RG	PV (Dinlo	ma Wing ) Bhopal	SCHEME FOR		Br	anch (	Code	Course C	Code	CO Code	LO Code	Format No. 4
RO		ina ((ing) Diopai	OUTCO	ME	M	0	2			1	1	
	URSE ME	Tool Engineering			1		1					1
CO Des	cription	Explain concepts of 1	netal cutting.									
LO Des	cription	Explain metal cutting	process, cutting tool geo	ometry and tool	signatu	re.						
				SCHEME O	F STU	DY						
S. No.	Le	arning Content	Teaching – Learning Method	Description of Process		Tea Hr		Pract. /Tut Hrs.	L	Rs Requ	ired	Remarks
1	Learning Content Mechanics of chip formation single point cutting tool- Cuttin tool geometry, nomenclatur and tool signature, Types of metal cutting process orthogonal, oblique and for cutting.		g lecture method, e handout, video f display, - tutorial	Student will le processes throu discussion wi teacher on o provided by t and random taken by them.	ugh the th the content ceacher quiz		5	02	board	outs, chal , PPT, te: , video fi	xt book,	
			S	CHEME OF AS	<b>SSESS</b>	MENI						
S. No.	Metho	od of Assessment	Description of As	sessment		aximuı Aarks	n	Resou	irces Re	equired		External / Internal
1	Р	aper pen test	Student will be asked to cutting/ cutting tool ; signature.	1		10		Test pap	per + Ra	ting scale	9	Internal
			ADDITIONAL INSTRU	UCTIONS FOR	R THE	HOD/	FAC	ULTY (IF AN	<b>Y</b> )			
				Part of progres	sive te	et_I						

		oiploma Wing ) Bho	pal	SCHEME FOR		Bı	anch (	Code	e Co	urse Code	CO Code	LO Code	Format No. 4
	× ×		•	OUTCO	OME	M	0	2	2		1	2	
COU NAI		Tool Engineering	I				1			I I		1	1
CO Desc	cription	Explain concepts o	f meta	cutting.									
LO Desc	ription	Calculate cutting p	aramet	ers of single point of	cutting tool.								
					SCHEME O	F STU	DY						
S. No.	Lear	rning Content	Tea	ching –Learning Method	Description of Process	f T-L	Teac Hrs.		Pract. /Tut Hrs.	LRs Re	quired		Remarks
	circle, ty thickness	force- merchant pes of chips, chip ratio, shear angle, l problems.	Intera lectur hando tutoria	e method, ut, video display,	Student will lea processes throu discussion wit teacher on c provided by te and random taken by them.	gh the h the ontent eacher	08		NIL	Handouts, c PPT, text bo video film.		·	
					SCHEME OF A	SSESS	MENT						
S. No.	Meth	od of Assessment		Description of As	ssessment		kimum arks		]	Resources Re	quired		External / Internal
1	]	Theory Exam	cutt	lent will be aske ing parameters dition.			10		Ques	stion paper + 1	rating scal	e	External
			ADI	DITIONAL INSTR	RUCTIONS FO	R THE	HOD/	FA	CULTY (I	F ANY)			
					End semester	theory of	exam						

DCDV	(Dinloma)	Wing) Phonal		R LEARNING COME	Br	anch Co	ode	Co	urse Code	CO Code	LO Code	Format No. 4
KGPV	Dipionia	Wing ) Bhopal	0010	COME	M	0	2			1	3	
	URSE ME	Tool Engineering										
CO Des	cription	Explain concepts o	f metal cutting.									
LO Des	cription	Calculate tool wear	r, tool life of a single poi	int cutting tool.								
				SCHEME O	F STU	DY						
S. No.	Lea	rning Content	Teaching –Learning Method	Description of Process	T-L	Teach Hrs.	Prac /Tut H		LRs Re	quired		Remarks
1	Tool wear- Types of wear, Tool life -Taylor's tool life equation. Machinability –		Interactive classroom lecture method, handout, video display, tutorial	processes throug	gh the n the ontent eacher	07	NIL	-	Handouts, cl PPT, text bo video film.		·	
				SCHEME OF A	SSESS	MENT						
S. No.	Meth	od of Assessment	Assessment		imum arks		F	Resources Rec	quired		External / Internal	
1	]	Theory Exam	to calculate tool tool for given		10		Ques	tion paper + r	ating scale	e	External	
			ADDITIONAL INST	<b>FRUCTIONS FO</b>	R THE	HOD/ I	FACULT	Y (I	F ANY)			
				End semester t	-							

