

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY Approved by AICTE, Permanently Affiliated to JNTU Kakinada, NAAC Accredited with 'A' Grade, ISO 9001:2008 Certified, DEPARTMENT OF MECHANICAL ENGINEERING Accredited by NBA

## **R16 GRAND CO-PO-PSO MATRIX**

	CO1	An abi	lity to r	ead and	compr	ehend E	nglish s	tories	and t	texts					
	CO2	ability	to imp	rove list	ening sl	kills part	icularly	relat	ed to	techni	ical Eng	lish anc	l to imp	orove lif	e skills
	соз		-	ritically I gramm	-	d in Engl	ish to a	real	life sit	uatior	ns and t	o speal	< in Eng	lish witl	nout
	CO4		•	mprove ing appr		al gramr format	nar neo	cessar	y for l	Englisł	n comm	iunicati	on and	to write	5
ENGLISH-I	CO5		-			ary rang bal infor				-					ons
ENGI	CO6	An abi	lity to i	mprove	life skill	s and cc	ore skill	s nece	essary	for ef	fective	commi	unicatio	'n	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO
	C01						2		2	3	3		3	2	
	C02						2		2	3	3		3	3	2
	C03						2		2	3	3		3		
	C04						2		2	3	3		3		2
	C05						2		2	3	3		3	3	
	C06						2		2	3	3		3	2	1
	со1	Able to	o solve	first ord	er ordir	nary Diff	erentia	l equa	ations	and t	heir app	olicatio	ns.		
	CO2	Able to	o solve	higher c	order or	dinary d	ifferen	tial eq	luatio	ns					
	СОЗ			Laplace ng Lapla		rms and sforms.	solve i	nitial	value	proble	ems in o	ordinar	y differe	ential	
ς.	CO4	Able to	o learn	Partial d	lifferent	iation									
Ŭ,	CO5					al differ	ential e	quati	ons						
Ň	CO6					rtial diff				5.					
Ë		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO
<b>MATHEMATICS-I</b>	C01	3	2	1						3				2	
-		3	3	3						3				3	2
	C02	5		-											
	C02 C03	2	3	3						2					
			3 3	3 2						2					2
	C03	2												3	2

	CO1	moder		ods of s		ed in inc g of harc		•		•		•••	•	•	
	CO2			• •	•	, Constr eable ba						-		e potent	ials,
	соз	1		•		tro cher roblems	•	o corr	osion	, distir	nguish v	various	types of	fcorros	ions
зтку	CO4	refram	ning & fa	abricatio	on of po	esis, phy olymers, ing poly	plastic			•	•	•	-		forced
ENGG.CHEMISTRY	CO5	-	•			stic prop by proxi				-		c value	determ	ination	,
ENG	CO6					e.nano n reener s		•	•	-	•				
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3		3		1			3	3	3	1	3	2	
	C02	3		3		2			3	3	3	2	3	3	2
	C03	2		3		2			3	3	2	2	2		
	C04	3		2		1			3	3	1	2	3		2
	C05	3		3		1			3	3	2	1	3	3	
	C06	3		3		1			3	2	1	2	3	2	1

	CO1	Able to	o Desigr	n algorit	hmic so	olutions	to prob	lems a	and in	nplem	enting a	algorith	ms inC.		
	CO2	Able to	o Illustra	ate brar	iching, i	teration	and da	ita rej	oresei	ntatio	n using	arrays.			
COMPUTER PROGRAMMING	соз	Able to	o Implei	ment m	odular p	orogram	ming a	nd rec	cursiv	e solut	ion for	mulatio	n.		
AM	CO4	Able to	o Comp	rehend	pointer	s and dy	namic	memo	ory all	ocatio	n.				
GR	CO5	Able to	o Implei	ment us	er defir	ned data	types l	ike st	ructu	es an	d union	s in C.			
RO	CO6	Able to	o Comp	rehend	file ope	rations.									
ERF															
Ľ		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
M	C01	1	1	3	1	1								3	3
8	C02	2	2	2	2									3	2
	C03	2	2	3	2	2								3	2
	C04	2	2	2	3	2								3	3
	C05	1	2	3	2	2								3	2
	C06	1	2	3	2	2								3	2
	CO1	Able to	o Under	stand T	he conc	epts of	the eco	syste	m						
	CO2	Able to	o Under	stand T	he natu	ral reso	urces a	nd the	eir im	oortan	ce				

	соз	Able to practio		The biod	diversity	y of India	a and th	ne thr	eats t	o biod	iversity	,and A	pply coi	nservati	ion
DIES	CO4	Able t	o learn '	Various	attribut	tes of th	e pollut	tion a	nd the	eir imp	acts				
1 P	CO5	Able t	o Undei	rstand S	ocial iss	ues bot	n rural a	and u	rban e	enviro	nment				
ENVIRONMENTAL STUDIES	CO6	Able to EIA	o Under	rstand A	bout er	vironme	ental In	npact	asses	sment	and Ev	aluate	the stag	es invo	lved in
N N N		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IRC	C01	3			3	2		3	3			3	2	2	
Z Z	C02	2			2	2		2	2			3	2	3	2
	C03	3			3	2		2	2			3	3		
	C04	2			3	2		2	2			3	3		2
	C05	3			1	3		3	3			3	2	3	
	C06	3			3	3		3	3			2	2	2	1
L			•		-		•		-						•
	CO1 CO2		·			of force									
	СОЗ	granhi	ical met	hods an	d law o	ftriangl	e of for	res							
S	CO4					of centr									
Ŭ Z	CO5				neepts	orecna		ivity.							
CHAI		Able to	o explai	n the co	ncepts,	, momer	nt of ine	ortia a	nd no	lar mo	mont	of inorti	a includ	ling	
									nu po		ment	n merti		iing	
ig.Me	CO6	transf	er meth	ods and	l their a	pplicatio									
ENGG.ME	CO6	transfo PO1	er meth	ods and	their a				PO8		PO10		PO12	PSO1	PSO2
ENGG.MECHANICS	CO6 C01					pplicatio	ons.		-						PSO2
ENGG.ME		PO1	PO2	PO3		pplicatio	ons.		-	PO9				PSO1	<b>PSO2</b>
ENGG.ME	C01	<b>PO1</b> 3	<b>PO2</b>	<b>PO3</b>		pplicatio	ons.		-	<b>PO9</b> 2				<b>PSO1</b> 2	
ENGG.ME	C01 C02	<b>PO1</b> 3 2	<b>PO2</b> 2 2	<b>PO3</b> 1 1		pplicatio	ons.		-	<b>PO9</b> 2 2				<b>PSO1</b> 2	
ENGG.ME	C01 C02 C03	PO1 3 2 2	<b>PO2</b> 2 2 1	<b>PO3</b> 1 1 1		pplicatio	ons.		-	<b>PO9</b> 2 2 2 2				<b>PSO1</b> 2	2
ENGG.ME	C01 C02 C03 C04	PO1 3 2 2 2 2 2	PO2 2 2 1 1	<b>PO3</b> 1 1 1 2		pplicatio	ons.		-	PO9 2 2 2 2 2				<b>PSO1</b> 2 3	2
ENGG.ME	C01 C02 C03 C04 C05	PO1           3           2           2           2           2           2           2           2           2	PO2 2 2 1 1 2	PO3 1 1 1 2 1 1		pplicatio	ons.		-	PO9 2 2 2 2 2 1				<b>PSO1</b> 2 3 3	2
	C01 C02 C03 C04 C05	PO1         3         2         2         2         2         2         3         3         3         3         3         3         3         3         3         3         3	PO2 2 1 1 2 2 2 2	PO3 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PO4	pplicatio	PO6	PO7	PO8	PO9 2 2 2 2 2 1				<b>PSO1</b> 2 3 3	2
	C01 C02 C03 C04 C05 C06	PO1 3 2 2 2 2 2 3 Ability	PO2 2 1 1 2 2 2 2 v to anal	<b>PO3</b> 1 1 2 1 1 ysis a to	PO4	pplicatio	PO6	PO7	PO8	PO9 2 2 2 2 2 1				<b>PSO1</b> 2 3 3	2
	C01 C02 C03 C04 C05 C06 C01	PO1 3 2 2 2 2 2 3 Ability Ability	PO2 2 1 1 2 2 2 2 2 7 to anal 7 to part	PO3 1 1 1 2 1 ysis a to icipate i	PO4	pplicatio	PO6	PO7	PO8	PO9 2 2 2 2 2 1				<b>PSO1</b> 2 3 3	2
	C01 C02 C03 C04 C05 C06 C01 CO2	PO1 3 2 2 2 2 2 3 Ability Ability	PO2 2 1 1 2 2 2 2 7 to anal 7 to part	PO3 1 1 1 2 1 ysis a to icipate i munica	PO4	PO5 PO5 liscussio ssion & i s effectiv	PO6 PO6 n & rea influence	PO7	PO8	PO9 2 2 2 1 1	PO10			<b>PSO1</b> 2 3 3	2
	C01 C02 C03 C04 C05 C06 C01 C02 C03	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability	PO2 2 1 1 2 2 2 7 to anal 7 to part 7 to com	PO3 1 1 1 1 2 1 Vsis a to icipate i munica sent opii	PO4 ppic of c in discu- te ideas nions co	PO5 PO5 discussio	n & rea n fluence rely.	PO7	PO8	PO9 2 2 2 1 1	PO10			<b>PSO1</b> 2 3 3	2
	C01 C02 C03 C04 C05 C06 C06 C01 C02 C03 C04	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability	PO2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO3 1 1 1 2 1 vsis a to icipate i munica sent opin ak clearl	PO4 ppic of c in discu- te ideas nions cc y & coo	PO5 PO5 liscussio ssion & i seffectiv pherentlior	n & reannfluence rely. y within	PO7	PO8 to it. m.	PO9 2 2 2 1 1	PO10			<b>PSO1</b> 2 3 3	2
	C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability	PO2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO3 1 1 1 2 1 vsis a to icipate i munica sent opin ak clearl	PO4 ppic of c in discu- te ideas nions cc y & coo	PO5 PO5 liscussio ssion & i seffectiv	n & reannfluence rely. y within	PO7	PO8 to it. m.	PO9 2 2 2 1 1	PO10			<b>PSO1</b> 2 3 3	2
	C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability Ability	PO2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO3 1 1 1 2 1 vsis a to icipate i munica sent opin ak clearl	PO4 ppic of c in discu- te ideas nions cc y & coo	PO5 PO5 liscussio ssion & i seffectiv pherentlior	n & reannfluence rely. y within with th	PO7	PO8 to it. m. pulate	PO9 2 2 2 1 1 1 ed tim	<b>PO10</b>	P011	P012	<b>PSO1</b> 2 3 3 2	2 2 1
	C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability	PO2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO3 1 1 1 2 1 vsis a to icipate i munica sent opin ak clearl rove upo	PO4 ppic of c in discu- te ideas nions cc y & coo on Engli	PO5 PO5 liscussio ssion & i seffectiv pherentlionate ish langu	n & rea influence rely. y within with th iage pro	PO7	PO8 to it. m. pulate	PO9 2 2 2 1 1 1 ed tim .	<b>PO10</b>		P012	PSO1 2 3 3 2	2
	C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C06 C01	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability Ability	PO2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO3 1 1 1 2 1 vsis a to icipate i munica sent opin ak clearl rove upo	PO4 ppic of c in discu- te ideas nions cc y & coo on Engli	PO5 PO5 liscussio ssion & i seffectiv pherentlionate ish langu	PO6 n & rea nfluence rely. y within with th nage pro PO6 2	PO7	PO8 to it. m. ciation	PO9 2 2 2 1 1 1	<b>PO10</b> e. <b>PO10</b> 3	P011	PO12	PSO1 2 3 2 2 2 2 2 2 2	2 2 1 9 9502
	C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C05 C06 C01 C01 C02	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability Ability	PO2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO3 1 1 1 2 1 vsis a to icipate i munica sent opin ak clearl rove upo	PO4 ppic of c in discu- te ideas nions cc y & coo on Engli	PO5 PO5 liscussio ssion & i seffectiv pherentlionate ish langu	n & rea influence rely. y within with the rage pro-	PO7	PO8 to it. m. pulate iation	PO9 2 2 2 1 1 1 ed tim . PO9 3 3	PO10	P011	PO12	PSO1 2 3 3 2	2 2 1
	C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C01 C02 C01 C02 C01 C02 C03	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability Ability	PO2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO3 1 1 1 2 1 vsis a to icipate i munica sent opin ak clearl rove upo	PO4 ppic of c in discu- te ideas nions cc y & coo on Engli	PO5 PO5 liscussio ssion & i seffectiv pherentlionate ish langu	PO6 n & rea nflueno rely. y within with th nage pro PO6 2 2 2 2	PO7	PO8 to it. em. ciation PO8 2 2 2	PO9 2 2 2 1 1 1	PO10	P011	PO12	PSO1 2 3 2 2 2 2 2 2 2	2 2 1 1 PSO2 2
INGLISH COMMUNICATION SKILLS LAB-I	C01 C02 C03 C04 C05 C06 C01 C02 C03 C04 C05 C06 C05 C06 C01 C01 C02	PO1 3 2 2 2 2 2 3 Ability Ability Ability Ability Ability	PO2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO3 1 1 1 2 1 vsis a to icipate i munica sent opin ak clearl rove upo	PO4 ppic of c in discu- te ideas nions cc y & coo on Engli	PO5 PO5 liscussio ssion & i seffectiv pherentlionate ish langu	n & rea influence rely. y within with the rage pro-	PO7	PO8 to it. m. pulate iation	PO9 2 2 2 1 1 1 ed tim . PO9 3 3	PO10	P011	PO12	PSO1 2 3 2 2 2 2 2 2 2	2 2 1 9 9502

