Understand the actions taken to prevent various welding defects.
- 6. To understand professional and ethical responsibility NIL
- 7. To communicate effectively NIL
- 8. To understand the impact of engineering solutions in a global, economic, environmental, and societal context. NIL
- 9. To engage in lifelong learning NIL
- To use the techniques, skills, and modern engineering tools necessary for engineering practice. TB-1 To study procedures of inspection and testing of welding. CO4: Understand the procedures the inspection and testing of welding operation.

CO GROUPING AND COURSE FORMATION COURSE NAME: - STEEL FABRICATION (403)

(Total 100 Hrs. Total 100 Marks)

LIST OF COs:-

CO1: Understand various welding processes. (20 Hrs, 20 marks)

CO2: Understand special welding processes.. (20 Hrs, 20 marks)

CO3: Understand metallurgical aspects in welding and welding design. (20 Hrs, 20 marks)

C04: Understand defects in welds and testing of welds..(20 Hrs,20 marks)

C05: Understand safety in welding and quality control in welding. (20 Hrs, 20 marks)

LOs FORMATION

COURSE NAME: - STEEL FABRICACTION (403) (Total 100 Hrs., Total 100 Marks)

List of COs and Los

CO1: Understand various welding processes. (20 hrs, 20 marks)

LO1: To explain manual and semi automated welding processes. (10 Hrs., 10Marks) LO2: To explain automated welding processes and robotic welding. (10 Hrs, 10 Marks)

CO2: Understand special welding processes. (20 Hrs, 20 marks)

LO1: To explain solid-state welding processes. (10 Hrs, 10 marks) LO2: To explain underwater welding processes. (10 Hrs, 10 marks)

CO3: Understand metallurgical aspects in welding and welding design. (20 Hrs, 20 marks)

LO1 : To explain metallurgy of welding. (10 Hrs, 10 marks)

LO2 : To explain welding symbols and welding design. (10 Hrs, 10 marks)

CO4: Understand defects in welds and testing of welds. (20 Hrs,20 marks)

LO1: To know about the different type of weld defects. (10 Hrs, 10 marks) LO2: To describe the various non-destructive method of testing. (**10** Hrs, 10 marks)

CO5: Understand safety in welding and quality control in welding. (20 Hrs, 20 marks)

LO1: To explain possible hazards in welding and cutting. (10 Hrs, 10 marks)

LO2: To explain quality control in welding. (10 Hrs, 10 marks)

PART B:- CURRICULUM OF PRODUCTION ENGINEERING

RGPV	(Diplon	na W	ing) Bhopal		COURSE	E PLAN	I	F	Forma	<mark>t -2</mark>	She	et No. $\frac{1}{2}$
Cour	se Name	e	STEEL FABR	RICAT	TION			Sem	ester		FOR	ГН
Branch			DUCTION GINEERING	C	Course Code	403	No. of	Cos	05	No.	of LO	s 10
	ching	100	Total Marks	100	Total no. of Assessments		Type Assess			Ex	lo. of kternal essment	ts
			DESCR	IPTIO	N OF OUTC	OMES					T-L Hrs.	Max. Marks
CO 1	P05403	1	Understand va	rious v	velding proces	ses.					20	20
	PO5403	311	To explain manu	al and s	semi automated	welding	processes.				10	10
Los	PO5403	312	To explain auton	nated w	elding processes	s and rob	otic weldin	ng.			10	10
CO 2	CO 2 P054032 Understand special welding processes.						20	20				
	PO5403	321	To explain solid	l-state	welding proce	sses.					10	10
Los	PO5403	322	To explain unde	erwate	r welding proc	esses.					10	10
CO 3	P05403	3	Understand n design	netall	urgical aspec	ets in w	elding a	nd we	ding		20	20
	PO5403	331	To explain meta	allurgy	of welding.						10	10
Los	PO5403	332	To explain weld nd welding desi	•••	mbols a						10	10
CO 4	P05403	4	Understand of	lefect	s in welds an	d testiı	ng of we	lds.			20	20
-	PO5403	341	To know about	the dif	ferent type of	weld de	fects.				10	10
Los	PO5403	342	To describe the	variou	is non-destruct	ive metl	hod of test	ting.			10	10
CO 5	P05403	5	Understand sa	fety in	welding and	quality	control i	ı weldi	ng.		20	20
	PO5403	351	To explain poss	ible ha	azards in weldi	ng and o	cutting.				10	10
Los	PO5403	352	To explain quality control in welding.							10	10	