RG	PV (Dipla	ma Wing ) Bhopal	SCHEME FOI		Br	anch Co	ode	Со	urse Code	CO Code	LO Code	Format No. 4
	× I	8/ 1	OUTC	OME	M	0	2			2	1	
	URSE ME	Tool Engineering										
CO Des	cription	Select tool materials,	holding devices for cu	tting applications	•							
LO Des	cription	Select appropriate cu	tting tool material for c	cutting application	ıs.							
		I		SCHEME O	F STU	DY						
S. No.	I	earning Content	Teaching – Learning Method	Description of Process	T-L	Teach Hrs.		ract. t Hrs.	LRs Re	equired		Remarks
1	composit application Carbide designation inserts lill of ceramin Cutting	ions, properties	pes quiz, assignment.	Teacher will e and demonstrat learning content The students learn through practice.	te the will	05		02	Handouts, c PPT, text be video film, manual.	ook, chart	· ·	
				SCHEME OF A	SSESS	MENT						
S. No.	Metho	ssessment		timum arks		]	Resources Re	equired		External / Internal		
1		ooratory test by observation	Student will be as appropriate tool mater cutting applications.			10	Oł		on schedule/c cales /rubrics/		/rating	Internal
		· · · · · ·	ADDITIONAL INST	<b>RUCTIONS FO</b>	R THE	HOD/	FACU	LTY (I	F ANY)			
				Part of La	h Work							

RG	PV (Dink	oma Wing ) Bhopal		R LEARNING	Br	anch C	ode	Co	ourse Co	ode	CO Code	LO Code	Format No. 4
		······································	OUTO	COME	M	0	2				2	2	
	URSE ME	Tool Engineering				<u> </u>		1				1	-
CO Des	cription	Select tool materia	ls, holding devices for co	atting applications.									
LO Des	cription	Select a holder, sha	arpening method for a to	ol.									
				SCHEME O	F STU	DY							
S. No.	Lea	rning Content	Teaching –Learning Method	Description of Process	T-L	Teach Hrs.		ract. 1t Hrs.	L	Rs Ree	quired		Remarks
1	milling a Tool se machine ISO de holders, Tool sha	olders for turning, and CNC machines, election for CNC s. esignation of tool arpening method for bint cutting tool.	Lab demonstration, hands on practice, lab assignments, quiz, assignment.	Teacher will example and demonstrat learning content. The students learn through practice.	e the will	04	04		PPT, t	text bo film, la	nalk boar ok, chart: ab	· · ·	
				SCHEME OF AS	SSESS	MENT							
S. No.	Meth	od of Assessment	Description of	Assessment		ximum larks		]	Resourc	es Rec	quired		External / Internal
1	La	boratory test by observation	Student will be asked holder for a given mac tool sharpening method	hining operation b)		15	0		ion sche cales /rt		heck-list models	rating	External
			ADDITIONAL INST	RUCTIONS FOR			FACU	LTY (I	F ANY	)			

RG	PV (Diplom	a Wing ) Bhopal	SCHEME FOR		Br	anch Co	ode	Co	urse Code	CO Code	LO Code	Format No. 4
_		8, 1	OUTC	OME	M	0	2			3	1	
	URSE ME	ool Engineering				I			· · · ·	·	'	·
CO Des	cription <b>D</b>	Describe tool geomet	ry of multi point cutting too	ol.								
LO Des	cription E	Explain tool geome	try of drill, tap, reamer.									
	i			SCHEME O	F STU	DY						
S. No.	Learni	ng Content	Teaching –Learning Method	Description o Process	f T-L	Teach Hrs.	Pra /Tut	act. Hrs.	LRs Re	quired		Remarks
1	Learning Content Drilling Twist drill nomenclature, reamers, drill bit-parallel, taper shank Cutting parameters, deep hole drilling, tapping, thread die.		Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Student will lea processes throu discussion wit teacher on c provided by te and random taken by them.	igh the h the ontent eacher	05	0	)2	Handouts, c PPT, text be video film.		·	
		I		SCHEME OF A	SSESS	MENT						
S. No.	Method	of Assessment	ssessment		imum arks		ł	Resources Re	quired		External / Internal	
1	Paper pen te	Student will be asked t geometry of a given dr	1		10		Te	st paper + Ra	ting scale		Internal	
	1		ADDITIONAL INST	RUCTIONS FO	R THE	HOD/ I	FACUL	LTY (I	F ANY)			1
				Part of progres	ssive te	st- II						