	C06						2		2	3	3		3	2	-
	CO1	Able to	o under	stand w	vater qu	ality an	alysis.								
R۷	CO2	Able to	o under	stand si	gnificar	nce of p	otentio	netric	: &coi	nducto	metric	titratio	ns.		
2	СОЗ	Able to	o analyz	ze redox	ometri	c titratio	ons.								
Ş	CO4	Able to	o do qu	ality and	alysis of	cool dr	inks.								
AD	CO5	Able to	o estim	ate amo	ount of v	/itamin-	c prese	nt in c	apsu	es.					
ENGG.CHEMISTRY LABORATORY	CO6	Able to	o deteri	mine co	ncentra	tion of	unknow	n solı	utions	by co	lorimet	er.			
ISIM		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSC
Ë	C01	3		3		1			3	3	3	1	3	2	
ק. פ	C02	3		3		2			3	3	3	2	3	3	2
Ĕ	C03	2		3		2			3	3	2	2	2		
	C04	3		2		1			3	3	1	2	3		2
	C05	3		3		1			3	3	2	1	3	3	
	C06	3		3		1			3	2	1	2	3	2	1
	CO2	Able to	o Imple	ment th	e conce	epts of a	rravs a	nd stri	ngs.						
	соз	Ability	to Ana	lyze the		-	-			ng and	develo	p soluti	ions.		
IG LAB	CO3 CO4		o Imple		concep	ots of m	odular p	orogra	mmir	-		-		allocati	on
MMING LAB		Able to	o Imple ons.	lyze the	concep ograms	ots of mo	odular p	orogra and co	ompre	ehend	the dyr	namic m	nemory	allocati	on
<b>DGRAMMING LAB</b>	CO4	Able to functio	o Imple ons. o Devel	lyze the ment Pr	concep ograms rams th	with po at perfc	odular p pinters a prm ope	and co ratior	ompre	ehend	the dyr	namic m	nemory	allocati	on
C.PROGRAMMING LAB	CO4 CO5	Able to functio	o Imple ons. o Devel	lyze the ment Pr op prog	concep ograms rams th	with po at perfc	odular p pinters a prm ope	and co ratior ers be	ompre os usin etwee	ehend ng deri n files	the dyr	namic m ta type:	nemory		
C.PROGRAMMING LAB	CO4 CO5	Able to functio Able to Able to	o Imple ons. o Devel o Imple	lyze the ment Pr op prog ment pr	concep ograms rams th ograms	ots of mo with po at perfo	odular p pinters a prm ope a transf	and co ratior ers be	ompre os usin etwee	ehend ng deri n files	the dyr ved da	namic m ta type:	nemory s		PS
C.PROGRAMMING LAB	CO4 CO5 CO6	Able to function Able to Able to PO1	o Imple ons. o Devel- o Imple <b>PO2</b>	lyze the ment Pr op prog ment pr <b>PO3</b>	concep ograms rams th ograms <b>PO4</b>	ots of mo with po at perfo for dat <b>PO5</b>	odular p pinters a prm ope a transf	and co ratior ers be	ompre os usin etwee	ehend ng deri n files	the dyr ved da	namic m ta type:	nemory s	PSO1	PSC 3
C.PROGRAMMING LAB	CO4 CO5 CO6 C01	Able to function Able to Able to PO1 1	o Imple ons. o Develo o Imple <b>PO2</b> 1	lyze the ment Pr op prog ment pr <b>PO3</b> 3	concept rograms rams th rograms PO4 1 2 2	ots of mo with po at perfo for dat <b>PO5</b>	odular p pinters a prm ope a transf	and co ratior ers be	ompre os usin etwee	ehend ng deri n files	the dyr ved da	namic m ta type:	nemory s	<b>PSO1</b> 3 3 3	PSI 3
C.PROGRAMIMING LAB	CO4 CO5 CO6 C01 C02	Able to function Able to Able to PO1 1 2	o Imple ons. o Devel- o Imple PO2 1 2	lyze the ment Pr op prog ment pr <b>PO3</b> 3 2	concept rograms rams th rograms <b>PO4</b> 1 2 2 3	ots of mo with po at perfo for dat <b>PO5</b> 1	odular p pinters a prm ope a transf	and co ratior ers be	ompre os usin etwee	ehend ng deri n files	the dyr ved da	namic m ta type:	nemory s	<b>PSO1</b> 3 3 3 3 3	
C. PROGRAMMING LAB	CO4 CO5 CO6 CO1 CO2 CO3	Able to function Able to Able to PO1 1 2 2 2	o Imple ons. o Develo o Imple <b>PO2</b> 1 2 2	lyze the ment Pr op prog ment pr <b>PO3</b> 3 2 3	concept rograms rams th rograms PO4 1 2 2 3 2 2	ots of mo with po at perfo for dat <b>PO5</b> 1 2 2 2 2	odular p pinters a prm ope a transf	and co ratior ers be	ompre os usin etwee	ehend ng deri n files	the dyr ved da	namic m ta type:	nemory s	<b>PSO1</b> 3 3 3 3 3 3 3	
C. PROGRAMMING LAB	CO4 CO5 CO6 CO1 CO2 CO3 CO4	Able to function Able to Able to PO1 1 2 2 2 2 2	p Imple ons. o Develo o Imple PO2 1 2 2 2	lyze the ment Pr op prog ment pr PO3 3 2 3 2 2	concept rograms rams th rograms <b>PO4</b> 1 2 2 3	ots of mo with po at perfo for dat <b>PO5</b> 1 2 2	odular p pinters a prm ope a transf	and co ratior ers be	ompre os usin etwee	ehend ng deri n files	the dyr ved da	namic m ta type:	nemory s	<b>PSO1</b> 3 3 3 3 3	<b>PS</b> 32 22 33
C.PROGRAMMING LAB	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5	Able to function Able to Able to Able to PO1 1 2 2 2 2 1 1 1	o Imple ons. o Devel- o Imple 1 2 2 2 2 2 2 2	lyze the ment Pr op prog ment pr <b>PO3</b> 3 2 3 2 3 3	concept rograms rams th rograms PO4 1 2 2 3 2 2 2 2	ots of mo with po at perfo for dat <b>PO5</b> 1 2 2 2 2 2 2	odular p pinters a prm ope a transf	PO7	mmir ompre ns usin etwee	ehend ng deri n files PO9	the dyr ved da	namic m ta type:	nemory s	<b>PSO1</b> 3 3 3 3 3 3 3	<b>PS</b> 0 3 2 2 3 3 2
C.PROGRAMMING LAB	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6	Able to function Able to Able to Able to PO1 1 2 2 2 2 1 1 1 1 An abi	p Imple ons. o Develo o Imple PO2 1 2 2 2 2 2 1 1 2 2 2 2 1 1 2 2 2 2 1 1 2 2 2 1 2 2 2	lyze the ment Pr op prog ment pr <b>PO3</b> 3 2 3 2 3 3 3 3	concept ograms rams th ograms PO4 1 2 2 3 2 2 3 2 2 2 3 2 2 2 3 2 2 2	ots of mo with po at perfo for dat <b>PO5</b> 1 2 2 2 2 2 2 2 2 2	odular p pinters a prm ope a transf PO6	ratior ers be PO7	PO8	ehend ng deri n files PO9	the dyr ved da	PO11	PO12	<b>PSO1</b> 3 3 3 3 3 3 3 3 3	<b>PS</b> 3 2 2 2 2 2 2 2
ENGLISH-II C. PROGRAMMING LAB	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6	Able to function Able to Able to Able to PO1 1 2 2 2 2 2 1 1 1 1 An abi ability An abi	p Imple ons. o Develo o Imple PO2 1 2 2 2 2 2 1 1 2 2 2 2 1 1 2 2 1 1 2 2 2 1 1 2 2 1 1 2 1 2 1 2 1 1 2 1 2 1 1 1 2 1 2 1	lyze the ment Pr op prog ment pr PO3 3 2 3 2 3 2 3 2 3 2 3 2 3 3 2 3 3 2 3 3 2 3 3 2 3 3 3	concept ograms rams th ograms PO4 1 2 2 3 2 2 3 2 2 1 compre ening sl respone	ots of mo with po at perfo for dat PO5 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	odular p pinters a prm ope a transf PO6	progra and co ratior ers be PO7	PO8	ehend ng deri n files PO9 texts techni	the dyr ved da PO10	PO11	PO12	<b>PSO1</b> 3 3 3 3 3 3 3	<b>PS0</b> 33 22 33 22 22

				xpand v		ary rang			meen		nu resp			Jituati	
	CO6	An abi	lity to in	mprove	life skill	s and co	ore skill	s nece	essary	for ef	fective	commu	inicatio	n	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO
	C01						2		2	3	3		3	2	
	C02						2		2	3	3		3	3	2
	C03						2		2	3	3		3		
	C04						2		2	3	3		3		2
	C05						2		2	3	3		3	3	
	C06						2		2	3	3		3	2	1
	CO1	An Abi	lity to S	olve the	e systen	n of line	ar equa	ations	and A	nalyse	e their a	applicat	ions.		
	CO2	An Abi	lity to C	Compute	e an Eig	en value	es and e	eigen v	/ector	s					
	СОЗ	Evalua	te douk	ole and T	Triple in	tegrals	and Ap	ply to	find s	urface	area a	nd volu	mes of	solids.	
_	CO4	Able to	o Comp	are defi	nite inte	egral wi	th spec	ial fun	ctions	5					
S-III	CO5			entiate		-									
ΑΤΙΟ	CO6	Able to	o Under	stand li	no curf										
Ε				Stanu II	ne, sur	ace and	volum	e integ	grals a	nd Es	tablish	vector	ntegrai	theore	ms.
MATHEMATICS-III		P01	PO2	PO3	PO4	PO5	_							PSO1	
MATHEM	C01						_								
MATHEM	C01 C02	PO1	PO2	PO3			_			PO9				PSO1	PSC
MATHEM		<b>PO1</b>	<b>PO2</b>	<b>PO3</b>			_			<b>PO9</b> 3				<b>PSO1</b> 2	PSC
MATHEM	C02	<b>PO1</b> 3 3	<b>PO2</b> 2 3	<b>PO3</b> 1 3			_			<b>PO9</b> 3 3				<b>PSO1</b> 2	<b>PSC</b>
MATHEM	C02 C03	<b>PO1</b> 3 3 2	<b>PO2</b> 2 3 3	<b>PO3</b> 1 3 3			_			<b>PO9</b> 3 3 2				<b>PSO1</b> 2	<b>PSC</b>
MATHEM	C02 C03 C04	PO1 3 3 2 2 3	<b>PO2</b> 2 3 3 3 3	<b>PO3</b> 1 3 3 2			_			PO9 3 3 2 3				<b>PSO1</b> 2 3	<b>PSC</b>
МАТНЕМ	C02 C03 C04 C05 C06	PO1 3 3 2 3 3 3 3 4 ble to physic	PO2 2 3 3 3 3 2 Designal Optic	PO3 1 3 2 3 1 n an inst	PO4	PO5	PO6	PO7	PO8	PO9 3 3 2 3 2 2 1 for it	PO10	PO11	PO12	PSO1 2 3 3 2 cation in	<b>PSC</b> 2 2 1
МАТНЕМ	C02 C03 C04 C05 C06	PO1 3 3 2 3 3 3 3 3 Able to physic	PO2 2 3 3 3 3 2 Design al Optic co Under rty rela	PO3 1 3 2 3 1 n an inst s. rstand the tionship	PO4	PO5	PO6	e resc	PO8	<b>PO9</b> 3 3 2 3 2 2 for it	PO10	PO11 tion an	PO12	PSO1 2 3 2 cation in	PSC 2 2 1 1
МАТНЕМ	C02 C03 C04 C05 C06	PO1 3 3 2 3 3 3 3 Able to proper	PO2 2 3 3 3 2 Design al Optic Dunder rty rela	<b>PO3</b> 1 3 2 3 1 n an inst	PO4	PO5	PO6	e resc	PO8	<b>PO9</b> 3 3 2 3 2 2 for it	PO10	PO11 tion an	PO12	PSO1 2 3 2 cation in	PSO 2 2 1 n
GG. PHYSICS MATHEM	C02 C03 C04 C05 C06 C01 C02	PO1 3 3 2 3 3 3 3 4 5 5 6 7 7 7 8 8 9 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1	PO2 2 3 3 3 2 Design al Optic o Under rty rela o Under o Under o Under	PO3 1 3 2 3 1 n an inst rstand the tionship	PO4 PO4 rument ne conce o for m ne conce rarious f	PO5	PO6 ance th Lasers Magnet	e resc	PO8	<b>PO9</b> 3 3 2 3 2 2 for it	PO10	PO11 tion an sources	PO12 d Applic	PSO1 2 3 2 cation in he stru	PSC 2 2 1 1

EN	CO6			the Clas chanism								oncepts	in elec	tronic	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8		PO10	PO11	PO12	PSO1	PSO2
	C01	3	3	3	2	2	PUO	P07	3	P09	P010	PUII	PUIZ	3	2
	C01	2	2	2	3	2			3					3	2
	C02	3	2	2	2	3			3					3	2
	C04	2	2	3	3	3			2					3	2
	C04	3	2	3	2	2			2					1	1
	C06	3	3	2	2	1			3					2	1
			5	2	2	±			5					2	-
	CO1			lumeric					-			ndental	equatio	ons	
	CO2			rstand t		•									
	СОЗ	Able to	o Apply	differer	nt nume	rical me	ethods t	o Sol	/e diff	erent	ial equa	tions.			
MATHEMATICS-II (MM)	CO4	Interp	ret Fou	rier seri	es analy	sis whic	h is cer	ntral to	o man	у арр	lication	s in eng	gineerin	g apart	
=	CO5	Able to	o Apply	Fourier	transfo	rms to E	Evaluate	e impr	oper	integr	als				
Ŭ	CO6	Able to	o Solve	the disc	rete mo	del pro	blems ι	ising Z	-tran	sform	s				
						-									
HE		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
ATI	C01	3	2	1						3				2	
ĮΣ	C02	3	3	3						3				3	2
	C03	2	3	3						2					
	C04	3	3	2						3					2
	C05	3	3	3						2				3	
	C06	3	2	1						2				2	1
L							-								
	CO1			luce the solving		-	-		value	s and	ethics t	o the st	udents	that is	
	CO2	Able to decisio	•	t reasor	ning and	analyti	cal skill	s need	led to	apply	ethica	conce	pts to e	ngineer	ing
PROFESSIONAL ETHICS & HUMAN VALUES	CO3	provid		fy the m derstan						-		-	-		to
& HUM/	CO4			stand th ng proje		nical err	ors con	nmitte	d by t	the en	gineers	in the	implem	entatio	n of
ETHICS	CO5			nize the ncorrup	•	tional cr	imes in	the c	orpor	ate se	ctor by	the buo	dding er	ngineer	s and
	CO6	Able to	o Focus	on inte	llectual	propert	y rights	and e	ethica	l engir	neering.				
SSI		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	DOO	PO10	PO11	PO12	PSO1	PSO
OFE	C01		PUZ	PU3			200	FU/		FU9	1010				
Å Å	C01 C02	1			1 2	1 1			3 2			1 3	1 2	2	1 2
. —															

1		C03	1			3	1	1		2			1	1	2	1
		C04	2			1	2			2			1	1		2
		C05	2			1	1			3			1	1		1
		C06	1			1	2			3			1	1	1	2
								-	•							<u></u>
		CO1	Able to	o under	stand di	fferent	scales u	ised in	indust	ry an	d draw	v variou	s curve	s.		
		CO2	Able to	o recog	nize prir	nciples o	of projec	ctions t	o drav	v orth	ograp	hic proj	ections			
		соз	Able to	o interp	oret the I	projecti	on princ	ciples to	o draw	/ proj	ection	s of stra	aight lin	ies.		
		CO4	Able to	o under	stand th	ne vario	us ways	to drav	<i>w</i> proj	ectio	n of pl	anes.				
	ENGG. DRAWING	CO5			projectio jections	ons of s	olids by	applyir	ng prir	nciple	s of or	thograp	ohic pro	jection	s and	
	ENGG.	CO6	Able to views	o conve	rt isome	etric vie	ws into	orthog	raphic	view	s and o	orthogr	aphic vi	iews to	isometi	·ic
			_													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	3	2						1			1	1	
		C02	3	2	2						1			1	1	2
		C03	3	2	2						1			1	1	2
		C04	2	2	2						1			1	2	2
		C05	2	2	3						1			1	3	1
		C06	2	2	3						1			1	1	1
	1		A h:1:+	+												
	B-II	CO1 CO2	-		lysis a to				-							
		CO2 CO3			icipate i municat				ce the	m.						
		CO3			sent opir				n a sti	nulate	d tim	0				
	SKI	CO4			ak clearl					pulate	eu uni	с.				
	Z	CO6		-	rove up	-				iation						
	ATIC		, tonicy				511 10116	ande bi	onune	lation						
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	ENGLISH-COMMUNICATION SKILLS LA	C01						2		2	3	3		3	2	
	۲ ۲	C02						2		2	3	3		3	3	2
		C03						2		2	3	3		3	-	
	HSI.	C04						2		2	3	3		3		2
		C05						2		2	3	3		3	3	
		C06						2		2	3	3		3	2	1
																<u></u>
		C01	Able to &time		stand b	asic kn	owledge	e fphysi	cs &e>	perin	nental	experie	ence lik	e sound	d, accele	eration
		CO2	Able to	o under	stand ba	asic ele	ctronics	& expe	erimer	ital ex	perie	nce of e	lectrica	al circuit	ts.	