	PLOMA WING) IOPAL	OCB CURRICULU	M FOR THE COURSE	FORM	AT- 3	Sheet No. 1/3
Branch	PRODUCTION E	ENGINEERING	Semester		Fourth	
Course Code	403 Co	ourse Name	STEEL FABRICATIO	ON	Teach H	rs Marks
Course Outcome 1	Understand variou	is welding processes.			20	20
Learning Outcome 1	-	and semi automated we			10	10
CONTENT	-		cipal, operation, equipme velding, Flux-cored Arc v			
Method of Assessment		Paper pen tes	t/ Practical assessment			
Learning Outcome 2	To explain automa	ted welding processes a	nd robotic welding.		10	10
CONTENT	nts, applica	ations of	· ·			
Method of Assessment		Paper pen tes	t/ Practical assessment		I	
Course Outcome 2		20	20			
Learning Outcome 1	To explain solid-st		10	10		
CONTENT			cipal, operation, applicati c welding, Explosive and		velding.	
Method of Assessment		Paper per	n test/ Practical assessm	ient	1	
Learning Outcome 2	To explain underw	ater welding processes.			10	10
CONTENT		lem encountered in und derwater welding.	erwater welding, Types o	of underwa	ter weld	ing,
Method of Assessment		Paper pen te	st/ Practical assessmen	t		
Course Outcome 3	Understand met	allurgical aspects in	welding and welding o	design.		
Learning Outcome 1	To explain metallu	rgy of welding			10	10
CONTENT			mperature distribution in ng, weld metal solidifica		eld meta	l, cooling
Method of Assessment		Paper pen test				
Learning Outcome 2	To explain welding	g symbols and welding o	lesign.		10	10
CONTENT		0	ic weld symbols, Principlitions, allowable strength			•

	load, allowable fatique strength of welds.							
Method of Assessment	Paper pen test							
Course Outcome 4	Understand defects in welds and testing of welds.	20	20					
Learning Outcome 1	To know about the different type of weld defects.	10	10					
CONTENT	Introduction, Cracks, Distortion, Incomplete penetration, Inclusions, Porsosity and blowholes or gas pockets, Poor fusion, Spatter, Under-cutting and overlaaping, causes and remedies.							
Method of Assessment	Paper pen test/ Practical assessment							
Learning Outcome 2	To describe the various non-destructive method of testing.	10	10					
CONTENT Purpose and limitations of NDT, Concepts, operating principles, advantages, limitations, or liquid penetrant and magnetic particle testing, eddy current testing, ultrasonic testing radiography.								

Method of Assessment	Paper pen test/ Practical assessment		
Course	Understand safety in welding and quality control in welding.	20	20
Outcome 5		20	20
Learning Outcome 1	To explain possible hazards in welding and cutting.	10	10
CONTENT	Possible hazards in welding and cutting, causes and remedies and safety rules operations.	for arc we	elding
Method of Assessment	Paper pen test		
Learning Outcome 2	Understand quality control in welding.	10	10
CONTENT	Introduction, quality assurance v/s quality control, weld quality, discontinuitie causes and remedies and quality conflicts.	es in welc	ls, their
Method of Assessment	Paper pen test		