RG	PV (Diplom:	a Wing ) Bhopal	SCHEME FOI		Br	anch C	ode	Co	urse Co	ode	CO Code	LO Code	Format No. 4
	- · ( <b>F</b>	······································	OUTC	COME	M	0	2				3	2	
	URSE ME	ool Engineering				I				1	1	1	1
CO Des	cription D	escribe tool geomet	ry of multi point cutting to	ol.									
LO Des	cription E	xplain tool geome	try of milling cutters.										
	I			SCHEME O	F STU	DY							
S. No.	Learni	ng Content	Teaching –Learning Method	Description of Process	T-L	Teach Hrs.		ract. t Hrs.	L	Rs Rec	quired		Remarks
1	parameters and tool m milling op milling, sic milling, for	Cutters, cutting (specification	Interactive classroom lecture method, handout, video display, tutorial	Student will lead processes throug discussion with teacher on c provided by to and random taken by them.	gh the h the ontent	05		03		text bo	halk board	·	
	1			SCHEME OF A	SSESS	MENT							
S. No.	Method	ssessment		imum arks		I	Resour	ces Rec	luired		External / Internal		
1	The	ory Exam	Student will be asked given milling cutters.	to explain a		10		Ques	stion pa	per + ra	ating scal	e	External
	1		ADDITIONAL INST	RUCTIONS FO	R THE	HOD/	FACU	LTY (I	F ANY	)			1
				End semester t	heory e	xam							

RG	PV (Diple	oma Wing ) Bhopal	SCHEME FOI		Bi	anch C	ode	Co	ourse Co	ode	CO Code	LO Code	Format No. 4
10		onia ((ing) znopa	OUTC	COME	M	0	2				3	3	
	URSE ME	Tool Engineering				I I			1	1		1	1
CO Des	cription	Describe tool geome	try of multi point cutting to	ool.									
LO Des	cription	Explain grinding w	heel signature, super fini	ishing processes.									
				SCHEME O	F STU	DY							
S. No.	Lea	rning Content	Teaching –Learning Method	Description of Process	T-L	Teach Hrs.		ract. t Hrs.	L	Rs Ree	quired		Remarks
1	composit straight, two sides straight designatic criteria operation the ba materials Super fi Definition	cylinder, tapered s, recessed one side, cup, dish. ion and selection for different ns, application on sis of abrasive s and wheel type inishing processes on, types - Honing, burnishing, buffing	Interactive classroom lecture method, handout, video display, tutorial	Student will lead processes throug discussion with teacher on c provided by to and random taken by them.	gh the h the ontent	05	03			text bo	nalk boar ok, chart		
				SCHEME OF A	SSESS	MENT						I	
S. No.	Meth	od of Assessment	Description of A	Assessment		kimum arks		]	Resourc	ces Red	quired		External / Internal
1	1   Theory Exam   State		Student will be aske grinding wheel sign super finishing proces	ature b) given		10		Que	stion pa	per + r	ating scal	e	External
			ADDITIONAL INST	<b>RUCTIONS FO</b>	R THE	HOD/	FACU	LTY (l	<b>FANY</b>	)			
				End semester t									