	CO3	Able to	o under	stand el	ectrom	agnetisr	n and e	xperir	nenta	l expe	rience				
ENGINEERING PHYSICS LAB	CO4	Able to	o under	stand th	ne light	properti	es & ex	perim	nental	expei	ience d	of interf	erence	& diffra	ction.
NHG DI	CO5	Able to	o under	stand ba	asic ele	ctronics	& expe	rimen	tal ex	perier	nce of e	lectrica	I circuit	s.	
IEERIN	CO6	Able to	o under	stand el	ectrom	agnetisr	n and e	xperir	nenta	l expe	erience.				
NIDN		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>–</b>	C01	3	3	3	2	2			3					3	2
	C02	2	2	2	3	2			3					3	2
	C03	3	2	2	2	3			3						2
	C04	2	2	3	3	3			2					3	2
	C05	3	2	3	2	2			3					1	1
	C06	3	3	2	2	1			3					2	1
	CO1	To sele	ect suita	able cari	oentry t	ools to j	orepare	diffe	rent t	vpesic	ofioints				
								unie		79000		•			
	CO2	To ide	ntify to	ols requ	ired in 1	the fittin	g opera	ation t	o per	form j	oint pr	eparatio	ons.		
KSHOP	CO3	To und smithy		d the pro	ocess o	f making	differe	nt ob	jects	with tl	nin she	ets usin	g prope	er tin	
WOR	CO4	To diff	erentia	te single	e phase,	, 3 phase	e wiring	conn	ectior	ıs.					
OP & IT	CO5		y the ba		nputer p	peripher	al and g	gain su	ufficie	nt kno	wledge	e on ass	emblin	g and	
ENGINEERING WORKSHOP & IT WORKSHOP	CO6				•	ure of W d acquir					•		-		).
RING		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
NEE	C01	3	3				2		2				3	2	
	C02	3	3				2		2				3	3	2
	C03	3	3				2		2				3		
	C04	3	3				2		2				3		2
	C05	3	3				2		2				3	3	
	C06	3	3				2		2				3	2	1
	CO1		o Introd ninants		nageria	l Econor	nics to e	engin	eering	g stude	ents, co	ncepts	of dem	and like	law
<u>s</u>	CO2	Able to	o evalua	ite the s	tudent	knowled	dge of p	orodu	ction a	& cost	estima	ition.			
ANALYSI	СОЗ	Able to	o introd	uce mai	rkets, tł	neory of	the firn	n and	pricir	ıg poli	cies in (	differen	it marke	ets.	
ANCIAL ANALYSIS	CO4			the diffe vate ent		orms of b s.	ousiness	orga	nizati	on and	d their i	merits a	and dem	nerits of	both

S & FIN	CO5	Able to	o under	stand th	ne differ	rent acc	ounting	g syste	ems pr	repara	tion of	financia	al stater	nents.	
MANAGERIAL ECONOMICS & FIN	CO6	Able to budge		stand th	ne conco	epts of a	apital,	capita	alizatio	on tec	hniques	s used t	o evalua	ate cap	ital
IALE		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
3ERI	C01	2	1										1	2	1
NAC	C02	2	2	2									1	2	2
MΑ	C03	1	2	2	1								1	2	1
	C04	1	2	2	2								1	2	2
	C05	1	2	2	2					1		1	1	2	1
	C06	1	2	2	2					1		1	1	2	2
	CO1					like stre oblem so			•	ress, c	ombine	d stres	s, strain	energy	v under
	CO2	To ske	tch S.F.	D and B	.M.D fo	r statica	lly dete	ermine	ed bea	ams ur	nder dif	ferent l	oads.		
	СОЗ		ess flex sections		d flexura	al shear	stress i	nduce	ed in tl	he bea	ams wh	ich are	made w	vith diff	erent
sbi	CO4			-		lection of and mo					loadin	g by do	uble int	egratio	n
of solids	CO4 CO5	metho To Cor	d Maca	ulay's n lifferent	nethod		ment ai	rea m	ethod					_	
lechanics of solids		metho To Cor extern To Exa	od Maca mpute c al press mine th	iulay's n lifferent sures. ne colun	nethod types o	and mo	ment a develo ally poir	rea mo ped ir nt of v	ethod n thin	thick (	cylinde	rs subje	cted to	interna	ll and
Mechanics of solids	CO5	metho To Cor extern To Exa stresse	nd Maca mpute c al press mine th es induc	ulay's n lifferent sures. ne colun ced in sh	nethod types o nns fror nafts sul	and mo of stress n statica bjected	ment ai develo illy poir to torqu	rea mo ped ir nt of v ue.	ethod n thin iew w	thick o ith dif	cylinder ferent (	rs subje end cor	cted to	interna at fixed	ll and d shear
Mechanics of solids	CO5	metho To Cor extern To Exa	od Maca mpute c al press mine th	iulay's n lifferent sures. ne colun	nethod types o	and mo of stress n statica	ment a develo ally poir	rea mo ped ir nt of v	ethod n thin	thick (	cylinde	rs subje	cted to	interna	ll and
Mechanics of solids	CO5 CO6	metho To Cor extern To Exa stresse	nd Maca mpute c al press mine th es induc PO2	lifferent sures. ne colun ced in sh	nethod types o nns fror nafts sul	and mo of stress n statica bjected	ment au develo ally poir to torqu <b>PO6</b>	rea more ped in nt of v ue. <b>PO7</b>	ethod n thin iew w	thick o ith dif	cylinder ferent (	rs subje end cor	cted to	interna at fixed	l and d shea
Mechanics of solids	CO5 CO6	metho To Cor extern To Exa stresse <b>PO1</b> 2	nd Maca mpute c al press mine th es induc PO2 1	lifferent sures. ne colun ced in sh PO3 1	nethod types o nns fror nafts sul	and mo of stress n statica bjected	ment au develo ally poir to torqu PO6 1	rea more ped in nt of v ue. <b>PO7</b>	ethod h thin iew w	thick o ith dif	cylinder ferent (	rs subje end cor	cted to	interna at fixed PSO1 2	l and shea PSO2
Mechanics of solids	CO5 CO6 CO1 CO2	metho To Cor extern To Exa stresse <b>PO1</b> 2 2 2	od Maca mpute c al press mine th es induc <b>PO2</b> 1 1	lifferent sures. ne colun ced in sh PO3 1	nethod types o nns fror nafts sul	and mo of stress n statica bjected	ment au develo ally poir to torqu PO6 1 1	rea more ped in tof vue.	ethod h thin iew w	thick o ith dif	cylinder ferent (	rs subje end cor	cted to	interna at fixed PSO1 2 2	l and d shear PSO2 1
Mechanics of solids	CO5 CO6 C01 C02 C03	metho To Cor extern To Exa stresse <b>PO1</b> 2 2 1	od Maca mpute c al press mine thes induce <b>PO2</b> 1 1 1	lifferent sures. ne colun ced in sh PO3 1 1 1	nethod types o nns fror nafts sul	and mo of stress n statica bjected	PO6	rea more ped in tof vue.	ethod h thin iew w	thick o ith dif	cylinder ferent (	rs subje end cor	cted to	interna at fixed 2 2 2 2 2 2	l and d sheat 1 1 1
Mechanics of solids	CO5 CO6 CO1 CO2 CO3 CO4	metho To Cor extern To Exa stresse <b>PO1</b> 2 2 1 2 1 2	PO2 1 1 1 1	lifferent sures. ne colun ced in sh PO3 1 1 1 1	nethod types o nns fror nafts sul	and mo of stress n statica bjected	PO6 1 1 1 1 1 1 1	PO7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ethod h thin iew w	thick o ith dif	cylinder ferent (	rs subje end cor	cted to	interna at fixed PSO1 2 2 2 2 2 2	PSO2
Mechanics of solids	CO5 CO6 CO1 CO2 CO3 CO4 CO5	metho To Cor extern To Exa stresse <b>PO1</b> 2 2 1 2 1 2 1 2 2	PO2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PO3 1 1 1 1 1 1 1 1 1 1	PO4	and mo of stress n statica bjected	PO6 1 1 1 1 1 1 1 1 1 1 1	PO7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ethod n thin iew w PO8	thick of ith dif	ferent o	PO11	cted to nditions PO12	interna at fixed 2 2 2 2 2 2	PSO2
Mechanics of solids	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6	metho To Cor extern To Exa stresse PO1 2 2 1 2 1 2 1 2 1 2 2 1 2 2 1 2 7 0 1 2 2 1 7 0 0 0 0 1 2 0 1 0 0 0 0 0 0 0 0 0 0 0 0	ed Maca mpute c al press mine th es induc PO2 1 1 1 1 2 1 4 erstanc	ulay's n lifferent sures. ne colun ced in sh PO3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	rethod types of nns from afts sul PO4 sic cond	and mo of stress n statica bjected <b>PO5</b>	PO6 1 1 1 1 1 1 1 1 5 5 0 1 1 1 1 1 1 1 1 1	PO7 1 1 1 1 1 1 1 1 1 1 1 1 1	ethod n thin iew w PO8	thick of ith dif	ferent o	PO11	cted to nditions PO12	interna at fixed 2 2 2 2 2 2	PSO2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6	metho To Cor extern To Exa stresse PO1 2 2 1 2 1 2 1 2 1 2 1 2 7 0 1 2 1 2 7 0 7 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	d Maca npute c al press mine th es induc PO2 1 1 1 1 2 1 derstanc	ulay's n lifferent sures. ne colun ced in sh PO3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nethod types of nns from afts sul PO4 sic cond ase Dia	and mo of stress n statica bjected PO5	PO6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PO7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ethod n thin iew w PO8 ns and	thick of thick of the second s	PO10	PO11	cted to nditions PO12	interna at fixed 2 2 2 2 2 2 2	PSO2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
. Materials Science Mechanics of solids	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO1 CO2	metho To Cor extern To Exa stresse PO1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	d Maca npute c al press mine th es induc PO2 1 1 1 1 2 1 derstand derstand	ulay's n lifferent sures. ne colun ced in sh PO3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ron and	and mo of stress n statica bjected PO5 cepts of grams in	ment and develop ally point to torque to totque to torque to torqu	PO7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ethod n thin iew w PO8 ns and n to the	thick of ith dif PO9	PO10	end cor PO11 etals & /	cted to nditions PO12	interna at fixed 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PSO2

et et								-	_		-				_
Metallurgy		PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	Р
	C01	3	2	2	2	1		1			2		2		
	C02	3	2	2	2	1		1			2		2		
	C03	3	2	2	2	1		1			2		2		
	C04	3	2	2	2	1		1			2		2		
	C05	3	2	2	2	1		1			2		2		
	C06	3	2	2	2	1		1			2		2		
								_							
	CO1	Explair	n the fu	ndamen	tal conc	epts of	Thermo	odynai	mics.						
	CO2	Define	the cor	ncept of	heat, w	ork and	energy	and a	apply t	he sar	me to th	ne respe	ective p	roblems	6.
	соз					w of the well's re							y the co	ncept o	f
	CO4				•	operties Clapey	•						<sup>-</sup> charts		
Thermodynamics	CO5	to idea		al-gas r		cribe the , Analyz									res
rmo	CO6				nce of g	as powe	er, vapo	or pow	er and	d Refri	igeratio	n cycles	S.		
-hei															
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	P
	C01	2	2	1			1	1	Ī						Í
	C02	3	2	1			1	1							
	C03	3	2	1			1	1							
	C04	3	2	1			1	1							
	C05	3	2	1			1								
	C06	3	2	2			1	1							
	CO1	acting	on diffe	erent su	rfaces.	fluid, its				,.					
	CO2					of fluid problen		patte	rns, vi	scous	flow th	rough (	ducts ar	id apply	/ al
Mechanics & Hydraulic Machines	соз		n about sional a		cepts re	elated to	o bound	dary la	ayer tl	neory,	dimen	sionless	s numbe	ers and	
Ž	CO4	Compu	ute the	hydrody	namic f	forces a	cting or	n vane	es and	their	perforr	nance.			
drauli	CO5	Under	stand th	ne impo	rtance a	and fund	ctions o	f hydı	raulic	pump	s also c	ompute	e their p	erform	an
& Η)	CO6				nce cha I fluidic	aracteris	tics of	hydra	ulic tu	rbine	s and al	so unde	erstand	about t	the