CO1:LO1						1		1		
RGPV (Dip Bho	oloma Wi opal	ing) SC	HEME FOR OUTC	LEARNING OME	Branch Code P05	Course Code 403	CO Code 01	LO Coc 01	le	^S ormat No. 4
COURSE NA	ME S	TEEL FA	BRICATIO	N					·	
CO Descriptio	on U	J nderstan	d various wel	ding processes	•					
LO Descriptio	on Te	o explain n	nanual and se	mi automated w	velding pi	ocesses.				
			SCH	HEME OF STU	JDY					
S. Lear No.	ning Cor	ntent	Teaching - Learning Method	Description of T-L Process		L Teach Pract. Hrs. /Tut Hrs.		LRs Required		Rema rks
and co operation applicati tungsten metal a	oncept, n, eq ions c arc we rc weldi Arc welc	definition principal uipments, of Gas elding,Gas ng, Flux- ding and	Traditional Lecture method + Practical (Welding Shop)	I Teacher will explain th contents. Teacher will conduct Progressive test/ give Assignment.		5	5	Handout, Book.		
			SCHEM	IE OF ASSES	SMENT	1 1				
	hod of ssment	De	escription of	Assessment	Ν	Iaximun Marks	n Resou Requi		-	ernal / ernal
Assessment Paper pen test/ For the given learning cont Practical write answer of questions assessment Practical Viva					ents	10	Progres test/ semest exam/ Practic file	End er	Intern /Exter	
	ADDIT	IONAL IN	NSTRUCTIO	ONS FOR THE	E HOD/	FACUL	ΓY (IF A	NY)		
List of Pract	icals									
1.Study of Ga	as tungst	en arc we	lding(GTAW	V) welding.						
2.Study of Ga	as metal	arc weldi	ng(GMAW)	welding.						
3.Virtual lab	or youtu	be video o	or Visit to in	dustry.						

RGI	PV (Diploma W Bhopal	Ving) SC	HEME FOR OUTC	LEARNING OME	Branch Code P05	Course Code 403	CO Code 01	LO Cod 02		Format No. 4
COUF	RSE NAME	STEEL FAR	BRICATION		1	ł		1	1	
CO De	escription	Understar	nd various w	velding proces	sses.					
LO De				ng processes and		velding				
	I		SCH	IEME OF STU	JDY					
S. No.	Learning Co	ontent	Teaching - Learning Method	Description Proces		Teach Hrs.	Pract. /Tut Hrs.		LRs Required	
1	To explain the and concept, operation, e applications Submerged arc electro slag we Robotic Weldin	principal quipments, of c welding, elding and	Traditional Lecture method + Practical (Welding Shop)	Teacher will explain th content Teacher wi conduct Progressiv test/quiz so tha students explain th different weldin processes.		1 e t e	5	Handout, Book, Welding Shop		
	- 1		SCHEM	IE OF ASSES	SMENT					
S. No	Method of Assessment	De	escription of	Assessment	I	Maximun Marks	n Resou Requi			ernal / ernal
1	Paper pen tes Practical assesment	-	swer of ques	g content, Stud tions and face	dents	10	Progressive Interna test/ End /Extern semester exam/ Practical file			
	ADDI	FIONAL II	NSTRUCTIO	ONS FOR THI	E HOD/	FACUL	TY (IF A	NY)		
List	of Practical									
1. St	tudy of submer	ged arc (SA	AW) welding	.						
2. St	tudy of electro	slag (ESW) welding.							
3 V	irtual lab or yo	utube video	o or Visit to	industry						

