

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 2

TEACHING-LEARNING AND EVALUATION

SUBMITTED BY

IQAC INTERNAL QUALITY ASSURANCE CELL INDRA GANESAN COLLEGE OF ENGINEERING

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Criteria 2	Teaching-Learning and Evaluation	350
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Key Indicator-2.6 Student Performances and Learning Outcome (90)

2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all programmes offered by the institution are stated and displayed on website

DEPARTMENT OF MECHANICAL RG-2021

INDRA GANESAN COLLEGE OF ENGINEERING IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India (Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25) DEPARTMENT OF MECHANICAL ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES2021 REGULATIONSMAPPING COs WITH POs AND PSOs

MA3351 Transform and Partial Differential Equation

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C201.1	Employ the Fourier series concept in Engineering Problems.	1,2,3,4,6,7,8,9,10,	100
C201.2	Identify the solution of Fourier transform in continuous time signals.	1,2,3,7,9,10,11,12	1,2,3
C201.3	Elucidate the difference equation using Z-transform.	1,2,3,4,5,9,10,11	1,2
C201.4	Compute the solutions of the partial differential equation.	1,2,3,4,6,7,8,9,10,	1,3
C201.5	Utilize the Fourier series for heat and wave equations	1,2,,4,5,8,10,11,	1,2
C201.6	Apply the basic laws for engineering module	1,2,3,4,5,6,11,12	1,2,3

Course	Level					Pr	ogram (Outcome	S					Program Specific Outcomes		
Out Comes	of CO	K3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	s K4
		PO-1	PO-2	PO-3	P0-4	P0-5	PO-6	P0-7	PO-8	PO-9	PO-	PO-	P0-12	PSO-1	PSO-2	PSO-
C201.1	K3, A2	2	1						~		10	11	1012	130-1	F50-2	3
C201.2	K2, A2	2	1				Notes		B:	~		,				
C201.3	K4, A2	2	1		*******y <u>+</u> 9				/							
C201.4	A2	2	1				Dr	G. Bala			Ph.D.,					
C201.5	A2	2	1				Inc	ira Ganesa	Principa In College		eering	Produce programs				
C201.6	A3	2	1					IG Valley	, Madurai	Main Roa	nd					
C201		2	1	A Distance in the				Manikan	dam, Tric	hy-620 01	2.	and the second second			27	E.

ME3351 Engineering Thermodynamics <u>COURSE OUTCOMES</u>

After successful completion of the course, the students should be able to

CO No.	Course Outcomes		B CO
C202.1	Explain the basic concepts and laws of thermodynamics	POs	PSOs
C202.2	Apply second law of thermodynamics to once and also 1	1,2,3,4,5,6,9,10,11	1,2
C202.2	and calculate chuopy in thermal systems	1,2,3,4,6,7,8,9,10,	1,3
C202.3	Calculate the properties of pure substance and explain the working of steam cycles	1,2,,4,5,6,7,8,11,12	1,2
C202.4	Distinguish between the properties of ideal and real gases		1,2
C202.5	Solve problems in psychrometric processes and gas mixtures.	1,2,3,4,5,10,11,12	1,2,3
C202.6	Apply thermodynamic laws for real time applications.	1,2,3,4,5,6,9,10	1,2
	and approactions.	1,2,3,4,5,6,7,8,9,10,	1,3

Course	Lovol	evel												Program Specific		
Out Comes	of CO	К3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	Sutcome: K4	s K4
		PO-1	PO-2	PO-3	P0-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO- 10	PO- 11	P0-12		PSO-2	PSO
C202.1	K2	2	1				0				10	**	-			3
C202.2	K2	3	2		1		$\left(\left\{ \right\} \right)$							1		
C202.3	K2	3				DOD								2		
C202.4	K2	2	1		tusnesper, enge	Dr. G. B	alakrisl	inan, M	E., Ph.D.,					2		
C202.5	K2	3	2		1	Indra Gan	Prine Prine	ipal						1		
C202.6	K2	3	2			Indra Gan IG Va	iey, Madu	Irai Main I	Road					2		
						Manik	andam T	richy-620	012	2	2	2	3	2		
C202		3	2		1			- generation in the	ال ميرينيا تكانيك (1999) 	2	2	2	3	2		