ŀ	RGPV (Diple	oma Wing ) Bhopal	S		R LEARNING	Bran	ch C	ode	Co	ourse C	ode	CO Code	LO Code	Format No. 4
	· •			OUTC	OME	M	0	2				4	1	
-	OURSE NAME	Tool Engineering	I			_			I		1			
COD	Description	Select a suitable die	for a give	en application.										
LO D	escription	Explain construction	, workin	g, application of	of progressive die.									
					SCHEME O	F STUD	Y							
S. No.		Learning Content		Teaching – Learning Method	Description of Process		Tea Hr		Pract. /Tut Hrs.	L	Rs Re	quired		Remarks
1	components Die clear reasons, Scrap strip and m Types, wor stop, pilots, Progressive dimension	ance- concept, de effects and appl layout- concept, imp nethod to king and applications of strippers and knock of cutting die- scrap strip of punches, joint, die block and die	nctions. finition, ications portance prepare. of stock uts. playout, punches	Interactive classroom lecture method, handout, video display, tutorial	Student will la processes throu discussion wi teacher on provided by tea random quiz t them.	ugh the th the content cher and	05		02		text bo	halk board	·	
				1	SCHEME OF A	SSESSM	ENT						I	
S. No.	Metho	d of Assessment	De	escription of A	ssessment	Maxi Ma				Resou	rces R	equired		External / Internal
1	Method of Assessment     Description of Assessment     Marks     Resources Required       Assignment     Student will be asked to explain     Ouestion paper + rating scale							ale	Internal					
			ADDIT	IONAL INST	RUCTIONS FO	R THE H	<b>OD</b> / ]	FAC	ULTY (I	IF ANY	)			
					Part of ter	m work								

RG	PV (Diplo	oma Wing ) Bhopal	SCHEME FO		Bı	ranch C	ode	Co	ourse Code	CO Code	LO Code	Format No. 4
	- · ( <b>F</b>	······································	OUTC	COME	M	0	2			4	2	
	URSE ME	Tool Engineering	'							-	<u> </u>	·
CO Des	scription	Select a suitable die f	or a given application.									
LO Des	cription	Explain construction,	working, application	of bending die, dra	awing c	lie, forg	ing die	•				
	_			SCHEME O	F STU	DY						
S. No.	Le	earning Content	Teaching – Learning Method	Description of Process		Teach Hrs.		ract. t Hrs.	LRs Re	quired		Remarks
1	Bend a back. Drawing to deter drawing sketch, w	s, working and ons of bending die llowance and spring dies- types and method mine blank size fo operation, types vorking and application ing dies (embossing bulging, coining and hole flanging) dies- terminology sketch, working and	<ul> <li>classroom lecture</li> <li>method, handout,</li> <li>video display,</li> <li>tutorial</li> </ul>	Student will lea processes throug discussion with teacher on c provided by te and random taken by them.	gh the n the ontent	06	02		Handouts, cl PPT, text bo video film.			
				SCHEME OF A	SSESS	MENT						
S. No.	Metho	od of Assessment	<b>Description</b> of A	Assessment		kimum arks		]	Resources Re	quired		External / Internal
1	]	Theory Exam	Student will be as construction/working, bending die/drawing of	application of		10		Que	stion paper + r	ating scal	le	External
			ADDITIONAL INST	RUCTIONS FO			FACU	LTY (l	IF ANY)			

RG	PV (Diplom	a Wing ) Bhopal		SCHEME FOR OUTC		Br	anch C	ode	Co	ourse Co	ode	CO Code	LO Code	Format No. 4
				0010	OME	M	0	2				4	3	
	URSE ME T	ool Engineering												
CO Des	cription S	elect a suitable di	ie for a	given application.										
LO Des	cription S	elect a suitable di	ie for a	given application.										
					SCHEME O	F STU	DY							
S. No.	Learni	ng Content	Teac	hing –Learning Method	Description of Process	T-L	Teach Hrs.		Pract. ut Hrs.	L	Rs Ree	quired		Remarks
1	criteria of	and selection progressive die, e, drawing die,	hands assigr	emonstration, s on practice, lab nments, quiz, nment.	Teacher will en and demonstrat learning content The students learn through practice.	e the will	05		02	PPT,	text bo film, la	nalk board ok, charts ab	· ·	
	1		1		SCHEME OF A	SSESS	MENT							
S. No.							imum arks		]	Resourc	ces Red	quired		External / Internal
1	1 Laboratory test by Student will be suitable die for a						10	0		ion sche cales /rı		heck-list , models	rating	Internal
	1		ADI	DITIONAL INST	RUCTIONS FO	R THE	HOD/	FACU	JLTY (I	<b>IF ANY</b>	)			1
					Part of La	b work								