RC	PV (Diploma Bhopal	Wing) SC	CHEME FOR OUTC	LEARNING OME	Branch Code P05	Course Code 403	CO Code 02	LO Coc 01	le	Format No. 4
COU	RSE NAME	STEEL FA	BRICATION							
COI	Description	Understa	nd special w	elding proces	ses.					
LO E	Description			lding processes						
			SCH	IEME OF STU	JDY					
S. No.	Learning C	Learning Content		Description of T-L Process		Teach Hrs.	Pract. /Tut Hrs.		Rs uired	Rema rks
1	To explain th and concept, operation, app Cold welding welding, welding, Exp Friction weldir	, principa lications of , Diffusior Utrasonic losive and	$\frac{1}{1} \begin{bmatrix} \text{Lecture} \\ \text{method} \\ + \\ \text{assignment} \\ + \end{bmatrix}$	Teacher will explain the contents and provide handout to students. Teacher will conduct Progressive test/assignment.		2 5	5	Hand Book		
I			SCHEM	IE OF ASSES	SMENT					
S. No	Method of Assessment		escription of	Assessment	N	Aaximun Marks	n Resou Requi			ernal / ernal
1	Paper pen tes /Practical assesment	given learning swer of quest	g content, Students		10	Progressive Test paper/ End semester exam		ssive Internal aper/ /Externa		
	ADDI	TIONAL I	NSTRUCTIO	ONS FOR THE	E HOD/	FACUL	TY (IF A	NY)	1	
			L	ist of Practica	ls					
			•	ate welding pr utube video or						

CO2:	LO2									
RC	GPV (Diploma V Bhopal	Wing)	SCHEME FOR OUTC		Branch Code P05	Course Code 403	CO Code 02	LO Cod	le	F <mark>ormat</mark> No. 4
COU	RSE NAME	STEEL F	ABRICATION							
COI	Description	Unders	tand special w	elding proces	ses.					
LO I	Description	To expla	in underwater w	elding processe	s.					
			SCH	IEME OF STU	JDY					
S. No.	Learning Co	arning Content		Description of T-L Process		Teach Hrs.	Pract. /Tut Hrs.	LRs Required		Rema rks
1	Introduction, encountered in welding, T underwater Application of welding.	ypes weldir	ter Lecture of method + ng, (Wolding	Teacher will ex learing outcom		B. B. W.		Handout, Book, Welding Shop		
			SCHEM	IE OF ASSES	SMENT					1
S. N	Method of Assessment		Description of	Assessment	Ν	laximur Marks	n Resou Requ			ernal / ernal
1	Paper pen tes /Practical assessment	write	e given learnin answer of q cal Viva	0		10	Practic file/ semest exam	End	Intern /Exter	
	ADDI	TIONAL	INSTRUCTIO	ONS FOR THE	E HOD/	FACUL	TY (IF A	ANY)		
			L	list of Practica	ls					
1.St	udy of underwate	er welding	g processes.							
2. Vi	rtual lab or youtu	ibe video	or Visit to indus	try						

CO3:I	PV (Diploma V	Ving) S	CHEME FOR	LEADNING	Branch	Course	СО	LO		ormat		
KU.	Bhopal	vilig) 5	OUTC		Code P05	Code 403	Code 03	Code		No. 4		
COUH	RSE NAME	STEEL FA	ABRICATION				-					
CO D	escription	Underst	and metallurgical aspects in welding and welding design.									
LO D	escription		n metallurgy of			0	0	0				
				IEME OF STU	JDY							
S. No.	Learning Co	ontent	Teaching - Learning Method	Description Proces		Teach Hrs.	Pract. /Tut Hrs.	LF Requ		Rema rks		
1	Introduction, welding arc, heat flow and temperature distribution in around weld metal, cooling rate of welds,metallurgical effects of welding, weld metal solidification.			Teacher will e the contents students. Stud will do practi welding shop understand fr welding techn	s to lents cal in to iction	10	-	Handou Book, Weldin Shop				
			SCHEM	IE OF ASSES	SMENT	1						
S. No	Method of Assessment		Description of	Assessment	N	/laximun Marks	n Resou Requi			ernal / ernal		
1	Paper pen tes	write	given learnin answer of q al Viva	-		10	Practica file/ semest exam	End/Exter				
	ADDI	TIONAL	INSTRUCTIO	ONS FOR THE	E HOD/	FACUL	ГY (IF A	ANY)				
1. Ref	fer Handouts/B	ooks/Pow	erpoint									