ME3391 Fluid Mechanics and Machinery

COURSE OUTCOMES

After successful completion of the course, the students should be able to

POs 1,2,3,4,5,6,9,10,11	1,2
	<i>س</i> ر ا
1004670000	
1,2,3,4,6,7,8,9,10,	1,3
And a second sec	1,2
	1,2,3
	1,2
	1,2,3,4,5,6,10,11,12 1,2,3,4,5,6,7,10,12 1,2,3,4,5,6,9,10,11 1,4,5,6,7,8,9,10,11

Course	Level					Pi	rogram (Jutcome	S					Program Specific Outcomes			
Out Comes	ofCO	К3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	s K4	
		PO-1	PO-2	PO-3	P0-4	PO-5	PO-6	P0-7	PO-8	PO-9	• PO-	PO-	PO-12	PSO-1	PSO-2	PSO-	
C203.1	K2	3	2			1	K				10	11		100 1	130-2	3	
C203.2	K2	3	2		11-100 (d - 140)	- (13:					100742		2			
C203.3	K2	2	1		WWwww		1				*******			1			
C203.4	K2	2	1		D	r G Ralal	ratio la secto							1			
C203.5	K2	2	1		D	r. G. Balal	Principal	n, <u>M.E., I</u>	Ph.D.,					1			
C203.6	K2	3	2		Inc 1	dra Ganesar IG Vallev.	College	of Engine	ering	2	2	2		1			
C203		3	2		1	Manikand	am, Trich	/-620 012		2	2	2	3	2			

CE3391 Engineering Materials and Metallurgy COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C204.1	Explain various binary alloy systems with respective invariantreaction.		
C204.2		1,2,,4,5,6,7,8,11,12	1,2
	Classify various heat treatment process and its significance	1,2,3,6,7,10,11,12	1,2,3
C204.3	Discuss various Ferrous and non-ferrous metals with its application	1,2,3,4,5,6,9,10,11	1,2
C204.4	Summarize the various non-metallic materials with its applications	1,2,3,4,5,6,7,8,9,10	1,2
C204.5	Compute the material properties by various material testingtechniques		-,-
C204.6	Apply the knowledge of material science on material selection forspecific requirements	1,2,,5,6,7,8,9,11	1,2
C-204.0	The selection forspecific requirements	1,2,3,4,5,6,11,12	1,2

Course	Level					Pı	rogram ()utcome	S					Program Specific Outcomes				
Out Comes	ofCO	К3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	s K4		
		PO-1	PO-2	PO-3	P0-4	PO-5	PO-6	PO-7	PO-8	P0-9	РО- 10	PO- 11	P0-12	PSO-1	PSO-2	PSO		
C204.1	K2	2									2					3		
C204.2	K2	3	2		1			/			2				1			
C204.3	K2	2		1		D	n C De	la la state			6				2			
C204.4	K2	2		1		D	1. G. Da	akrisn	nan, M.I	., Ph.D.,	2	5 mg			1			
				1				Princi	pal		2				1	-		
C204.5	K2	2				2 In	idra Gane	san Colle	ge of Eng	ineering	2				1			
C204.6	K2			2		**************************************	IG Valle Manika	ey, Madur Indam, Tr	ai Main R ichy-620 (oad 012. 2	2	2	3		-			
C204		2	2	1	1	2				2	2	2	3	-	2			

ME3392 Manufacturing Process COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C205.1	Distinguish the various casting methods for product making with their merits and demerits.	1,2,3,4,5,6,7,10,11,12	1,2,3
C205.2	Distinguish the various material joining process and associated defects with possible cause and cure.	1,2,3,5,6,9,10,11	1,2
C205.3	Discuss various metal forming process with its application	1,2,3,4,5,6,7,8,9,10	1,3
C205.4	Distinguish the various process involved in sheet metal forming with its applications and salientfeatures	1,2,4,5,6,8,9,10,	1,3
C205.5	Explain the various process in making of plastic components for engineering / domestic applications.	1,2,4,5,6,7,10,11,12	1,2,3
C205.6	Apply the manufacturing process suitable for making products.	1,2,6,7,10,11,12	1,2,3