Fluid	C01	3	2	1			2	L						2	L 1
Ę	C02	3	2	1			1	1						2	1
	C03	2	2	1			1	1						2	1
							0	1						2	1
	C04	3	2	1			2	1						2	1
	C05	3	2	1											
	C06	3	2	1			2	1						2	]
	C01	Able to	o Under	rstand P	roiectic	ons of so	lids								
Bul	C02				•	and Dev		ents o	of solic	ls					
leel	C03					pretatio	•				ive Viev	vs			
ngir ngir	C04					pts of Co				-					
Computer Alded Engineering Drawing Practice						-							2		
Drav		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PS
. I	C01	2		2											
Ind	C02	2		2											
E C	C03	2		2											
5	C04	2		2		3									
				-	-	-	_	_					-		_
	CO1	Able to	o find o	ut the e	fficienc	y of dc s	hunt m	achin	e with	out a	ctual lo	ading o	f the m	achine.	
	CO2	Able to	o estima	ate the e	efficien	cy and re	egulatio	on for	differ	ent lo	ad cond	ditions	and pov	ver fact	ors
٩		Able to	o analys	se the pe	erforma	ance cha	racteris	stics a	nd to	deteri	mine ef	ticiency	/ of DC s	snunt m	loto
. Lab	соз		-	se the pe uction m		ance cha	racteris	stics a	nd to	deter	mine ef	ficiency	of DC s	snunt m	loto
ıgg. Lab		&3-ph	ase ind	uction n	notor.										
s Engg. Lab	CO3 CO4 CO5	&3-ph Able t	ase ind to pre-d	uction n etermin	notor. Ie the re	egulatio	n of an	alterr	ator b	oy syn	chrono	us impe			
nics Engg. Lab	CO4	&3-ph Able t Able to	ase indi to pre-d o contro	uction m etermin ol the sp	notor. le the re beed of	egulatio dc shunt	n of an t motor	alterr using	iator k spee	oy syn d cont	chrono rol met	us impe			
ctronics Engg. Lab	CO4 CO5	&3-ph Able t Able to	ase indi to pre-d o contro	uction m etermin ol the sp	notor. le the re beed of	egulatio	n of an t motor	alterr using	iator k spee	oy syn d cont	chrono rol met	us impe			
Electronics Engg. Lab	CO4 CO5	&3-ph Able t Able to	ase indi to pre-d o contro	uction m etermin ol the sp	notor. le the re beed of	egulatio dc shunt	n of an t motor f PN jur	altern using nction	ator k spee diode	oy syn d cont e & tra	chrono rol met	us impe hods.	edance i		
l & Electronics Engg. Lab	CO4 CO5	&3-ph Able t Able to Able to	ase inde to pre-d to contro to find o	uction m etermin ol the sp ut the cl	notor. he the re beed of haracte	egulation dc shunt ristics of	n of an t motor f PN jur	altern using nction	ator k spee diode	oy syn d cont e & tra	chrono rol met nsistor	us impe hods.	edance i	method	
ical & Electronics Engg. Lab	CO4 CO5 CO6	&3-ph Able t Able to Able to	ase inde to pre-d to contro to find o	uction m etermin ol the sp ut the cl	notor. he the re beed of haracte	egulation dc shunt ristics of	n of an t motor f PN jur	altern using nction	ator k spee diode	oy syn d cont e & tra	chrono rol met nsistor	us impe hods.	edance i	method	
ectrical & Electronics Engg. Lab	CO4 CO5 CO6 C01	&3-ph Able t Able to Able to <b>PO1</b> 2	ase inde to pre-d to contro to find o	uction m etermin of the sp ut the cl PO3 2	notor. he the re beed of haracte	egulation dc shunt ristics of	n of an t motor f PN jur	altern using nction	ator k spee diode	oy syn d cont e & tra	chrono rol met nsistor	us impe hods.	edance i	method	
Electrical & Electronics Engg. Lab	CO4 CO5 CO6 C01 C02	&3-ph Able t Able to Able to PO1 2 2 2 2	ase inde to pre-d to contro to find o	etermin of the sp ut the cl PO3 2 2 2 2	notor. he the re beed of haracte	egulation dc shunt ristics of	n of an t motor f PN jur	altern using nction	ator k spee diode	oy syn d cont e & tra	chrono rol met nsistor	us impe hods.	edance i	method	
Electrical & Electronics Engg. Lab	CO4 CO5 CO6 C01 C02 C03	&3-ph Able t Able to Able to <b>PO1</b> 2 2 2 2 2 2	ase inde to pre-d to contro to find o	etermin of the sp ut the cl PO3 2 2 2 2 2 2	notor. he the re beed of haracte	egulation dc shunt ristics of	n of an t motor f PN jur	altern using nction	ator k spee diode	oy syn d cont e & tra	chrono rol met nsistor	us impe hods.	edance i	method	
Electrical & Electronics Engg. Lab	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5	&3-ph Able t Able to Able to <b>PO1</b> 2 2 2 2 2 2 2 2 2 2 2 2	ase inde to pre-d to contro to find o	etermin of the sp ut the cl PO3 2 2 2 2 2 2 2 2 2 2	notor. he the re beed of haracte	egulation dc shunt ristics of	n of an t motor f PN jur	altern using nction	ator k spee diode	oy syn d cont e & tra	chrono rol met nsistor	us impe hods.	edance i	method	
Electrical & Electronics Engg. Lab	CO4 CO5 CO6 CO1 CO2 CO3 CO4	&3-ph Able t Able to Able to <b>PO1</b> 2 2 2 2 2 2	ase inde to pre-d to contro to find o	etermin of the sp ut the cl PO3 2 2 2 2 2 2	notor. he the re beed of haracte	egulation dc shunt ristics of	n of an t motor f PN jur	altern using nction	ator k spee diode	oy syn d cont e & tra	chrono rol met nsistor	us impe hods.	edance i	method	
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6	&3-ph Able t Able t Able t 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ase inde to pre-d to contro o find o PO2	PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO4	egulation dc shunt ristics of PO5	n of an t motor f PN jur PO6	alterr using ction PO7	PO8	PO9	chrono rol met nsistor PO10	us impe hods.	edance i	method	
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5	&3-ph Able t Able t Able t 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ase inde to pre-d to contro o find o PO2	PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO4	egulation dc shunt ristics of	n of an t motor f PN jur PO6	alterr using ction PO7	PO8	PO9	chrono rol met nsistor PO10	us impe hods.	edance i	method	
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6	<ul> <li>&amp;3-ph</li> <li>Able t</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> <li>PO1</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>Able to</li> </ul>	ase inde to pre-d to contro o find o PO2	PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO4	egulation dc shunt ristics of PO5	n of an t motor f PN jur PO6	PO7	PO8	PO9	chrono rol met nsistor PO10	us impe hods.	edance i	method	
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2	<ul> <li>&amp;3-ph</li> <li>Able t</li> <li>Able to</li> <li>Able to</li> <li>PO1</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>Able to</li> </ul>	ase inde to pre-d to contro to find o PO2	etermin of the sp ut the cl PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 5 tand an	notor. e the ro- peed of haracte PO4 nd perfe	egulation dc shunt ristics of PO5	n of an t motor f PN jur PO6 tensior Bendin	altern using nction PO7	PO8	PO9	chronou rol met nsistor PO10	PO11	edance i	method	
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO2 CO2 CO2 CO3	<ul> <li>&amp;3-ph</li> <li>Able t</li> <li>Able to</li> <li>Able to</li> <li>PO1</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>4</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> </ul>	ase inde o pre-d o contro o find o PO2 o under o under	etermin ol the sp ut the cl PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	notor. e the ro- peed of haracte PO4 nd perfe nd perfe	egulation dc shunt ristics of PO5	n of an t motor f PN jur PO6 tensior Bendin Torsior	altern using nction PO7	PO8	PO9 PO9 ression & Imp	PO10	PO11	edance i	method	
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2	<ul> <li>&amp;3-ph</li> <li>Able t</li> <li>Able to</li> <li>Able to</li> <li>PO1</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>4</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> </ul>	ase inde o pre-d o contro o find o PO2 o under o under	etermin of the sp ut the cl PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	notor. e the ro- peed of haracte PO4 nd perfe nd perfe	egulation dc shunt ristics of PO5	n of an t motor f PN jur PO6 tensior Bendin Torsior	altern using nction PO7	PO8	PO9 PO9 ression & Imp	PO10	PO11	edance i	method	
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO2 CO2 CO2 CO3	<ul> <li>&amp;3-ph</li> <li>Able t</li> <li>Able to</li> <li>Able to</li> <li>PO1</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>4</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> </ul>	ase inde o pre-d o contro o find o PO2 o under o under	etermin of the sp ut the cl PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	notor. e the ro- peed of haracte PO4 nd perfe nd perfe	egulation dc shunt ristics of PO5	n of an t motor f PN jur PO6 tensior Bendin Torsior	altern using nction PO7	PO8 PO8	PO9 PO9 ression & Imp liffere	PO10	PO11	PO12	PSO1	PS0
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO2 CO2 CO2 CO3	<ul> <li>&amp;3-ph</li> <li>Able t</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> <li>PO1</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>4</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> </ul>	ase indu to pre-d to contro to find o PO2 O under to under to under to under	etermin ol the sp ut the cl PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	notor. the the ro- peed of haracte PO4 PO4 nd perfe nd perfe nd perfe	egulation dc shunt ristics of PO5 Orm the orm the orm the yze the r	n of an t motor f PN jur PO6 tensior Bendin Torsior	altern using nction PO7	PO8 PO8	PO9 PO9 ression & Imp liffere	chrono rol met nsistor PO10	PO11	PO12	PSO1	PS0
Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO2 CO3 CO4 CO2 CO3 CO4	<ul> <li>&amp;3-ph</li> <li>Able t</li> <li>Able to</li> <li>Able to</li> <li>PO1</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>2</li> <li>4ble to</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> <li>Able to</li> </ul>	ase indi o pre-d o contro o find o PO2 o under o under o under o under	etermin of the sp ut the cl PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	notor. te the re- beed of haracte PO4 nd perfe nd perfe nd perfe nd perfe nd analy	egulation dc shunt ristics of PO5 Orm the orm the orm the yze the r	n of an t motor f PN jur PO6 tensior Bendin Torsior	alterr using nction PO7	PO8 PO8	PO9 PO9 ression & Imp liffere	chrono rol met nsistor PO10	PO11	PO12	PSO1	PS0
s & Metallurgy Electr	CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO3 CO4 CO3 CO4 CO3 CO4 CO3 CO4	&3-phAble tAble toAble toAble to2222222222222223Able toAble toAble toAble toPO12	ase indu to pre-d to contro to find o PO2 o under to under to under to under to under to under to under to under to under	etermin ol the sp ut the cl PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	notor. the the re- peed of haracte PO4 PO4 nd perfe nd perfe nd perfe nd analy PO4 2	egulation dc shunt ristics of PO5 Orm the orm the orm the yze the r	n of an t motor f PN jur PO6 tensior Bendin Torsior	alterr using nction PO7	PO8 PO8	PO9 PO9 ression & Imp liffere	chrono rol met nsistor PO10	PO11	PO12	PSO1	

chinery	со2 соз					of the Ki	nemati	cs of r	nachi	nery ,	the me	chanisr	ns and r	nachine	es
chinery	соз	Jocechi		us mecl ianisms.		s with lo	wer pa	irs inc	ludin	g straig	ght line	motior	n mecha	nisms a	nd
chinery		Analyz	e the p	lanar me	echanis	ms for p	osition	, Velo	city a	nd acc	eleratio	on			
5	CO4														
s of Ma	co5	Compu efficier		power t	ransmis	sion thr	ough d	iffere	nt typ	es of g	gears in	cluding	gear pr	ofiles a	nd it
Kinematics of Machinery	CO6	Assess	various	5 power	transm	ission m	nechani	sms, r	nethc	odolog	ies and	workin	g princi	ples.	
_		PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PS
	C01	3	3	2		2	1	1	1					2	1
	C02	3	2	1		1	1	1						1	1
	C03	3	3	1		1	1	1						1	1
	C04	3	2	1		1	1	1						1	1
	C05	3	2	1		1	1	1						1	1
	C06	3	2	1		1	1	1						2	1
	CO1	Engine	25			ntion of a		-			-			d cycles	of I
			iut the		e syster			pry ,ct							
÷	соз	Discus	s about	normal	and ab	normal	combus	stion i	n IC e	ngines	and fu	el ratin	g		
ing	CO4	Analyz	e the p	erforma	nce of I	C engin	es								
neer	<u> </u>		e the pe	erforma	nce of r	eciproca	ating ai	r com	prees	ors					
al Engineer	CO5	Evalut	•												
hermal Engineer	CO5 CO6		e the p	erforma	nce of I	rotary ty	vpe con	npress	sors						
Thermal Engineering -I		Analys								PO9	PO10	PO11	PO12	PSO1	PS
Thermal Engineer		Analys	PO2	PO3	PO4	PO5		PO7		PO9	PO10	P011	PO12	PSO1	
Thermal Engineer	CO6	Analys	<b>PO2</b>							PO9	PO10	PO11	PO12	<b>PSO1</b>	1
Thermal Engineer	CO6 C01	Analys PO1 2	PO2	PO3	PO4			PO7		PO9	PO10	P011	P012		_
Thermal Engineer	CO6 C01 C02	Analys PO1 2 2 2	<b>PO2</b> 1 2	PO3	PO4		PO6	<b>PO7</b>		PO9	PO10	P011	PO12	1	<b>PS</b> (

	CO1	Able to	o under	stand va	arious s	teps ,ele	ements	involv	ved in	sand	casting	process	5.		
	CO2	Able to	o under	stand va	arious ty	pes of o	casting	proce	sses a	ind me	elting.				
	соз		o apply of joints	•	iciples ii	nvolved	in Gas	weldii	ng and	d Arc ۱	Velding	; in prep	paration	n of vari	ous
2	CO4	Able to	o under	stand va	arious ty	pes of v	welding	tech	nique	and v	arious d	defects	in weld	ing.	
golo	CO5	Able to	o under	stand p	rinciples	s involve	ed in Di	fferen	t type	es of N	1etal Fo	orming I	Process	es.	
Production Technology	CO6	Able to	o under		rinciples	s of diffe									
L noi		p. occs			·										
duct		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
roc	C01	2	1	2						2			1	2	1
₽.	C02	2	1	2						2			1	2	1
	C03	2	1	2						2			1	2	1
	C04	2	1	2						2			1	2	1
	C05	2	1	2						2			1	2	1
	C06	2	1	2						2			1		
Design of Machine Members -I	CO3 CO4 CO5 CO6	Analys Apply Examin	the bas ne the c the str	esign of ic conce lesign o	epts to t f rigid a	, welden he desig nd flexil ions of t	gning ke ole couj	eys, co olings	otters,	knuc	kle join	ts and s	hafts.		
ign		PO1	PO2	PO3	PO4	PO5	PO6	PO7	POS	PO9	PO10	PO11	PO12	PSO1	PSO2
Des	C01	3	2	3	104	2	1	1	100	105	1010	1011	1012	2	1
	C02	3	2	3		2	1	1						2	1
	C02	3	3	2		2	1	1						2	1
	C04	3	2	2		2	1	1						2	1
	C05	3	2	2		2	1	1						2	1
	C06	3	2	2		2		1						2	1
	CO1 CO2 CO3	To enf To enf	nance ai nance co	nd ident	tify and	owledge represe thods to	nt mec o identi	hanica fy and	al eler	nents.					
wing	CO4 CO5		-	d repres		r machi			nt.						

ine Dra

CO6

To enable and prepare the assembly of various machine or engine components.