	LO2				D 1	a	90	TO		
RG	PV (Diploma V Bhopal	Wing) SC	CHEME FOR OUTC	LEARNING OME	Branch Code P05	Course Code 403	CO Code 03	LC Co 02	de	Format No. 4
COU	RSE NAME	STEEL FA	BRICATION						<u> </u>	
COD	escription	Understa	nd metallurg	gical aspects i	n weldir	ng and w	elding o	lesigr	1	
LO D	escription	To explain	welding symb	ols and welding	g design.	-				
			SCH	IEME OF STU	JDY					
S. No.	Learning C	ontent	Teaching– Learning Method	Description of Process		L Teach Pract.			LRs Required	
1	sound design,Welding design, weldin	Basic weld nciples of welding g joint g positions, rengths of teady load.	Lecture method + Assignment + Quiz	Teacher will ex the contents to students. Students will h about working applications of advanced weld processes	earn and	10	-	Hand Bool		
I			SCHEM	IE OF ASSES	SMENT	· ·				1
S. No	Method of Assessment		escription of	Assessment	Ν	laximum Marks	n Resources Required			ernal / ernal
1	Paper pen tes	given learnin swer of quest	g content, Stutions,	Idents	10	Assign End semest		Intern /Exter		

CO4:LO										
RGPV	(Diploma W Bhopal	Ving) SC	HEME FOR OUTC	LEARNING OME	Branch Code P05	Course Code 403	CO Code <mark>04</mark>	LO Cod 01		'ormat No. 4
COURSE	E NAME	STEEL FAE	BRICATION		1	4		-1	L.	
CO Desc	ription	Understan	d defects in	welds and tes	sting of	welds.				
LO Desc	•			ent type of weld						
				IEME OF STU						
S. No.	Learning Co	ontent	Teaching - Learning Method	Description Proces		Teach Hrs.			Rs iired	Rema rks
Disto pene Porso gas p fusic and o	duction, Crack ortion, Incom- tration, Inclus osity and blow oockets, Poor on, Spatter, Un overlaaping, edies.	plete sions, wholes or nder-cutting	Traditional Lecture method	Teacher will ex contents. Teac conduct Pro test/ give As so that studer about possible in casting alo their cause remedies	cher wil ogressive signmen nts knov e defect ong with	will Book ssive ment mow fects			put,	
			SCHEM	IE OF ASSES	SMENT	7				
	Method of Assessment	De	escription of	Assessment	Ν	Maximun Marks	n Resources Required			ernal / ernal
Assessment Paper pen test /Practical assessment /Practical //Practical //Pr					udents	10	Progress Test pa End semest exam	aper/ /	Intern Exter	
	ADDI	FIONAL IN	NSTRUCTIO	ONS FOR THE	E HOD/	FACUL	TY (IF A	ANY)		
List of I	Practical									
1.Study	of different t	types of we	elding defect	s.						
2. Youtu	be video or	Visit to ind	lustry.							

RGPV (Diploma	Wing)	SCHEME FOR LEARNING Brand			Course	CO	LO	F	Format			
Bhopal		OUTCOME		Code P05	Code 403	Code 04	Code 02		No. 4			
COURSE NAME	STEEL	EL FABRICATION										
CO Description	Under	lerstand defects in welds and testing of welds.										
LO Description		cribe the various r										
			HEME OF STU		U							
S. Learning No.	Content	Teaching – Learning Method	Description of T-L Process		Teach Hrs.	Pract. /Tut Hrs.	Required		Rema rks			
NDT, Concep principles, limitations, penetrant au	ots, opera advanta of lic ad magn sting, e ag, ultraso	ges, method quid etic ddy	Teacher will ex contents. Teac conduct Protest/ give As so that studer about inspect testing of casti	cher will ogressive signment nts know tion and		5	Handou Book	andout, Book				
		SCHEM	IE OF ASSES	SMENT	1 1		1		1			
S.No Method o Assessmen		Description of	Assessment		laximun Marks	n Resources Required		External / Internal				
1 Paper pen test <mark>/Practic</mark> assessment		he given learnir e answer of ques	g content, Students ions.		10	U		Internal /External				
ADE	ITIONA	L INSTRUCTIO	ONS FOR THE	E HOD/	FACUL	TY (IF A	ANY)					
List of Practical												