Course	Level					P	rogram (Jutcome	S					Program Specific Outcomes		
Out Comes	ofCO	К3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	, K4
		PO-1	PO-2	PO-3	PO-4	PO-5	P0-6	PO-7	PO-8	PO-9	PO- 10	PO- 11	P0-12	PSO-1	PSO-2	PSO-3
C205.1	K2	2					15:				2	And and a second se			4	
C205.2	K2	2				1	-/-				Pre- les arrange				1	
C205.3	K3	2		the statement	-	0.0.1.1	. 1	NE DI	D		2				1	
C205.4	K2	2			Dr	G. Balak	1	, M.E., PI	1.U.,		2				1	Sector and an among the
C205.5	K2	2			Ind	Ira Ganesan	P <u>rincipal</u> College o	f Enginee	ring		2	77			1	
C205.6	K3	3		2		IG Valley, Manikanda				2	2	2	3		2	
C205		2		2						2	2	2	3		1	

ME3393 ENGINEERING MECHANICS COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes		
CARCA		POs	PSO:
C206.1	Compute the resultant force for planar and spatial system of forces.	1,2,5,6,7,10,11,12	
C206.2	Estimate the force, moment for planar and spatial system of forces		1,2,3
C206.3	Compute the centroid, second moment of area, center of gravity, product moment of inertia and massmoment of inertia	1,2,3,4,5,6,9,10,11	1,2,3
	massmoment of inertia.	1,3,4,5,6,7,8,9,10	1,3
C206.4	Compute the motion parameters like displacement, velocity, acceleration using dynamics.		
C206.5	Compute the reaction force by containing in it is a state of the state	1,2,,4,5,6,7,8,9,10,11	1,2,3
	Compute the reaction force by applying principles of friction and the motion parameters of rigid body.	1,2,3,4,5,6,11,12	1,2,3
C206.6	Apply the concepts of mechanics and work in force analysis		
	and the source analysis	1,2,3,4,7,10,11,12	1,2,

Course	Level					P	rogram (Jutcome	8						ram Spe Dutcome:	
Out Comes	ofCO	K3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	P0-8	P0-9	PO- 10	PO- 11	PO-12	PSO-1	PSO-2	PSO-
C206.1	K2	2	1					512			10	TT	-			3
C206.2	K 1	2	1			Alternative States and a second s									1	
C206.3	K 3	2	1	1		Dr	G Bala	krishn							1	
C206.4	К3	2	1			DI	G. Dala	Principa	IN, M.E.,	Ph.D.,	Ni (1944 - 1949)				1	
C206.5	K1	2	1.			Ind	ra Ganeca	n College							1	
C206.6	K3	3	2				IG Valley	, Madurai	Main Ro	eering					1	
C206		2	1				Manikan	dam. Tric	1v-620 01	2.					2	
															1	

ME3382 Manufacturing Processes Laboratory <u>COURSE OUTCOMES</u>

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C207.1	Domassing it is the start		
C207.2	Demonstrate the working of lathe machine	1,4,5,6,7,9,10,	1,2
C207.3	Compare the various operations performed in Lathe machines.	1,2,3,4,5,7,9,11	1,3
	Operate the shaper machine to fabricate simple shapes.	1,4,5,6,7,8,9,10	1,2
C207.4	Use the arc welding process for manufacturing basic structuralshapes.		-,
C207.5		1,2,4,5,10,11	1,2,3
CAOR /	Develop the green sand mould for a simple component	1,2,3,6,9,10,11	1,2
C207.6	C Apply the concept of manufacturing processes for makingmechanical product / working model.	1,3,4,5,7,8,10,11	1,2,3

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out	Level					Pr	ogram C	utcome	S					Prog	ram Spe	cific
Comes	ofCO	K3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	12				Dutcome	S
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6		The second second		A3	A3	A2	K4	K4	K4
C207.1	K1	1	1	1	1	10-3	10-0	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2	PSO-3
C207.2	K3	3	7	2	1										1	
C207.3	K4	2	3	2	2	1		AT ALL STATE AND A DESCRIPTION					many sector barrens and sector			
C207.4	К3	3	2	2		4										
C207.5	KI	1	1	1	1	1		Mandaga								
C207.6	К3	3	2	2	1	1			-10		-					
C107		2	2	2	1	1							_			

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012

ME3381 Computer Aided Machine Drawing COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	T	
0000 4	Assess optical fibre parameters using laser properties.	POs	PSOs
C208.1		1,2,3,4,5,6,7,9,10,11	1,2,3
C208.2	Measure the velocity of ultrasonic waves in a given liquid medium.	3,6,7,8,9,10,11	1,3
C208.3	Compute the wavelength of mercury spectrum using properties of light	2,4,5,6,7,8,10,11	1,3
208.4	Compute the thermal conductivity of a bad conductor using Lee's method.	1,3,4,5,6,7,10,11	1,2,3
208.5	Determine the modulus of a material using Hooke's law.	1,4,5,6,9,10,11	1,2
C208.6	Estimate water quality parameters such as dissolved oxygen content, chloride content of the water samples.	2,3,4,5,7,8,10,11	1,2,3