RG	PV (Diplo	oma Wing ) Bhopal		R LEARNING COME		anch Co		Co	urse Code	CO Code	LO Code	Format No. 4
	URSE ME	Tool Engineering			M	0	2			5	1	
	cription	Design jig, fixture.										
	cription		ion, working and applica	ations of jigs, fixtur	es.							
	cription		ion, worning and approv	SCHEME O		DY						
S. No.	Lea	rning Content	Teaching –Learning Method	Description of Process		Teach Hrs.		ract. t Hrs.	LRs R	equired		Remarks
1	and fix between jigs- typ working fixtures- construct	Learning ContentMethodoncept, definition of jigsInteractive classroomndfixtures, differencelecture method,etween jigs and fixtures.handout, videoigs- types, constructions,display,orking and applicationstutorial		Student will lead processes throug discussion with teacher on co provided by te and random taken by them.	gh the the ontent	06	02		Handouts, PPT, text b video film.	ook, chart		
	1	1		SCHEME OF A	SSESS	MENT						
S. No.	Meth	od of Assessment	Description of A	Assessment		imum arks		]	Resources R	equired		External / Internal
1		Theory exam	Student will be as construction, working a a given jig / fixture.			10		Que	stion paper +	rating sca	e	External
			ADDITIONAL INST	<b>TRUCTIONS FOR</b>	R THE	HOD/ I	FACUI	LTY (I	F ANY)			
				End semester t	heory e	exam						

RGPV (Diploma Wing ) Bhopal COURSE NAME Tool Engineering			SCHEME FOR LEA	RNING	RNING Branch		de	Course Co	ode	CO Code	LO Code	Format No. 4
			OUTCOME M		M	0	2			5	2	
								i			1	·
CO Des	cription	Design jig, fixture.										
LO Des	cription	Describe constructio	n, working, application of lo	cators, clam	ping dev	vices.						
			S	<b>SCHEME O</b>	F STUI	DY						
S. No.	. Learning Content		Teaching –Learning Method	<b>_</b>	ription of T- 2 Process		Pract /Tut Hrs.		LRs Required			Remarks
1	Concept, definitions of locators and clamping devices. Use of locating and clamping principle (3-2-1 principle) Degree of freedom- concept and importance. Locator- types, constructions, working and applications. Clamping devices- types, constructions, working and applications.		Interactive classroom lecture method, handout, video display, tutorial	Student wi the pr through discussion the teach content pr by teacher random qui by them.	ocesses the with er on rovided er and	05	02		ext boo	alk board k, charts	·	
			SCH	EME OF A	SSESSI	MENT						
S. No.	Method of Assessment Description of Assessment			sment	Maximum Marks R			Resourc	Resources Required			External / Internal
1 Theory exam			Student will be asked to construction, working, appli- given locators/ clamping device	cation of a		10	C	uestion pa	iper + ra	ating sca	le	External
			ADDITIONAL INSTRUC	TIONS FO	R THE	HOD/ F.	ACULTY	(IF ANY)	)			
			Er	nd semester t	heory ex	kam						

RGPV (Diploma Wing ) Bhopal						Branch Code C		Co	Course Code		CO Code	LO Code	Format No. 4	
			OUTCOME		M	0	2				5	3		
COURSE NAME Tool Engineering							1				1			
CO Des	scription	Design jig, fixture.	•											
LO Des	scription	Design a suitable j	ig, fixt	ure for a component	nt.									
					SCHEME O	F STU	DY							
S. No.	Lea	rning Content	Tea	ching –Learning Method	Description of Process	f <b>T-L</b>	Teacl Hrs.		ract. 1t Hrs.	L	Rs Re	quired		Remarks
1	procedur fixtures. jig and	ImethodProcessgn considerations and edure for jigs and res.Lab demonstration, hands on practice, lab assignments, quiz, assignment.Teacher will of and demonstration learning content The students learn through practice.		explain 04 ate the at. will		04		Handouts, chalk board, PPT, text book, charts, video film, lab manual.		·				
					SCHEME OF A	SSESS	MENT	1						
S. No.	. No. Method of Assessment Description of Assessment				ssessment		kimum arks		Resources Required				External / Internal	
1	Laboratory test by observation Student will be asked suitable jig/fixture f component.			J. J	e		0	Observation schedule/check-list /rating scales /rubrics/models				/rating	External	
			AD	DITIONAL INST	RUCTIONS FO	R THE	HOD/	FACU	JLTY (	IF ANY	<u>()</u>			
					Part of end pra	actical e	exam							