Machin															
Σ		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO
	C01	3	3	1	2								2	-	2
	C02	3	2	3	2	2	2						3	1	2
	C03	3	2	2	2	2	2	2					1	-	1
	C04	3	2	3	3	3	2						1	2	-
	C05	2	2	2	3	2	1	1					2	-	2
	C06	3	3	3	1	1	2						3	2	2
											_				
	CO1					edge in I			-	-		-			
ent	CO2		-			Plant La	-				Prevent	tive and	Breako	lown M	ainte
em	CO3					ork Stud	-								
nag	CO4		-			Contro						iality iv	anagen	hent	
Mai	CO5	_				f Humar						DN 4			- ) / -
l pu	CO6	Analys		a Projec	t Mana	gement	and to	aitter	entiat	е рек	I and C	Pivi and	unders	standing	; vai
ng a		Anarys	515												
Industrial Engineering and Management		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSC
ıgin	C01	2	1	1	1		2	1	1	1	2	2	2		
ΠEn	C02	2	2	2	2	2	1	1	1	2	2	1	2		
tria	C03	2	2	2	2	2	1	1	1	1	2	2	2		
snp	C04	2	2	2	2	2	1	1	1	1	2	2	2		
Ĕ	C05	2	2	2	2	2	1	1	1	1	2	2	2		
	C06	2	2	2	2	2	1	1	1	1	2	2	2		
nıcs & Hyaraulıc Ichines Lab	c01 c02					ate the ate the	·								S
cnanıcs Machir Lab															
Fluid Mechanics Machii Lab		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSC
nia	C01	3	3	2	2									1	1
Ī	C02	3	3	2	2									1	1
Production Technology Lab	CO1		•	rm the v plastics	arious r	manufac	turing	proce	sses li	ke Cas	sting,W	elding,f	orming	and	
Prot		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSC
Te _	C01	3				3							3		
	C01	Analyz	e the st	abilizati	ion of s	ea vehic	les , air	crafts	and a	utom	obiles.				

	CO2	Compu	ute the	frictiona	al losses	s, torque	e transn	nissio	n of m	echar		tems.			
ery	соз	Examii	ne the d	lynamic	force a	nalysis o	of slider	cran	k mec	hanisr	n and d	esign o	fflywhe	eel.	
hin	CO4			namiccs		-									
Лас	CO5	Apply	the bala	ancing o	f rotary	and rec	iprocat	ing m	asses						
Dynamics of Machinery	CO6	Find th	ne natur	al frequ	iencies	of contii	nuous s	ystem	IS.						
Dynan		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
_	C01	3	3	2		2	1	1						2	1
	C02	3	2	1		1	1	1						2	1
	C03	3	2	1		1	1	1						2	1
	C04	3	2	1		1	1	1						2	1
	C05	3	2	1		1	1	1						2	1
	C06	3	2	1		1	1	1						2	1
	CO1	Able to	o under	stand th	ne princ	iples inv	olved i	n mat	erial r	emova	al proce	esses.			
	CO2	Able to	o apply	the fund	dament	als of m	etal rer	noval	proce	ss in l	athe.				
	CO3	Able to	o apply	the fund	dament	als of m	etal rer	noval	proce	ss in s	haper,	planer	and slot	ter.	
	CO4	Ahle to	annly	the fund	lament	als of m	otal ror	noval	proce	ss in N	Ailling	-			
s	C04	profe to	o appiy	the rune	Junient		etarrer		1						
ine Tools	CO4	Able to	o apply	the fund	dament	als of ming, honi	etal rer		-			ional a	ccuracy	and su	rface
g & Machine Tools		Able to finishin Able to	o apply ng using o apply	the fund g grindin the prin	dament ng, lappi ciples o	als of m	etal rer ing. on and v	noval work l	proce	ss for	dimens				rface
utting & Machine Tools	CO5	Able to finishin Able to	o apply ng using o apply	the fund g grindin the prin	dament ng, lappi ciples o	als of ming, honi	etal rer ing. on and v C machi	noval work l nes.	proce	ss for g in Ji	dimens	ixtures		le to	rface PSO2
al Cutting & Machine Tools	CO5	Able to finishin Able to unders	o apply ng using o apply stand th	the fund grindin the prin he funda	dament ng, lappi ciples o imental	als of m ng, honi If locatic s of CNC	etal rer ing. on and v C machi	noval work l nes.	proce	ss for g in Ji	dimens	ixtures	and ab	le to	
letal Cutting & Machine Tools	CO5 CO6	Able to finishin Able to unders	o apply ng using o apply stand th	the fund grindin the prin he funda	dament ng, lappi ciples o imental	als of m ng, honi of locatic s of CNC <b>PO5</b>	etal rer ing. on and v C machi	noval work l nes.	proce	ss for g in Ji	dimens	ixtures	and ab	e to PSO1	PSO2
Metal Cutting & Machine Tools	CO5 CO6 C01	Able to finishin Able to unders <b>PO1</b> 3	o apply ng using o apply stand th	the fund g grindin the prin the funda <b>PO3</b>	dament ng, lappi ciples o imental	als of mentions, honing, honin	etal rer ing. on and v C machi	noval work l nes.	proce	ss for g in Ji	dimens	ixtures	and ab <b>PO12</b> 1	e to <b>PSO1</b> 2	<b>PSO2</b>
Metal Cutting & Machine Tools	CO5 CO6 C01 C02	Able to finishin Able to unders <b>PO1</b> 3 2	o apply ng using o apply stand th	the fund g grindin the prin the funda <b>PO3</b>	dament ng, lappi ciples o imental	als of monitoring, honitorial for the second	etal rer ing. on and v C machi	noval work l nes.	proce	ss for g in Ji	dimens	ixtures	and ab PO12 1 1	e to PSO1 2 2	<b>PSO2</b>
Metal Cutting & Machine Tools	CO5 CO6 C01 C02 C03	Able to finishin Able to unders <b>PO1</b> 3 2 3	o apply ng using o apply stand th	the fund g grindin the prin the funda <b>PO3</b>	dament ng, lappi ciples o imental	als of main als of main als of main and the	etal rer ing. on and v C machi	noval work l nes.	proce	ss for g in Ji	dimens	ixtures	and ab PO12 1 1 1 1	e to PSO1 2 2 2 2	<b>PSO2</b> 1 1 1 1
Metal Cutting & Machine Tools	CO5 CO6 C01 C02 C03 C04	Able to finishin Able to unders <b>PO1</b> 3 2 3 3 3	o apply ng using o apply stand th	the fund g grindin the prin the funda <b>PO3</b> 2 2 2 2	dament ng, lappi ciples o imental	als of monitoring, honitorial for the second	etal rer ing. on and v C machi	noval work l nes.	proce	ss for g in Ji	dimens	ixtures	and ab PO12 1 1 1 1 1	e to PSO1 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1
Metal Cutting & Machine Tools	CO5 CO6 C01 C02 C03 C04 C05	Able to finishin Able to unders <b>PO1</b> 3 2 3 3 3 2 2 3 3 2	o apply ng using o apply stand th	the fund g grindin the prin the funda <b>PO3</b> 2 2 2 1	dament ng, lappi ciples o imental	als of main als of main als of main and the main also and the main	etal rer ing. on and v C machi	noval work l nes.	proce	ss for g in Ji	dimens	ixtures	and ab PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PSO1 2 2 2 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1 1 1
Metal Cutting & Machine Tools	CO5 CO6 C01 C02 C03 C04 C05	Able to finishin Able to unders <b>PO1</b> 3 2 3 3 3 2 2 2 2	p apply ng using p apply stand th PO2	the fund g grindin the prin the funda <b>PO3</b> 2 2 2 1 2 2	damenta ciples o mental PO4	als of main als of main als of main and the main also and the main	etal rer ing. Don and v C machi	noval work I nes. PO7	PO8	ss for g in Ji PO9	dimens gs and f	PO11	and ab PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PSO1 2 2 2 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Metal Cutting & Machine Tools	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1	Able to finishin Able to unders PO1 3 2 3 3 2 3 3 2 2 2 2 4 Analyz	p apply ng using p apply stand th PO2	the fund g grindin the prin the funda <b>PO3</b> 2 2 2 2 1 2 2 1 2 2	damenta ciples o mental PO4 distribu	als of monitoring, honitorial for the second	etal rer ing. on and v machi <b>PO6</b>	noval work I nes. PO7	proce	ss for g in Ji PO9	dimens gs and f PO10 er bear	PO11	and ab PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PSO1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1 1 1 1
	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2	Able to finishin Able to unders <b>PO1</b> 3 2 3 3 2 3 3 2 2 2 2 2 4 Analyz	p apply ng using p apply stand th PO2	the fund g grindin the prin the funda <b>PO3</b> 2 2 2 2 1 2 2 2 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 2 1 2 2 1 2 2 1 2	damenta ciples o mental PO4 distribu	als of main of locatic of locatic s of CNC PO5 1 2 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 1	etal rer ing. on and v machi PO6	noval work l nes. PO7	proce	ss for g in Jig PO9	dimens gs and f PO10 er bear ecting r	PO11 ings	and ab PO12 1 1 1 1 1 1 1 nkshaft	PSO1 2 2 2 2 2 2 2 2 , crank	<b>PSO2</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO2 CO3 CO4 CO5	Able to finishin Able to unders <b>PO1</b> 3 2 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	e the portion of the	the fund g grindin the prin the funda <b>PO3</b> 2 2 2 1 2 1 2 2 1 2 2 1 2 2 1 2 2 5 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 2 1 2 2 1 2 2 2 1 2 2 2 2 2 1 2	damenta ciples o mental PO4 distribu ocedure in curv	als of main of honing, honing, honing, honing, honing of the second seco	etal rer ing. Dn and v machi PO6 PO6 d design ngine p ns and to ms such r and ho	noval work I nes. PO7	proce	ss for g in Ji PO9	dimens gs and f PO10 er bear ecting r rane ho	ixtures PO11 ings od, cra oks and	and ab PO12 1 1 1 1 1 1 nkshaft	PSO1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO3 CO4	Able to finishin Able to unders <b>PO1</b> 3 2 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	e the portion of the	the fund g grindin the prin the funda <b>PO3</b> 2 2 2 1 2 1 2 2 1 2 2 1 2 2 1 2 2 5 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 2 1 2 2 2 1 2 2 2 2 1 2	damenta ciples o mental PO4 distribu ocedure in curv	als of main of locatic of locatic s of CNC PO5 1 2 2 2 1 2 1 2 2 1 2 1 2 1 2 1 2 1 2	etal rer ing. Dn and v machi PO6 PO6 d design ngine p ns and to ms such r and ho	noval work I nes. PO7	proce	ss for g in Ji PO9	dimens gs and f PO10 er bear ecting r rane ho	ixtures PO11 ings od, cra oks and	and ab PO12 1 1 1 1 1 1 nkshaft	PSO1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO6 CO3 CO4 CO5 CO3 CO4 CO5 CO6	Able to finishin Able to unders PO1 3 2 3 3 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 3 3 3 2 2 3 3 3 3 2 2 3	p apply ng using b apply stand th PO2 PO2 e the po te the do ute the s the pov te the do gate va	the fund g grindin the prin the prin e funda <b>PO3</b> 2 2 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 1 2 1 2 1 1 2 1 2 1 1 2 1 1 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 1 1 2 1 1 1 2 1 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 1 1 2 1	damenta ciples o mental PO4 distribu ocedure in curv nsmissic ocedure pes of le	als of main of locatic sof CNC PO5 1 2 2 1 2 1 2 tion and sof IC ended be an on system of spun evers an evers e	etal rer ing. on and v machi PO6 d design ngine p ns and m r and he d wire PO6	noval work I nes. PO7 PO7 n of sli arts s their i n as pu elical s ropes	proce	ss for g in Jig PO9 nd roll s conn t on cr belt, PO9	dimens gs and f PO10 er bear ecting r rane ho rope ar	ings rod, cra oks and oks and pO11	and ab PO12 1 1 1 1 1 1 1 1 C-clam drives PO12	PSO1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 PSO1	<b>PSO2</b> 1 1 1 1 1 1 pin, pis
	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO6 CO1 CO1 CO1	Able to finishin Able to unders PO1 3 2 3 3 2 2 2 2 2 2 2 2 2 3 3 3 2 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 3 3 3 3 3 2 2 3	p apply ng using p apply stand th PO2 PO2 e the pove the pove the pove the pove the pove the pove atter va PO2 3	the fund g grindin the prin he funda <b>PO3</b> 2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2	damenta ciples o mental PO4 distribu ocedure in curv osmissic ocedure	als of main of locatic of locatic of locatic os of CNC <b>PO5</b> 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	etal rer ing. on and v machi PO6 d design ngine p ns and h d wire PO6 2	noval work h nes. PO7 PO7 n of sli arts s their i n as pu elical s ropes PO7 1	proce	ss for g in Jig PO9 nd roll s conn t on cr belt,	dimens gs and f PO10 er bear ecting r rane ho rope ar	ings rod, cra oks and	and ab PO12 1 1 1 1 1 1 1 C-clam drives PO12 1	PSO1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1 1 1 1 Pin, pis
	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO6 CO3 CO4 CO5 CO3 CO4 CO5 CO6	Able to finishin Able to unders PO1 3 3 2 3 3 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 2 2 3 3 3 2 2 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 2 2 3 3 3 3 3 3 3 2 2 3	p apply ng using b apply stand th PO2 PO2 e the po te the do ute the do the pov te the do gate va PO2 3 3	the fund g grindin the prin the prin e funda <b>PO3</b> 2 2 2 2 1 2 2 1 2 2 1 2 2 2 2 1 2 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 2 2 1 2 2 1 2	damenta ciples o mental PO4 distribu ocedure in curv nsmissic ocedure pes of le	als of main of locatic sof CNC PO5 1 2 2 1 2 1 2 1 2 1 2 1 1 2 1 1 2 1 1 2 1	etal rer ing. on and v machi PO6 d design ngine p ns and m r and he d wire PO6 2 1	noval work I nes. PO7 PO7 arts s their i as pu elical ( ropes PO7 1	proce	ss for g in Jig PO9 nd roll s conn t on cr belt, PO9	dimens gs and f PO10 er bear ecting r rane ho rope ar	ings rod, cra oks and oks and pO11	and ab PO12 1 1 1 1 1 1 1 C-clam drives PO12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PSO1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Design of Machine Members-II Metal Cutting & Machine Tools	CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO5 CO6 CO1 CO5 CO6	Able to finishin Able to unders PO1 3 2 3 3 2 2 2 2 2 2 2 2 2 3 3 3 2 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 3 2 2 3 3 3 2 2 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 3 2 2 3 3 3 3 2 2 3 3 3 3 3 3 3 3 3 3 2 2 3	p apply ng using p apply stand th PO2 PO2 e the pove the pove the pove the pove the pove the pove atter va PO2 3	the fund g grindin the prin he funda <b>PO3</b> 2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2	damenta ciples o mental PO4 distribu ocedure pes of le PO4 -	als of main of locatic of locatic of locatic os of CNC <b>PO5</b> 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	etal rer ing. on and v machi PO6 d design ngine p ns and h d wire PO6 2	noval work h nes. PO7 PO7 n of sli arts s their i n as pu elical s ropes PO7 1	proce	ss for g in Jig PO9 nd roll s conn t on cr belt, PO9 -	dimens gs and f PO10 er bear ecting r rane ho rope ar PO10 -	ings rod, cra oks and oks and d chair	and ab PO12 1 1 1 1 1 1 1 C-clam drives PO12 1	PSO1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<b>PSO2</b> 1 1 1 1 1 1 1 1 1 Pin, pis