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out	Level of						Program O	utcomes		Name of Contrast o						-
Comes	co	K3	K4	K 4	K5	K3, K5, K6	A3	A2	40	1	·			Program	n Specific O	utcomes
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	A3	A3	A3	A3-	A2	K4	K4	K4
C208.1	K2	2	1				10-0	P0-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2	PSO-3
C208.2	K2	2	1													
C208.3	K2	2	1			1										
C208.4	K2	• 2	1	_										1		
C208.5	K2	2	1	***********		THE CASE / A	With the second							2		
C208.6	K2	2	1		*****									2		
C208		2	1											2		
	and the second se							1	\bigcirc					2		

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

GE3361 Professional Development COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	1	Dan
C209.1	Breakdown the ideas in to its elementary constituents, analyze and act after a meaning full thought process.	POs	PSOs
0000 0	process.	1,3,4,5,6,7,9,11	1,2,3
C209.2	Analyze the phrase and passage and explicitly pass on the ideas meaning fully.		~ 5.003
C209.3	Trange to incorpret the given phrase on the mark to the	1,2,3,4,5,7,9,11	1,3
		1,4,5,6,7,8,9,10	1,2
C209.4	Concentrate on the communication aspect of complicated ideas and respond positively.		-,
C209.5	Debate the issues and find the rudiments of the problem individually and as a group.	1,2,4,5,10,11	1,2,3
C209.6	Respond intelligently and seek clarification and Learned completely.	1,2,3,6,9,10,11	1,2
	o by the otor chaincauon and Learned completely.	1,2,3,4,6,7,8,9	1.2.2

Course	Level					Pr	ogram (Jutcome	es.						ram Sp	
Out Comes	of CO	К3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2		Outcome	
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	P0-9	P0-	PO-	PO-	K4 PSO-	K4 PSO-	K4 PSO-
C209.1	K2,A2					15.	/		_	-	10	11	12	1	2	3
C209.2	K3,A2					4					2		3			
C209.3	K3,A2			Г	r C Da					2	2		3			
C209.4	A2			L	r. G. Ba	lakrishna	<u>in, М.Е.,</u>	Ph.D.,	74744	7500	2		3			Dawney Prosperit Manager and
C209.5	A3			Ir	idra Gane	Principa san College	ofEngin				2		3			
C209.6	A2				IG-Valle	y, Madurai	Main Roa	d	and and and an other states	3	3		3			The second secon
C209					Manika	ndam, Trich	y-620 01	2.			2		3			Participan app
										3	2		3			

ME3493 Manufacturing Technology COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcome	DO.	PSOs
C211.1	S Distinguish the various casting methods for product making with their merits and demerits.	POs	
C211.2	o matching process and associated defects the	1,4,5,6,7,8	1,3
C211.3	Provoa Will IIS application	1,2,,4,5,6,7,8,9,10,11	1,2
C211.4	Distinguish the various process involved in sheet metal forming with its section of	1,2,3,4,5,7,9,11	1,2,3
C211.5	Explain the various process in making of plastic components for and	1,4,5,6,7,8,9,10	1,2
C211.6	Apply the suitable manufacturing process for making products.	1,2,4,5,10,11	1,2,3
APPIN	G OF COURSE OUTCOMPONIES	1,2,3,6,9,10,11	1,3

Course	Level					Pi	ogram (Outcome	s					Pro	gram Spe	cific
Out Comes	of CO	КЗ	K4	K4	K5	K3, K5, K6	A3	A2	A3	Á3	A3	42			Outcome	s
		PO-1	PO-2								ЛЭ	A 3	A2	K4	K4	K4
		10-1	PU-2	PO-3	PO-4	PO-5	P0-6	P0-7	PO-8	PO-9	P0-	PO-	DO 12	DOD 4		PSO-
C211.1	K2	2	1	1	1				1		10	11	PO-12	PSO-1	PSO-2	- 3
C211.2	K2	2	1		1	المربعين والمراجع المراجع		()	Li							The second second
C211.3	K2	2	1		-		No 1997 - 1995 - 199									-
C211.4	K2	2	1		*****\$* \$19985		Dr.	G. Bala	krishna	in, M.E., 1	Ph.D.,					n-y-isity (sour any) high
C211.5	K2	2	1						Principa							
C211.6	K2	2	1					IG Valley,	Madurai	of Engine Main Roa	d					
C211		2	1	1	1			Manikan	lam, Trich	y-620 012	2.					