## List of practical:

Sr No	Practical Outcome
1	Demonstration tool geometry of single point cutting tool.
2	Draw designation of carbide tools.
3	Practice on selection of appropriate cutting tool material for a given application using data book and
	manufacturer's catalog.
4	Use different tool holders and their use with specific applications.
5	Re-sharpen any one single point cutting tool with given specification.
6	Demonstrate tool geometry of drill, tap, reamer.
7	Demonstration of tool geometry of milling cutters for various milling operations.
8	Demonstration of grinding wheel signature.
9	Demonstrate different press and its parts.
10	Demonstration of bending, drawing and forging dies.
11	Practice on selection of suitable die for given application.
12	Use of locators and clamping devices in workshop.
13	Design a suitable jig and fixture for a given component.

## **Text Books:**

Sr No	Name of Authors	Titles of the Book	Name of the Publisher
1	Donaldson Anglin	Tool Design	Tata Mc Graw Hill
2	P. C. Sharma	A Text Book OF Production Engineering	S Chand & Co.
3	Н. М. Т	Production Technology	Tata Mc Graw Hill
4	R. K. Jain	Production Technology	Khanna Publishers
5	A.S.T.M.E	Fundamental of tool design.	Prentice-Hall of India.
6	M.H.A. Kempster	Introduction to Jig and Tool Design	Viva ublication
7	P. H. Joshi	Jigs and Fixtures	Tata Mc Graw Hill
8	P. H. Joshi	Press Tools	Tata Mc Graw Hill
9	American Society of Tool and Manufacturing Engineers	Tool engineer's handbook	Mc Graw Hill

RGPV (DIPLOMA WING) BHOPAL			ING)		CULUM FOR THE OURSE	FORMA	Т-3	Sheet No.				
Branch	Branch			chanical Engineer	ing	VI						
Course (	Code			Course Name	Tool	Engineering	5					
Course C	Outcon	ne 1	Expla	in concepts of met	al cutting.		Teach Hrs	Marks				
Learning	Outco	me 11	tool si	gnature.	ocess, cutting tool geon	-	07	10				
Contents			Mechanics of chip formation, single point cutting tool- Cutting tool geometry, nomenclature and tool signature, Types of metal cutting process-orthogonal, oblique and form cutting.									
Method o					ogressive test 1 – Inter		1	1				
Learning	Outco	me 12		÷.	eters of single point cut	÷	08	10				
Contents			Cutting force- merchant circle, types of chips, chip thickness ratio, shear angle, numerical problems.									
Method o	of Asse	ssment	Theory Exam (Part of end semester theory examination – External)									
Learning	Outco	me 13	Calculate tool wear, tool life of a single point cutting tool. 07 10									
Contents Method o	of Acco	sement	<ul> <li>Tool wear- Types of wear, Tool life -Taylor's tool life equation.</li> <li>Machinability – definition, factors affecting machinability, machinability index, Economics of metal cutting.</li> <li>Theory Exam(Part of end semester theory examination – External)</li> </ul>									
Course C				tool materials, ations.	holding devices fo	or cutting	Teach Hrs	Marks				
Learning	Outco	me 21	~ ~	appropriate cut	ting tool material j	for cutting	07	10				
Contents			Carbic CBN a	le inserts- types, I and PCBN, types of	types, compositions, SO designation and ap f ceramic coatings. aracteristics and applic	plications. (						
Method o	of Asse	ssment		* **	vation(Part of lab work							
Learning	Outco	me 22	Select a holder, sharpening method for a tool0815									
Contents			Tool holders for turning, milling and CNC machines, Tool selection for CNC machines. ISO designation of tool holders, Tool sharpening method for single point cutting tool.									
Method o	of Asse	ssment		atory test by observ	vation (Part of end seme		l examir	nation-				
Course C	Outcon	ne 3		,	of multi point cutting	tool.	Teach Hrs	Marks				