	C05	3	3	1	-	1	1	1	1	-	-	-	1	2	1
	C06	3	3	2	-	1	1	1	1	I	-	-	1	2	1
	-														
	CO1				-	grammi the stud		olem r	nodel	s invo	lving m	athema	tical sir	nplex m	etho
	CO2					l various nade une			it wer	e exp	lained o	learly a	ind Vari	ous	
	соз		•	•	•	w to rep ed were				arious	cases	when m	ioney a	nd time	are
arch	CO4	Game them.	theory	and que	eing the	ory appl	ication	s in va	irious	cases	and mo	odels w	ere und	erstood	l by
ese	CO5	Invent	ory and	l its mod	dels, to s	solve va	rious pi	obler	ns inv	olved	were a	nalyzed	by the	n	
<b>Operations Research</b>	CO6	proble	ems wer	e under	stood b	pply it to y them ained clo	and sin	•		-				Ũ	nmin
U		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSC
	C01	3	2	2	1	-	-	-	-	-	-	-	1	2	2
	C02	2	2	2	2	-	-	-	-	-	-	-	1	2	2
	C03	3	2	2	2	-	-	-	-	-	-	-	1	2	2
	C04	3	2	2	2	-	-	-	-	-	-	-	1	2	2
	C05	3	2	2	1	-	-	-	-	-	-	-	1	2	2
	C06	2	2	2	2	-	-	-	-	-	-	-	1	2	2
neering -II	CO1 CO2 CO3 CO4 CO5	the fu Under compu Under respec Comp conde	els and stand tl stand a stand a ctive pro ute the nsers. ret the	combus he work height o bout ste oblems. thermoo	tion. ing of va of chimn eam noz dynamie cycle w	ove the arious ty ey for a zle, imp c analysi vorking a	vpes of given o ulse typ is of rea	boiler Iraugh De ste	rs and ht syst am tu type	its mo em. rbine steam	and als	s with a o apply es and a	the sar	ries and ne to th am	ie
Thermal Engineering -II	CO6		-	-		c analysi	is of jet	engir	ies an	d rock	ets.				
The								D.6-	0.00		DOCT	DOCT		Dece	D.C.
	<b>CO1</b>	PO1	<b>PO2</b>	<b>PO3</b>	PO4	PO5	<b>PO6</b>	<b>PO7</b>	PO8	P09	P010	PO11	PO12	<b>PSO1</b>	PSC
	C01	3	3	1			1	1						1	1
	C02	3	2	1			1	2						1	
	C03 C04	3	2	1			1	2						1	
		3	2	1			1	1							1
	C05	~	~											1	

	C06	3	2	1			1	1						1	1
	CO1	Ability	to appl	ly the pr	rinciples	s of bala	ncing o	f mas	ses to	vario	us links,	mecha	nisms a	and eng	ines
	CO2			ly the pr ons of va	-		-	effect	s and	stabili	zation	on vario	ous tran	sport v	ehicles
ab	соз	Ability	to und	erstand	the wo	rking pri	inciples	of br	akes a	and dy	namom	eter			
achines L	CO4	Ability	to dete	ermine r	noment	t of iner	tia of m	echar	nical s	ystem	S				
Theory of Machines Lab	CO5	Ability	to dete	ermine t	he vibra	ation pa	ramete	rs of (	differe	ent sys	tems				
<b>₽</b>		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3	2	2	2			,		105	1010	. 011	. 012	1001	1002
	C02	3	2	2	2										
	C03	3	2	2	2										
	C04	3	2	2	2										
	C05	3	2	2	2										
ols Lab	CO1			operate							-	work h	olders	and ope	erating
chine Tools Lab	c01			operate produce							-	work f	olders	and ope	erating
Machine Tools Lab	c01						eatures		e des		-	work h		and ope	erating PSO2
Machine Tools Lab	CO1	princip	oles to p	produce	differei	nt part f	eatures	to th	e des	ired qı	uality.				
Machine Tools Lab		princip	oles to p	PO3	differei	nt part f PO5	eatures	to th	e des	ired qı	uality.	P011			
Machine Tools Lab		PO1 3 Compu	PO2	PO3 2 propert	differen PO4 y of fue	PO5 3 Is by sui	PO6 table te	e to th	e des	ired qı	uality.	P011			
Machine Tools Lab		PO1 3 Compu	PO2	PO3 2	differen PO4 y of fue	PO5 3 Is by sui	PO6 table te	e to th	e des	ired qı	uality.	P011			
	C01	PO1 3 Compu Demos	PO2 PO2 ute the starte th	PO3 2 propert	PO4 PO4 y of fue	PO5 3 Is by sui	PO6 table te	PO7	e des	ired qı	uality.	P011			
	C01 C01 C02	PO1 3 Compu Demos	PO2 ute the starte the	PO3 2 propert he perfo	y of fue	PO5 3 Is by sui e of I.C E	PO6 table to ngines s of I.C	PO7	e des	PO9	PO10	<b>PO11</b> 2	P012	PSO1	PSO2
	C01 C01 C02 C03	PO1 3 Compu Demos Interpu	PO2 Ute the starte the ret the of fy and d	PO3 2 propert he perfo emission	PO4 y of fue ormance n charac	PO5 3 Is by sui e of I.C E cteristic: sembly o	PO6 table te ngines s of I.C	PO7 est Engina	e des PO8 e	PO9	PO10	PO11 2 also uno	PO12	PSO1	PSO2
	C01 C01 C02 C03 C04	PO1 3 Compu Demos Interpu Identif	PO2 UNTER THE OFFERENCE OFFERENCO OFFERENCE OFFERENCO OF	PO3 2 propert he perfo emission lis-assen he Work	y of fue ormance n charace	PO5 3 ls by sui e of I.C E cteristics sembly o Boilers a	PO6 table to ngines s of I.C of all co long wi	est Engination	e des PO8 e e nents o e mou	PO9 of I.C E	PO10	PO11 2 also uno cessorie	PO12	<b>PSO1</b>	PSO2
	C01 C01 C02 C03 C04 C05	PO1 3 Compu Demos Interpu Identif Unders	PO2 PO2 ute the starte the fy and d stand the PO2	PO3 2 propert he perfo emission lis-assen he Work	PO4 y of fue ormance n charac	PO5 3 Is by sui e of I.C E cteristic: sembly o	PO6 table te ngines s of I.C of all co long wi	PO7 est Engina	e des PO8 e e nents o e mou	PO9	PO10	PO11 2 also uno	PO12	PSO1 d its wo	PSO2 rking PSO2
Thermal Engineering Lab Machine Tools Lab	C01 C01 C02 C03 C04	PO1 3 Compu Demos Interpu Identif	PO2 UNTER THE OFFERENCE OFFERENCO OFFERENCE OFFERENCO OF	PO3 2 propert he perfo emission lis-assen he Work	y of fue ormance n charace	PO5 3 ls by sui e of I.C E cteristics sembly o Boilers a	PO6 table to ngines s of I.C of all co long wi	est Engination	e des PO8 e e nents o e mou	PO9 of I.C E	PO10	PO11 2 also uno cessorie	PO12	<b>PSO1</b>	PSO2
	C01 C01 C02 C03 C04 C05 C01	PO1 3 Compu Demos Interpu Identif Unders 9 01 3	PO2 PO2 ute the starte the fy and d stand th PO2 3	PO3 2 propert he perfo emission lis-assen he Work PO3 1	y of fue ormance n charace	PO5 3 ls by sui e of I.C E cteristics sembly o Boilers a	PO6 table te ngines s of I.C of all co long wi PO6 2	est Engination	e des PO8 e e nents o e mou	PO9 of I.C E	PO10	PO11 2 also uno cessorie	PO12	PSO1 d its wo	PSO2 rking PSO2 1
	C01 C01 C02 C03 C04 C05 C01 C01 C02	PO1 3 Compu Demos Interpu Identif Unders 9 01 3 3	PO2 ute the starte the fy and d stand the PO2 3 2	PO3 2 propert he perfo emission lis-assen he Work PO3 1 1	y of fue ormance n charace	PO5 3 ls by sui e of I.C E cteristics sembly o Boilers a	PO6 table te ngines s of I.C of all co long wi PO6 2 1	est Engination	e des PO8 e e nents o e mou	PO9 of I.C E	PO10	PO11 2 also uno cessorie	PO12	PSO1 d its wo PSO1 1 1	PSO2 rking PSO2 1 1 1

				1				2						1
	CO1	Apply	the con	cept of	limits a	nd fits w	/hile de	signin	ig com	npone	nts			
	CO2				• •	rinciples vith a w			-	ılar me	easurer	nents a	nd com	pare th
	соз					oncept o				al mea	suring	instrum	nents	
					-	ss nome	-							ng
	CO4	instrur	ments. I	Jnderst	and var	ious typ	es of co	ompar	ators	and th	neir use	es.		
_	CO5					re of gea nent of §					suring i	nstrum	ents an	d apply
log)			-				-				al		ي ما به ام	
Metrology	CO6					flatness nent tes		ring ir	nstrum	nents	and und	derstan	d the in	nportar
-		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	C01	3	2	-	1		-	-	-	-	-	-	-	-
	C02	2		-		1	- 1	-	-	-	-	-	-	- 1
	C03	2		-	1	1	- 1	-	-	-	-	-	-	-
	C04	2		-	1	1	- 1	-	-	-	-	-	-	-
	C05	2	1	-	1	1	- 1	-	-	-	-	-	-	-
		2		-		1	- 1	- 1	-	-	-	-	-	- 1
stems	C06 C01 C02 C03	Able to measu Able to Able to	irement o apply o apply	of prim the prin the prin	nary and ciples o ciples o	principle d derived of measu	d variat uring th uring Sp	oles e Terr peed,	nperat Accele	ure ar eratio	nd press	sure		nsducer
ontrol Systems	CO1 CO2 CO3 CO4 CO5	Able to measu Able to Able to Able to Able to	irement o apply o apply o apply o apply	of prim the prin the prin the prin the prin	nary and iciples of iciples of iciples of iciples of	d derived	d variat Iring th Iring Sp Iring St Uring H	oles e Terr beed, ress a umidi	nperat Accelo nd Str ty, For	ure ar eration ain. rce an	nd press n, Vibra d Strair	sure Ition, Fl	ow	
in & Control Systems	CO1 CO2 CO3 CO4	Able to measu Able to Able to Able to Able to Able to	irement o apply o apply o apply o apply	of prim the prin the prin the prin the prin stand th	nary and iciples of iciples of iciples of iciples of	d derived of measu of measu of measu of measu	d variat Iring th Iring Sp Iring St Uring H	oles e Terr beed, ress a umidi	nperat Accelo nd Str ty, For	ure ar eration ain. rce an	nd press n, Vibra d Strair	sure Ition, Fl	ow	
tation & Control Systems	CO1 CO2 CO3 CO4 CO5	Able to measu Able to Able to Able to Able to Able to	o apply o apply o apply o apply o apply o apply o under	of prim the prin the prin the prin the prin stand th	nary and iciples of iciples of iciples of iciples of	d derived of measu of measu of measu of measu	d variat Iring th Iring Sp Iring St Uring H	e Tem peed, ress a umidi desig	nperat Accelo nd Str ty, For n the	ure ar eration ain. rce an	nd press n, Vibra d Strair ol syste	sure Ition, Fl	ow	ng diffe
nentation & Control Systems	CO1 CO2 CO3 CO4 CO5	Able to measu Able to Able to Able to Able to Able to physic	arement o apply o apply o apply o apply o apply o under al varia	of prim the prin the prin the prin the prin stand th bles.	nary and ciples c ciples c nciples c nciples o ne contr	d derived of measu of measu of measu of meas of meas	d variat uring th uring Sp uring St uring H ms and	e Tem peed, ress a umidi desig	nperat Accelo nd Str ty, For n the	ure ar eration ain. rce an contro	nd press n, Vibra d Strair ol syste	sure Ition, Fl 1 m for n	ow	ng diffe
rumentation & Control Systems	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2	Able to measu Able to Able to Able to Able to physic <b>PO1</b> 3 3	apply apply apply apply apply apply al varia <b>PO2</b> 2 2	of prim the prin the prin the prin the prin stand th bles. <b>PO3</b> 2 2	PO4	d derived of measu of measu of measu of meas of meas	d variat uring th uring Sp uring St uring H ms and	e Tem peed, ress a umidi desig	nperat Accelo nd Str ty, For n the	ure ar eration ain. rce an contro	nd press n, Vibra d Strair ol syste	sure Ition, Fl 1 m for n	ow	ng diffe PSO1
Instrumentation & Control Systems	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO1 CO2 CO3	Able to measu Able to Able to Able to Able to Able to physic <b>PO1</b> 3 3 3	papply paply papply papl	of prim the prin the prin the prin the prin stand th bles. <b>PO3</b> 2 2 2	PO4	d derived of measu of measu of measu of meas of meas	d variat uring th uring Sp uring St uring H ms and	e Tem peed, ress a umidi desig	nperat Accelo nd Str ty, For n the	ure ar eration ain. rce an contro	nd press n, Vibra d Strair ol syste	sure Ition, Fl 1 m for n	ow	ng diffe PSO1 1 1 1
Instrumentation & Control Systems	CO1 CO2 CO3 CO4 CO5 CO6 CO6 CO1 CO2 CO3 CO4	Able to measu Able to Able to Able to Able to physic <b>PO1</b> 3 3 3 3 3	PO2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	of prim the prin the prin the prin the prin stand th bles. <b>PO3</b> 2 2 2 2 2	PO4 1 1 1 1	d derived of measu of measu of measu of meas of meas	d variat uring th uring Sp uring St uring H ms and	e Tem peed, ress a umidi desig	nperat Accelo nd Str ty, For n the	ure ar eration ain. rce an contro	nd press n, Vibra d Strair ol syste	sure Ition, Fl 1 m for n	ow	ng diffe PSO1 1 1 1 1 1
Instrumentation & Control Systems	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5	Able to measu Able to Able to Able to Able to physic <b>PO1</b> 3 3 3 3 3 3 3	PO2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	of prim the prin the prin the prin the prin stand th bles. <b>PO3</b> 2 2 2 2 2 2 2	PO4 1 1 1 1 1 1	d derived of measu of measu of measu of meas of meas	d variat uring th uring Sp uring St uring H ms and	e Tem peed, ress a umidi desig	nperat Accelo nd Str ty, For n the	ure ar eration ain. rce an contro	nd press n, Vibra d Strair ol syste	sure Ition, Fl 1 m for n	ow	ng diffe <b>PSO1</b> 1 1 1 1 1 1 1
Instrumentation & Control Systems	CO1 CO2 CO3 CO4 CO5 CO6 CO6 CO1 CO2 CO3 CO4	Able to measu Able to Able to Able to Able to physic <b>PO1</b> 3 3 3 3 3	PO2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	of prim the prin the prin the prin the prin stand th bles. <b>PO3</b> 2 2 2 2 2	PO4 1 1 1 1	d derived of measu of measu of measu of meas of meas	d variat uring th uring Sp uring St uring H ms and	e Tem peed, ress a umidi desig	nperat Accelo nd Str ty, For n the	ure ar eration ain. rce an contro	nd press n, Vibra d Strair ol syste	sure Ition, Fl 1 m for n	ow	ng diffe PSO1 1 1 1 1 1
Instrumentation & Control Systems	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5	Able to measu Able to Able to Able to Able to physic <b>PO1</b> 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	p apply b apply b apply b apply b apply b under al varia PO2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	of prim the prin the prin the prin the prin stand th bles. <b>PO3</b> 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	d derived of measu of	d variab uring th uring SI uring H ms and PO6 PO6 nd class	PO7	PO8	PO9	nd press n, Vibra d Strair bl syste	sure Ition, Fl m for n PO11	ow neasurii PO12	ng diffe <b>PSO1</b> 1 1 1 1 1 1 1 1 1
Instrumentation & Control Systems	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6	Able to measu Able to Able to Able to Able to Able to physic <b>PO1</b> 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	PO2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	of prim the prin the prin the prin the prin stand th bles. <b>PO3</b> 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	d derived of measu of	d variab uring th uring St uring H ms and PO6 PO6 nd class fts. {An	PO7	PO8	PO9	nd press n, Vibra d Strair ol syste PO10 eration	sure Ition, Fl m for n PO11	ow neasurii PO12	ng diffe <b>PSO1</b> 1 1 1 1 1 1 1 1 1
Instrumentation & Control Systems	CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3 CO4 CO5 CO6 CO1 CO5 CO6	Able to measu Able to Able to Able to Able to Able to physic <b>PO1</b> 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	PO2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	of prim the prin the prin the prin the prin stand th bles. PO3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	d derived of measu of	d variat uring th uring SI uring H ms and PO6 PO6 Compression fts. {An compression	PO7	PO8 PO8 ion of level}	PO9	nd press n, Vibra d Strain ol syste PO10 eration	sure Ition, Fl m for n PO11 system ems.	ow neasurii PO12	ng diffe PSO1 1 1 1 1 1 1 nalyze t