Kinematics of Machinery COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes		
C212.1 E	Explain the principles of the second se	POs	PSO
	Explain the principles of kinematic pairs of planar mechanisms.	1,2,3,4,5,7,9,11	1,2,3
	Compute velocity and acceleration in planar mechanisms.	1,4,5,6,7,8,9,10	1,3
	Apply various motion principles to draw cam profiles	1,2,4,5,10,11	1,2
	Summarize the role of gear geometry in gear train.	1,2,3,4,5,6,7,10,11,12	1,2,3
212.6 E	Explain the mechanisms by algebraic and vector methods. Examine the kinematic interactions of various elements in a givenmachine tool.	1,3,4,5,6,9,10,11	1,2
DDDD	and the second s	1234567	
APPING (OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND P	1234567	r

Course	Level					Pr	'ogram (Outcome	5						gram Spe	
Out Comes	of CO	K3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	4.0			Outcome	5
		PO-1	P0-2	DO 0			1			AU	AS	A3	A2	K4	K4	K4
			FU-2	PO-3	PO-4	PO-5	P0-6	PO-7	PO-8	PO-9	PO-	PO-	DO 12	DCO I		PSO-
C212.1	K2	2					TEV				10	11	PO-12	PSO-1	PSO-2	3
C212.2	K2	2	1	1			03	/		r=====40		-			1	
C212.3	K2	3	1			Dr. G. B	alakris	hnan, N	1.E., Ph.D	.,					1	
C212.4	K2	2	1	1		Indra Ga		ncipal llege of E	ngineering						2	
C212.5	K2	2	1					lurai Mair	-	2	and the second second	•			1	197119 - A. M. C
C212.6	K2	3	2	2		Man	ikandam.	Trichy-62	20 012.						1	
C12		2	1	2						2	2	2	3		2	
										2	2	2	3		1	

CE3491 Strength of Materials COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C213.1	Estimate the stresses, strains and deformations in solids under axialloading	1,2,3,4,7,8,9,10,11	1,3
C213.2	Compute the bending and shearing stresses in beams subjected to loadings	1,2,3,4,5,7,9,11	1,2
C213.3	Examine the effect of torsion in shafts and springs	1,4,5,6,7,8,9,10	1,2,3
C213.4	Calculate the deflection and slopes in beams	1,2,4,5,10,11	1,2
C213.5	Compute the two dimensional stresses in thin cylinder and spherical shells	1,2,3,4,5,6,7,8,10,11	1,2,3
C213.6	Calculate the stresses and deformation of solids subjected to variousloads.	1,4,5,6,7,8	1,3

Course	x		Program Outcomes										Program Specific Outcomes					
Out Comes	Level of CO	КЗ	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4		
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	P0-7	PO-8	PO-9	PO- 10	PO- 11	PO-12	PSO-1	PSO-2	PSO-		
C213.1	К3	2	1			101120	C.	/							1			
C213.2	K3	3	2			Decr									2			
C213.3	K2	2	1			Dr. G. E		hnan, M ncipal	4.E., Ph.D	•7		A			1			
C213.4	K2	3	2			Indra Ga			ngineerin	3		r			2			
C213.5	K2	3	2			IG V	alley, Mao ikandam,	lurai Maii	Road	2		W.W.I			2			
C213.6	K2	·																
C213		3	2							2	2	2	3		2			

ME3451 Thermal Engineering COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C214.1	Distinguish the performance of different air standard cycles	1,2,3,4,5,7,9	1,3
C214.2	Summarize the working of compressor and factors influencing itsperformance in different stages.	1,4,5,6,7,8,9,10	1,3
C214.3	Explain the functioning and features of IC engines, components and auxiliaries	1,2,4,5,10,11	1,2,3
C214.4	Calculate the performance parameters of IC Engines and its associated systems.	1,2,3,4,5,7,9,11	1,2
C214.5	Discuss the concepts to improve the performance of Gas turbines.	1,3,4,5,6,9,10	1,2,3
C214.6	Examine the performance of compressors, engines and turbines.	1,2,3,4,7,8,10,11	1,2,5