Learning Outcome 31	Explain tool geometry of drill, tap, reamer.	07	10
Contents	Drilling- Twist drill nomenclature, reamers, drill bit-para Cutting parameters, deep hole drilling, tapping,	· •	
Method of Assessment	Paper pen test (Part of progressive test 2 – Internal)		
Learning Outcome 32	Explain tool geometry of milling cutters.	08	10
Contents	Milling- Milling Cutters, cutting parameters (specification ar angles), milling operations- plain milling, side milling, fac milling, gang milling, end milling, milling indexing.	ce millin	
Method of Assessment	Theory Exam(Part of end semester theory examination - Ext	ernal)	
Learning Outcome 33	<i>Explain grinding wheel signature, super finishing processes.</i>	08	10
Contents	Grinding- Grinding wheel composition, shapes- straight, cylin sides, recessed one side, straight cup, dish. designation and for different operations, application on the basis of abrasis wheel type. Super finishing processes- Definition, types - Honing, lapp buffing and polishing.	selection ve mater	criteria ials and
Method of Assessment	Theory Exam (Part of end semester theory examination $-$ Ex	ternal)	
Course Outcome 4	Select a suitable die for a given application.	Teach Hrs	Marks
Learning Outcome 41	<i>Explain construction, working, application of progressive die.</i>	07	10
Contents	Concept of press tool- types, working, components and Die clearance- concept, definition, reasons, effects a Scrap strip layout- concept, importance and metho Types, working and applications of stock stop, pilots, stripper Progressive cutting die- scrap strip layout, dimension of pund arrangement, die block and die shoe, stripper plate.	nd appl od to s and kno	ications prepare. ock outs.
Method of Assessment	Assignment (Term Work-Internal)		
Learning Outcome 42	Explain construction, working, application of bending die,	08	10
Learning Outcome 42 Contents		is of benc ize for f drawir hole fla	ding die. drawing ng dies
	<ul> <li>Explain construction, working, application of bending die, drawing die, forging die.</li> <li>Bending dies- types, parts, functions, working and application Bend allowance and spring back.</li> <li>Drawing dies- types and method to determine blank so operation, types, sketch, working and applications of (embossing, curling, bulging, coining, swaging and</li> </ul>	is of benc ize for f drawin hole fla ation.	ding die. drawing ng dies
Contents	<ul> <li>Explain construction, working, application of bending die, drawing die, forging die.</li> <li>Bending dies- types, parts, functions, working and application Bend allowance and spring back.</li> <li>Drawing dies- types and method to determine blank si operation, types, sketch, working and applications of (embossing, curling, bulging, coining, swaging and Forging dies- terminology, types, sketch, working and applications</li> </ul>	is of benc ize for f drawin hole fla ation.	ding die. drawing ng dies
Contents Method of Assessment	<ul> <li>Explain construction, working, application of bending die, drawing die, forging die.</li> <li>Bending dies- types, parts, functions, working and application Bend allowance and spring back.</li> <li>Drawing dies- types and method to determine blank st operation, types, sketch, working and applications of (embossing, curling, bulging, coining, swaging and Forging dies- terminology, types, sketch, working and applic Theory Exam (Part of end semester theory examination – Ex</li> </ul>	ize for of drawing hole flation. ternal)	ling die. drawing ng dies anging). <b>10</b>

Course Outcome 5	Design jig, fixture.	Teach Hrs	Marks
Learning Outcome 51	<i>Describe construction, working and applications of jigs, fixtures.</i>	08	10
Contents	Concept, definition of jigs and fixtures, difference between jigs- types, constructions, working and fixtures- types, constructions, working and applications.		fixtures. lications
Method of Assessment	Theory exam (Part of end semester theory examination – Ex	ternal)	
Learning Outcome 52	Describe construction, working, application of locators, clamping devices.	07	10
Contents	Use of locating and clamping principle (3-	2-1 p imp appl	devices. rinciple) portance. ications.
Method of Assessment	Theory exam(Part of end semester theory examination - Ext	ernal)	
Learning Outcome 53	Design a suitable jig, fixture for a component.	08	15
Contents	Design considerations and procedure for jigs jig and fixture full proofing and ejecting techniques.		fixtures. naterials
Method of Assessment	Laboratory test by observation (Part of end semester practi External)	cal exan	nination-