CO5:						[
RGPV (Diploma Wing) S Bhopal		SCHEME FOR LEARNING OUTCOME		Branc Code P05		Course Code 403	CO Code <mark>05</mark>	LO Coc 01	le	^S ormat No. 4			
COU	RSE NAME	STEEL F	FAB	ABRICATION									
COI	Description	Underst	tand safety in welding and quality control in welding.										
LO I			explain possible hazards in welding and cutting.										
				SCH	IEME OF STU	JDY							
S. No.	Learning Content			Teaching- Learning Method	Description of T-L Process			Гeach Hrs.	Pract. /Tut Hrs.	LRs Required		Rema rks	
1	welding and cu Causes and ren Safety rules for	ossible hazards in velding and cutting, Causes and remedies and afety rules for arc velding operations		Traditional Lecture method	Teacher will explain the contents to students so that students know about the brazing and soldering			10	-	Handout, Book			
				SCHEM	IE OF ASSES	SMEN	Т						
S. No Method of Assessment		Description of Assessment				Maximum Marks		n Resources Required		External / Internal			
1 Paper pen test For the given learn write answer of que				ng content, Students tions.			10 Progra Test j End seme exam		paper/ /Exter				
	ADDI	TIONAL	L IN	STRUCTIC	NS FOR THE	E HOD	/ FA	ACULT	ГҮ (IF .A	ANY)	1		
1. Re	efer 'youtube vi	deo'.											

RGPV (Diploma Wing) S Bhopal		Ving) SC	SCHEME FOR LEARNING OUTCOME		Branch Code P05	Course Code 403	CO Code 05	LO Coc 02	le	ormat No. 4		
COURSE NAME STEEL FA			BRICATION	I								
COI	Description	Understa	and safety in welding and quality control in welding.									
LOE	Description		nd quality control in welding.									
			SCH	HEME OF STU	JDY							
S. No.	Learning Content		Teaching - Learning Method	Description of T-I Process		Teach Hrs.	Pract. /Tut Hrs.	LRs Required		Rema rks		
1	Introduction, assurance v/ control, weld discontinuities their causes an and quality con	d quality, in welds, id remedies	Lecture method	Teacher will e the contents students so students know the cutting pr	s to that w about	10	-	Handout, Book, Laboratory				
1			SCHEM	IE OF ASSES	SMENT	•		_		1		
S. No	Method of Assessment		escription of	Assessment N		Aaximum Reso Marks Requ				ternal / ternal		
1	Paper pen tes		given learnir swer of ques	g content, Students ions.		10	Test paper/	paper/End semester		Internal /External		
	ADDI	TIONAL I	NSTRUCTIO	ONS FOR THI	E HOD/	FACUL	TY (IF A	ANY)				

Reference Books:

- 1. Elements of Workshop Technology Volume I & II, Hajra Choudhary & Bhattacharaya, Media Promoters, 11th Edition, 2007
- 2. Introduction of Basic Manufacturing Processes and Workshop Technology, Rajender Singh, New age International (P) Ltd. New Delhi- 110002, 2006
- 3. Manufacturing Process Begeman, Tata McGraw Hill, New Delhi.
- 4. Workshop Technology- Volume I, II, & III, WAJ Chapman Viva Books Pvt. Ltd., New Delhi
- 5. Welding Technology By O. P. Khanna
- 6. Production Technology By R. K. Jain
- 7. Workshop Technology By Raghuwanshi
- 8. Production Technology by P.C. Sharma, S Chand
- 9. Process and Materials of Manufacture By Lindberg, PHI
- 10. Welding Technology and Design By V.M.Radhakrishnan
- 11. A textbook of Welding Technology By G.D.Garg