r-conc	CO5	Under	stand, a	pply th	e psych	ometric	proper	ties &	proce	esses 1	to air co	onditior	ning load	d calcul	ations.
Refrigeration & Air-cond	CO6	Classif	y the ea	quipmer	nt and u	indersta	nd of v	vorkin	g of va	arious	air con	ditionir	ng syste	ms.	
riger		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Ref	C01	3	3	1			2	2						2	2
	C02	3	2	1			2	1						2	1
	C03	2	2	1			2	2						1	1
	C04	3	3	1			2	1						2	1
	C05	3	2	1			2	1						2	1
	C06	2	2	1			2	1						2	1
	CO1	compo of the	osite sla critical	bs, cylir radius c	nders an of insula	es or ne id spher tion in c	es und ase of	er stea steam	ady sta	ate co	ndition	s and ki al cable	new the	e import	
	CO2					nsfer fro oblems.	om a fii	nned s	surface	e and	the tim	e of coo	oling or	heating	in
	соз			ne signif transfe		of dimer	nsional	analy	sis and	d dime	ensionle	ess num	bers in	convec	tive
ifer	CO4				-	ncepts o so conce					ernal a	nd inte	rnal flov	ws and	use of
Heat Transfer	CO5			• •	•	ncepts o at excha				•		-	-	densatio	on and
He	CO6			nd apply liation s	•	ncepts o	of radia	tion h	eat tr	ansfei	r, radiat	ion law	s, conc	ept of s	паре
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	C01	3	3	1			2							1	1
	C02	3	2	1			1							1	1
	C03	3	2	1			1							1	1
	C04	3	2	1			1							1	0
	C05	3	3	1			1							1	1
	C06	3	2	1			2	2						1	1
	CO1	Under	standin	g basic (	concept	s of rob	ots and	l their	devel	opme	nt.				
	CO2	Select	approp	riate ac	tuators	and sen	sors fo	r a rol	oot ba	sed o	n specif	ic appli	cation		
Ň	СОЗ	Carry	out kine	ematic a	nd dyna	amic ana	alysis fo	or sim	ole sei	rial ma	anipulat	or			

I Robot	CO4	perfor	m traje	ctory pla	anning f	or a ma	nipulat	or by	avoid	ing ob	stracles	5			
Industrial Robotic	CO5	Transf	ormatio	on of mo	tion fo	r robot e	endeffe	ctor v	vith D	enavit	and Ha	artenbe	rg para	meters	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSC
	C01	3			1			1					1	2	1
	C02	2	1		1									2	1
	C03	2	1	1	1	1		1			1			2	1
	C04	2	1	1	1	1		1			1			2	1
	C05	2	1	1	1	1		1			1			2	1
	CO1			ne basic						iate ra	ite of h	eat trar	nsfer inv	olving s	stea
		state h	neat cor	nduction	n in sim	ole geon	netries	and ir	n fin.						
	coz	Under	stand th	ne funda	amenta	ls of con	vective	e heat	trans	fer pro	ocess ar	nd to ev	valuate	heat tra	nsfe
		coeffic	cients.												
		Analyz	e heat	exchang	er perf	ormance	es by us	sing th	e me	thod o	of log m	ean ter	nperatu	ire diffe	erend
	СОЗ	and N							2						
ab.							• • • • • • •							. (	
ērL	CO4			ne funda onstant						r proc	ess and	to eva	luate St	efan	
nsf		BOILZII	Idilli S C	onstant	anu en	lissivity	U grey	Sulla							
<b>m</b>							• •								
t Tra	CO5			ne funda		ls of Pha	• •			nsfer	process	s and to	o evalua	te rate	of
Heat Tra	CO5		stand th ransfer.			ls of Pha	• •			nsfer	process	s and to	o evalua	te rate	of
Heat Transfer Lab	CO5	heat ti	ransfer.		amental		ise chai	nge he	eat tra		-				
Heat Tra		heat tr	ransfer. PO2	PO3		s of Pha	se chai	nge he	eat tra		process PO10			PSO1	PS
Heat Tra	C01	heat tr <b>PO1</b> 3	PO2	<b>PO3</b>	amental		PO6	nge he	eat tra		-			<b>PSO1</b>	PS
Heat Tra	C01 C02	heat tr PO1 3 3	PO2 3 3	<b>PO3</b> 1 1	amental		PO6 2 2	nge he	eat tra		-			<b>PSO1</b> 1	PS
Heat Tra	C01 C02 C03	heat tr PO1 3 3 3 3	PO2 3 3 2	<b>PO3</b>	amental		<b>PO6</b> 2 2 2	nge he	eat tra		-			<b>PSO1</b>	PS
Heat Tra	C01 C02 C03 C04	heat the feat the heat the hea	<b>PO2</b> 3 3 2 2	<b>PO3</b> 1 1 1 1	amental		<b>PO6</b> 2 2 2 2 2	nge he	eat tra		-			<b>PSO1</b> 1 1 1	PS
Heat Tra	C01 C02 C03	heat tr PO1 3 3 3 3	PO2 3 3 2	<b>PO3</b> 1 1 1	amental		<b>PO6</b> 2 2 2	nge he	eat tra		-			PSO1 1 1 1 1	PS 
	C01 C02 C03 C04 C05	heat the pole of t	ransfer. <b>PO2</b> 3 3 2 2 2 2	<b>PO3</b> 1 1 1 1	PO4	PO5	<b>PO6</b> 2 2 2 2 2 2 2 2	PO7	PO8	PO9	PO10	P011	PO12	PSO1 1 1 1 1 1 1 1	<b>PS</b> 1 1 1
	C01 C02 C03 C04	heat the pole of t	PO2 3 3 2 2 2 2 nts will	<b>PO3</b> 1 1 1 1 1	PO4	PO5	<b>PO6</b> 2 2 2 2 2 2 2 2	PO7	PO8	PO9	PO10	P011	PO12	PSO1 1 1 1 1 1 1 1	<b>PS</b> 1 1 1
	C01 C02 C03 C04 C05	heat tr PO1 3 3 3 3 3 3 3 3 3 3 5 tuder variab	PO2 3 3 2 2 2 2 nts will les	<b>PO3</b> 1 1 1 1 1	PO4	PO5	PO6 2 2 2 2 2 2 2 2 2 2 2 2 2	PO7	PO8	PO9	PO10	P011	PO12	PSO1 1 1 1 1 1 1 1	<b>PS</b> 1 1 1
	C01 C02 C03 C04 C05	heat tr PO1 3 3 3 3 3 3 3 3 3 3 5 tuder variab	PO2 3 3 2 2 2 2 nts will les	<b>PO3</b> 1 1 1 1 1 be able	PO4	PO5	PO6 2 2 2 2 2 2 2 2 2 2 2 2 2	PO7	PO8	PO9	PO10	P011	PO12	PSO1 1 1 1 1 1 1 1	PS0 11 11 11
	C01 C02 C03 C04 C05	heat tr PO1 3 3 3 3 3 3 3 3 3 3 3 5 tuder variab Studer	PO2 3 3 2 2 2 1 ts will les nt will b	<b>PO3</b> 1 1 1 1 1 be able	PO4 FO4	PO5	PO6 2 2 2 2 2 2 2 cessary	PO7	PO8	PO9 instru	PO10	PO11	PO12	PSO1 1 1 1 1 1 hysical	<b>PS</b> 1 1 1
	C01 C02 C03 C04 C05 C01 C02	heat tr PO1 3 3 3 3 3 3 3 3 3 3 3 5 tuder variab Studer	PO2 3 3 2 2 2 1 ts will les nt will b	PO3 1 1 1 1 be able to	PO4 FO4	PO5	PO6 2 2 2 2 2 2 2 cessary	PO7	PO8	PO9 instru	PO10	PO11	PO12	PSO1 1 1 1 1 1 hysical	<b>PS</b> 1 1 1
	C01 C02 C03 C04 C05 C01 C02	heat tr PO1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	PO2 3 3 2 2 2 ts will les nt will b	PO3 1 1 1 1 be able to e able to	PO4 to selecto o perfor	PO5	PO6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO7	PO8 PO8 uired e proc	PO9 instru cedure	PO10 ment fc	PO11	PO12	PSO1 1 1 1 1 hysical	PS0 1 1 1 1
	C01 C02 C03 C04 C05 C01 C02 C03	heat the point of	PO2 3 3 2 2 2 1 ts will les nt will b	PO3 1 1 1 1 1 be able to e able to PO3	PO4 FO4	PO5	PO6 2 2 2 2 2 2 2 cessary	PO7	PO8 PO8 uired e proc	PO9 instru cedure	PO10	PO11	PO12 uring Pl toleren	PSO1 1 1 1 1 hysical	PS0 1 1 1 1
	C01 C02 C03 C04 C05 C01 C02 C03 C01	heat the pole of t	PO2 3 3 2 2 2 ts will les nt will b	<b>PO3</b> 1 1 1 1 1 be able to e able to PO3 2	PO4 to selecto o perfor	PO5 the prin PO5 2	PO6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO7	PO8 PO8 uired e proc	PO9 instru cedure	PO10 ment fc	PO11	PO12 uring Pl toleren PO12	PSO1 1 1 1 1 hysical	PS(
Metrology & Instrumentation Lab	C01 C02 C03 C04 C05 C01 C02 C03	heat the point of	PO2 3 3 2 2 2 ts will les nt will b	PO3 1 1 1 1 1 be able to e able to PO3	PO4 to selecto o perfor	PO5	PO6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PO7	PO8 PO8 uired e proc	PO9 instru cedure	PO10 ment fc	PO11	PO12 uring Pl toleren	PSO1 1 1 1 1 hysical	PS0 1 1 1 1 1

iics Lab	CO2			-		nat geor the resu					od on t	he mes	h, carry	out the	ž
Dynam	соз	Under	standin	g the va	liation	of the nu	umerica	al resu	ılt by o	compa	arison w	ith kno	wn ana	lytical r	esults
Computational Fluid Dynamics Lab	CO4		standin ransfer	g the nu	imerica	l result k	oy invol	king tł	ne phy	/sical µ	orinciple	es of flu	uid mecl	hanics a	nd
utatio		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
ndu	C01	3	2	2		3								1	1
Ō	C02	3	2	2		3								1	1
	C03	3	2	2		3								1	1
	C04	3	2	2		3								1	1
								-							
	CO1	To Un	derstan	d the M	echatro	nics sys	tem an	d prin	ciples	of va	rious ty	pes of s	sensors.		
	CO2	_				olid stat									
	соз	To Un	derstan	d variou	s Hydra	ulic and	Pneun	natic A	Actuat	ing sy	stems ι	used in	various	mechat	ronic sy
	CO4	To und	derstand	d variou	s digita	l electro	nics an	d syst	ems u	ised in	variou	s mech	atronic	systems	;
ics	CO5	to und system		l various	s interfa	acing and	d data a	acquis	ition s	systen	ns used	in vario	ous mec	hatroni	с
Mechatronics	CO6	To und	derstand	d variou	s Dynar	nic mod	els and	Analo	ogies t	o solv	e / desi	gnmec	hatronio	c systen	าร
Σ				_			_	_					_		
		P01	PO2	PO3	PO4	PO5	PO6		PO8	PO9	PO10	PO11		PSO1	PSO2
	C01	3	2	1	1		2	1	2	1			3	2	3
	C02	3	2	1	1		2		2	1			3	2	3
	C03	3	2	1	1		2	1	2	1			3	2	3
	C04	3	2	1	1		2	1	2	1			3	2	3
	C05	3	2	1	1		2	1	2	1			3	2	3
	C06	3	2	1	1		2	1	2	1			3	2	3
	601	Tours	loreton	d the be	cic func	lamenta		mout	oraid	od do	cian and	d manu	facturin		
	CO1		ierstafi(			amenta		mput		eu ue	sigii ani	u manu	iacturir	ı <u></u> .	
	CO2					tions of						•			
						geometr		-		-			-		
	CO3		-			deling et	cand	to visi	Jalize	now t	ne com	ponent	s Iook II	ke deto	re its
	CO4			<u>ø or fab</u> art prog		ng, impo	ortance	of gro	oup te	chnol	ogy, coi	nputer	aided n	rocess	plannin
				- 1	,	J,		- 0.			577 29.	1	P		

To learn about the computer aided quality control. CO5

CO6

CAD/CAM

To learn the overall configuration and elements of computer integrated manufacturing systems.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	2	3	2	3	2	1	-	3	3	1	3	1	3