Course			Program Outcomes													cific s
Out Comes	Level of CO	К3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		P0-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	РО- 10	PO- 11	P0-12	PSO-1	PSO-2	PSO- 3
C214.1	K2				/	(2	3			2			1		5
C214.2	K2	2		/			2	3			2			1		
C214.3	K2	2	Dr. G. B			E., Ph.D.,	2	3			2			1		
C214.4	K2		Indra Gar	Prine Prinesan Coll		nineering	2	3		114 1	2			1		
C214.5	K2			lley, Madu				3			2			-		
C214.6	K2	2		kandam, 1			2	3			2			· · · · · · · · · · · · · · · · · · ·		
C113		2	1				2	3			2			1		

ME3491 Theory of Machine COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C215.1	Illustrate the student conversant with commonly used mechanism for industrial application.	1,2,3,4,5,7,9	1,3
C215.2	Analyze the velocity and acceleration of a mechanisms analytically and synthesis of problems.	1,4,5,6,7,8,9,10	1,3
C215.3	Construct the cam profile and analyze effect of friction in different mechanisms.	1,2,3,4,5,10,11	1,2,3
C215.4	Determine the static and dynamic forces for mechanical systems and flywheels	1,2,3,4,5,7,9,10	1:2
C215.5	Design of belt and chain drive system	1,3,4,5,6,9,10	1,2
C215.6	Design gear mechanisms for a given motion or a given input/output motion or force relationship	1,2,3,4,5,7,9	1,2,3

Course						Pr	ogram (Outcome	25						ram Spo utcome	
Out Comes	Level of CO	K3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	.s K4
		PO-1	PO-2	PO-3	PO-4	PO-5	P0-6	PO 7	PO-8	PO-9	PO- 10	PO- 11	РО- 12	PSO-	PSO- 2	PSO-
C215.1	K2	2	1								10	**	14	*	4	3
C215.2	K2	2	1					~							1	
C215.3	K2	2	1		-totan in	Bothelinder	Dr. G.	1.000		M.E., Ph.D	•,				1	
C215.4	K2	2	1						ncipal				*******			
C215.5	K2	2	1							ngineering]				1	
C215.6	K3	3	2			NO.0000-00-1686		lalley, Ma hikandam							1	
C215		2	1		-							ſ			2	

Strength of Materials and Fluid Mechanics and Machinery Laboratory <u>COURSE OUTCOMES</u>

After successful completion of the course, the students should be able to

CO No.	Course Outcome s	POs	PSOs
C216.1	Compute the mechanical properties of materials.	1,2,3,4,5,7,9,10	1,3
C216.2	Calculate the deflection of beam by deflection method and springs using tensile and compression tests.	1,4,5,6,7,8,9,10	1,2
C216.3	Summarize the influence of heat treatment process in mechanical properties and micro structure.	1,2,3,4,5,10,11	1,2,3
C216.4	Apply Bernoulli's principle in various flow meters.	1,4,5,7,9,10	1,2,5
C216.5	Discuss the characteristics of hydraulic pumps and prime movers.	1,3,4,5,6,9,10	1,2,3
C216.6	Use flow meters and hydraulic machines for specific applications.	1,2,3,4,5,7,9	1,3

Course Out	Level	K3	YZ A	77.4	10 M M			Outcome	S						ram Spe Outcomes	
Comes	of CO	U.S	K4	K4	K5	K3, K5, K6	A3	A2	- A3	A3	A3	A3	A2	K4	K4	K4
		P0-1	PO-2	PO-3	PO-4	PO-5	PO-6	PQ-7	PO-8	P0-9	PO- 10	PO- 11	PO-12	PSO-1	PSO-2	PSO-
C216.1	K 1	2		1		1					-					1
C216.2	K3	3	2			N+		-/			**					1
C216.3	К3	3	2				Dr. G.			M.E., Ph.E).,	8881-8				2
C216.4	К3	3	2	2	1	3	Indra G	anesan Co	ncipal bliege of l	Engineerin	a					<u></u>
C216.5	К3	3	2	2	1	3	IG	alley, Ma	durai Ma	in Road	9		Land Contract of Designation		2	
C216.6	K2	2	1		1	2	IVIC	nikandam	Inchy~6	20 012.	2	2			1	
C216		3	2	2	1	2			3	3	3	3	3		- 2	2