	C02	3	2	3	3	3	2	1	-	-	1	1	1	1	
	C03	3	3	2	1	3	2	1	-	1	1	1	2	1	ſ
	C04	3	2	3	2	3	2	1	-	3	3	1	3	1	I
	C05	3	2	3	2	3	2	1	-	1	2	2	3	1	Ī
	C06	3	2	3	2	3	2	1	-	1	1	2	3	1	Î
				-	-		_	_	_			-		-	
	CO1	To exp	lain the	e fundan	nentals	in Finite	Eleme	nt Me	ethods	s with	Potenta	ail Ener	gy Appr	oach ar	n
	CO2	To exp	lain loc	al and g	lobal co	ordinat	e syste	ms an	d stifr	ness m	atrix fo	r two d	limensio	onal tru	IS
	CO3	To exp	lain loc	al and g	lobal co	ordinat	e syste	ms an	d stifr	ness m	atrix fo	r CST e	lement		
sp	CO4	-		-		ordinat	-					r 4 nod	ed Qua	dilatera	al
tho	CO5					of Pnuer					in FEM				
Met	CO6	То арр	oly the c	oncept	of Iron	values a	nd IGO	N Veo	tors i	n FEM					
ent		PO1	PO2	PO3	PO4	PO5	PO6	PO7		PO9	PO10	PO11	PO12	PSO1	ī
lem	C01	3	3	1	2		P06	-104	1908	-			2	1	ł
Finite Element Methods	C01	3	3 2	3	2	-	-	<u> </u>	<u> </u>	-	-	-	2	2	
Finit	C02		2				-	-	-					2	┥
		3		2	2	-	-	-	-	-	-	-	1		┥
	C04	3	2	3	3	-	-	-	-	-	-	-	1	2	┥
	C05	2	2	2	3	-	-	-	-	-	-	-	2	2	┦
	C06	2	3	3	1	-	-	-	-	-	-	-	3	2	I
	CO1		-	ources o	f energ	y and ur	ndersta	nd ab	out w	orking	of all c	ompon	ents of	the stea	a
	CO1 CO2	power	plant.			y and ur				_					
		power Descri	plant. be the f	unction	ing of ir	-	combus	tion h	ieat e	ngines	and ga	s turbir			
ering	CO2	power Descri Explair	be the f	unction workin	ing of ir g of hyd	nternal o	combus ric pow	tion h ver pla	ieat e ants ai	ngines nd hyc	and ga Iro proj	s turbir			
It Engineering	CO2 CO3	power Descri Explain about Under	be the f n about the clas	unction workinę	ing of ir g of hyd on and v e combi	nternal o lro elect vorking ned ope	ric pow	tion h ver pla	ieat e ints ai	ngines nd hyd	and ga Iro proj s.	s turbir ects.	ne powe	er plant.	
ower Plant Engineering	CO2 CO3 CO4	power Descri Explain about Under instrur	be the f n about the class stand a mentati	working sification	ing of ir g of hyd on and v e combi control.	nternal o lro elect vorking ned ope	ric pow of nucle	tion h ver pla ear po	ants an ower s	ngines nd hyd tation t powe	and ga Iro proj s. er plant	s turbir ects.	ne powe	er plant.	
Power Plant Engineering	CO2 CO3 CO4 CO5	power Descri Explain about Under instrur	be the f n about the class stand a mentati	working sification	ing of ir g of hyd on and v e combi control.	nternal o lro elect vorking ned ope	ric pow of nucle	tion h ver pla ear po	neat e ants an ower s fferen	ngines nd hyd tation t powe	and ga Iro proj s. er plant	s turbir ects.	ne powe	er plant	
Power Plant Engineering	CO2 CO3 CO4 CO5	power Descri Explain about Under instrur Discus	plant. be the f n about the clas stand a mentati s about	working sification bout the on and o power	ing of ir g of hyd on and v e combi control. plant ec	nternal o lro elect vorking ned ope	ric pow of nucle rations s and e	tion h ver pla ear po s of di nviron	neat e ants an ower s fferen	ngines nd hyd tation t pow tal con	and ga Iro proj s. er plant	s turbin ects.	ne powe	er plant	
Power Plant Engineering	CO2 CO3 CO4 CO5 CO6	power Descri Explain about Under instrur Discus	plant. be the f n about the clas stand a mentati s about	working sificatic bout the on and o power <b>PO3</b>	ing of ir g of hyd on and v e combi control. plant ec	nternal o lro elect vorking ned ope	combus ric pow of nucle erations s and e PO6	tion h rer pla ear po s of dir nviror	neat e ants an ower s fferen	ngines nd hyd tation t pow tal con	and ga Iro proj s. er plant	s turbin ects.	ne powe	er plant lant <b>PSO1</b>	
Power Plant Engineering	CO2 CO3 CO4 CO5 CO6 CO1	power Descri Explain about Under instrur Discus PO1 2	plant. be the f n about the class stand a mentati s about PO2 2	working sificatic bout the on and o power PO3 1	ing of ir g of hyd on and v e combi control. plant ec PO4 -	nternal o lro elect vorking ned ope	ric pow of nucle rations s and e PO6 2	tion h ver pla ear po of di nviron	neat e ants an ower s fferen	ngines nd hyd tation t pow tal con	and ga Iro proj s. er plant	s turbin ects.	ne powe	er plant lant PSO1 2	
Power Plant Engineering	CO2 CO3 CO4 CO5 CO6 CO1 CO2	power Descri Explain about Under instrur Discus PO1 2 2	plant. be the f n about the clas stand a mentati s about <b>PO2</b> 2	working sification bout the on and o power PO3 1	ing of ir g of hyd on and v e combi control. plant ec PO4 - -	nternal of lro elect vorking ned ope conomic PO5 - -	combus ric pow of nucle erations s and e PO6 2 2	tion h eer pla ear po of di nviron	neat e ants an ower s fferen	ngines nd hyd tation t pow tal con	and ga Iro proj s. er plant	s turbin ects.	ne powe	er plant lant PSO1 2 2	
Power Plant Engineering	CO2 CO3 CO4 CO5 CO6 CO1 CO2 CO3	power Descri Explain about Under instrur Discus <b>PO1</b> 2 2 2 2	plant. be the f n about the class stand a mentati s about <b>PO2</b> 2 2 2 2	working sificatic bout the on and o power PO3 1 1 1	ing of ir g of hyd on and v e combi control. plant ec PO4 - -	nternal of lro elect vorking ned ope conomic PO5 - -	ric pow of nucle rations s and e PO6 2 2 2	tion h ver pla ear po of di nviron <b>PO7</b> 2 2 1	neat e ants an ower s fferen	ngines nd hyd tation t pow tal con	and ga Iro proj s. er plant	s turbin ects.	ne powe	er plant lant PSO1 2 2 2	

	CO1	The student shall be able to use the liquid rapid prototyping techniques by identifying the suitable applications The student shall be able to use the solid 3D printing techniques by identifying the suitable													
Additive Manufacturing	CO2	applications													
	соз	The student shall be able to use the powder additive manufacturing techniques by identifying the suitable applications													
	CO4	The student shall be able to apply the rapid tooling techniques for different applications of manuf													
	CO5	The student shall be able to learn different data formats and software related to additive manufacturing													
	CO6	The student shall be able to identify different applications of additive manufacturing in various engineering and bio-medical fields													
		PO1	PO2	PO3	PO4	PO5	PO6		DOQ	PO9	<b>DO10</b>	PO11	PO12	PSO1	PSC
	C01	2	2	P03	P04	2	PUO	F07	PU0	P09	POIU	PUII	PUIZ	1	<b>F3</b>
	C01	2	2	2		2								1	
	C03	2	2	2		2								1	
	C04	2	2	2		2								-	1
	C05	2	2	2		2									1
	C06	2	2	2		2									1
re	CO2 CO3 CO4	To understand design for ease of machining.         To understand product design rules for sand casting.         To understand the product design for different weldments and forged components.													
lanufacture	CO5	To understand the design guidelines for extruded components and sheet metal components.													
Man		To understand the design guidelines for machining and joining of plastics.													
esign for Man	CO6	To unc	lerstan	d the de	sign gui	idelines	for mad	hinin	0	-	<u> </u>				
Design for Manufacture	CO6	To unc	lerstan PO2	d the de	sign gui PO4	PO5	for mac		PO8	-	- ·	PO11	PO12	PSO1	PSC
Design for Man	CO6									-	- ·	P011 -	<b>PO12</b>	<b>PSO1</b>	<b>PSC</b>
Design for Man		PO1	PO2	PO3	PO4		PO6		PO8	PO9	- ·				1
Design for Man	C01	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	PO4 -	PO5 -	PO6 -		PO8	<b>PO9</b>	- ·	-	1	1	<b>PSC</b> 1 1
Design for Man	C01 C02	<b>PO1</b> 3 3 3	<b>PO2</b> 2 2	<b>PO3</b> 1 1	PO4 -	PO5 - -	PO6 - -		PO8 - -	<b>PO9</b> 1 1	PO10 - -	-	1 1	1 1	1 1
Design for Man	C01 C02 C03	<b>PO1</b> 3 3 3 3	<b>PO2</b> 2 2 2 2	<b>PO3</b> 1 1 1	PO4 - -	PO5 - - -	PO6 - - -	PO7 - -	PO8 - - -	<b>PO9</b> 1 1 1	PO10 - -		1 1 1	1 1 1	1 1 1
Design for Man	C01 C02 C03 C04	PO1 3 3 3 3 3	<b>PO2</b> 2 2 2 2 2	<b>PO3</b> 1 1 1 1 1	PO4 - -	PO5 - - - -	PO6 - - - -	PO7 - -	PO8 - - -	<b>PO9</b> 1 1 1	PO10		1 1 1 1	1 1 1 1	1 1 1

	CO2	Use of	these t	ools for	any en	gineerin	g and r	eal tir	ne ap	olicati	ons					
ab		Acquir	e know	ledge or	n utilizir	ng these	tools f	or a b	etter	projec	t in the	ir curri	culum a	s well a	s they	
Σ	соз				ndle ind	dustry pi	roblem	s with	confi	dence	when i	t matte	ers to us	e these	tools	
CAD/CAM Lab		in thei	r Emplo	yment												
CAD																
U		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	C01 C02	3				3								1		
	C02	3				3								1		
	205	5				5										
	CO1	Will be able to Measure load, displacement and temperature using analogue and digital sensors.														
de	CO2	Able to Develop PLC programs for control of traffic lights, water level, lifts and conveyor belts.														
cs L	603	Able to Simulate and analyse PID controllers for a physical system using MATLAB.														
oni	CO3 CO4					nd hydr							ILAB.			
hatı			Deven			na nyar		curto	43118	/////						
Mechai		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	<b>PO9</b>	PO10	PO11	PO12	PSO1	PSO2	
-	C01	3		2		3										
	C02	3		2		3										
	C03	3		2		3										
	C04	3		2		3										
		]														
	CO1	To exp	lain the	e scope o	of Produ	uction P	lanning	Conti	rol an	d diffe	rent ty	pes of F	Producti	on syst	ems	
	CO2	To des	cribe di	ifferent	Forecas	ting Me	thods t	o esti	mate	Dema	nd					
_	СОЗ	To understand the concepts of Materials Management like EOQ, JIT, VED Analysis														
itrol																
Con	CO4	To Ana	alyse dif	ferent F	unctior	ns of PPC	Clike ro	uting	,schec	luling	and loa	ding				
and	605	Tadiff		to follow		م مام مام	hah									
ning	CO5		erentia	te ronov	v up an	d despat	LCN									
Production Planning and Control Mechatronics Lab	CO6	To sun	nmarise	the app	olicatior	ns of Cor	nputer	s in Pf	ъс							
lucti			<b>DQ2</b>	202	504	DOF	DOC	0.07	200	200	0010	D044	0042	2004	2002	
roc	C01	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	PO4	PO5	PO6	P07	804	PO9	PO10	<b>PO11</b> 2	PO12	PSO1	<b>PSO2</b>	
	C01	2	2		2							2			1	
	C02	3	-		-	1						3			1	
	C04	1	2			· · ·						3			1	
	C05	3			2							3			1	
	C06	2										3			1	

		CO1	Able to	o under	stand th	ie princ	iple of U	Iltrasor	ic Ma	chinir	ng pro	cess.					
	Unconventional Machining Processes	CO2	Able to	o under	stand th	ie princ	iple of E	lectro d	chemi	cal an	d cher	nical M	achinin	g proce	SS.		
		соз	Able to	Able to understand the principle of Electric Discharge Machining process.													
		CO4	Able to	o under	stand th	ie princ	iple of I	Electror	n Bear	n and	laser	beam N	/lachini	ng proc	ess.		
	ach	CO5	Able to	Able to understand the principle of Plasma Arc Machining process.													
	ventional M	CO6	Able to understand the principles of abbrasive Jet Machining process and water Jet Machining process and also finishining processes.														
	con		PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	Пn	C01	3				1							1	2	1	
		C02	2		2		2							1	2	1	
		C03	3		2		2							1	2	1	
		C04	3		2		2							1	2	1	
		C05	2		1		1							1	2	1	
		C06	2		2		2							1	2	1	
	Automobile Engineering	CO2 CO3 CO4 CO5	Describe the power transmission systems in automobiles         Describe the working principles of steering systems of automobiles         Discuss about the suspension, braking and electrical systems in automobiles         Understand the engine specification and safety systems in automobiles														
	Itomobile	CO6	Understand the engine emission control systems and engine servicing systems of automobiles														
	٩ſ		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	2	2	1			2	1						2	1	
		C02	2	2	1			2	1						2	1	
		C03	2	2	1			2	1						2	1	
		C04	2	2	1			2	1						2	1	
		C05	2	2	1			2	1						2	1	
		C06	2	2	1			2	2						2	1	
T		CO1				-	d unders expose		g of tl	ne tec	hniqu	es and i	method	ls of noi	n- destr	uctive	

CO2	Comprehensive, theory based understanding of the techniques and methods of non- destructive testing using ultra sonic tests are exposed.															
соз	Comprehensive, theory based understanding of the techniques and methods of non- destructive testing using liquid penetrant and eddy current tests are exposed.															
CO4 CO5 CO6	Comprehensive, theory based understanding of the techniques and methods of non- destructive testing using magnetic particle test are exposed.															
CO5	Comprehensive, theory based understanding of the techniques and methods of non- destructive testing using Infrared and thermal testing are exposed.															
CO6	Apply	Apply methods knowledge of non - destructive testing to evaluate products of railways, automobi														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
C01	<b>PO1</b>	PO2	PO3	PO4	<b>PO5</b>	PO6	<b>PO7</b>	PO8 -	PO9 -	PO10	PO11	<b>PO12</b>	<b>PSO1</b>	PSO2		
		PO2 -	PO3	PO4 -	<b>PO5</b> 1 1	PO6 -	<b>PO7</b> 1 1	PO8 -	PO9 -	PO10 -	PO11 -	<b>PO12</b> 1 1	<b>PSO1</b> 1	PSO2		
C01	2	PO2 - -	PO3 - -	PO4 - -	1	PO6 - -	<b>PO7</b> 1 1 1	PO8 - -	PO9 - -	PO10 - -	PO11 - -	1	1	PSO2 - -		
C01 C02	2	PO2 - - -	PO3	PO4 - - -	1	PO6 - - -	1 1	PO8 - - -	PO9	PO10	PO11	1	1	PSO2 - - -		
C01 C02 C03	2 2 2 2	PO2	PO3	PO4 - - - -	1 1 1	PO6 - - - -	1 1 1	PO8	PO9	PO10	PO11	1 1 1	1 1 1	PSO2		