THERMAL ENGINEERING LABORATORY COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C217.1	Illustrate the performance, Characteristics and Load test on DC Shunt motor and DC Generator	100400000	
	Analyze the measurement of three phase power and explain the performance of	1,2,3,4,5,7,9,10	1,3
C217.2	Induction motor & I ransformer	1,4,5,6,7,8,9,10	1,2
C217.3	Demonstrate the various electric circuits laws and theorems		
C217.4	Explain the various characteristics of different transducers	1,2,3,4,5,10,11	1,2,3
	and the various characteristics of unferent transducers	1,2,3,4,5,7,9,10	1.2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course	Level of						Program (lutcomes						Dec	6 10 A	
Out Comes	со	К3	K4	K4	KS	K3, K5, K6	A3	A2	A3	A3	64	10		Contraction of the second seco	Specific O	utcomes
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	P0-7		and the second se	A3	A3	A2	K4	K4	K4
C217.1	K2	2	1	1	1		1	PU-7	PO-8	P0-9	PO-10	PO-11	PO-12	PSO-1	PSO-2	PSO-3
		~	1	1			1							1		
C217.2	K2	2	1	1	1		1							1		
C217.3	K2	2	1	1	1											
C217.4	K2	2	1	1	1				gdddyddyydau Amegogogond						1	
C217		2	1	1	1		1		2	2	2	-	-		1	
							L		3	3	3	3	3	1	1	

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

ME3591 Design of Machine Elements COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	no	PSOs
C301.1	Familiar in various step involved in the design process	POs	
C301.2	Learned, compute and explain the concepts of steady and variable	1,2,3,4,5,7,9	1,3
	sausses in machine elements	1,4,5,6,7,8,9,10	1,2,3
C301.3	Learn to use standard data and apply the same for designing various machine elements	2,3,4,5,10,11	1,2
C301.4	Learned the principles, compute and predict the strengthrequirements for machine elements.		
C301.5	Analyze and demonstrate the design procedures for various machine	1,2,3,4,5,7,9,10	1,2
	civitolito.	1,3,4,5,6,9,10,11	1,2
C301.6	Able to Learned the design procedure of miscellaneous elements like seals, gaskets and connecting rod.	1,4,5,7,8,9,	1,2

Course	Level				The second s	Pr	ogram (Outcome	\$						gram Spe	
Out Comes	ofCO	К3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	Outcome K4	s K4
C 201 1		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO- 10	PO-	PO-12		PSO-2	PSO
C301.1	K3	3	2	2				11	1	/	10	TT.				3
C301.2	K2	2	1	1			9949994999999999999999999999	(\	2/					2		
C301.3	К3	3	2	2										1		-144444
C301.4	K2	2	1	1			Dr. G			1, M.E., Pl	1.D.,		Par. 1.07.	2		
C301.5	K2	2	1	1			* 1		Principal					1		CONCOMPLETE CONCERNMENT
			*		Margare -	MARCLASSIC	Indra	Ganesan	College o	f Enginee	ring		**************************************	1		
C301.6	K3	3	2	2	1		IC	Valley, N	ladurai N	ain Road				2		
C301		3	2	2	1		TV.	апікапоа	m, irichy	-620 012.			- 14	2		
					-									2		

ME3592 Metrology and Measurements COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSO
C302.1	Learned and explain about basic principles of measurements.	124567801011	-
C302.2	Demonstrate various method of measuring mechanical	1,2,,4,5,6,7,8,9,10,11	1,3
	parameters.	1,2,3,4,5,6,7,10	1,2,3
C302.3	Learned and explain the usage of the operations and applications of Linear, Angular measuring instruments.	1,2,3,4,5,6,7,8,9,	1,2
C302.4	Learned, explain and apply various measurementstechniques for measuring Threads, Gears, Surface Finish, Linear and Cylindrical Components.	1,2,3, 7,8,9,10,11	1,2
C302.5	Apply the usage of Quality control of components.	10 45 6 7 8 9 19 19	_
C302.6	Exhibit the knowledge in the application of Coordinate	1,2,,4,5,6,7,8,9,10,11	1,2
~~~~	Measuring Machine	1,2,3,4,5, ,9,10,11,	1,2

Course		Program Outcomes													Program Specific Outcomes		
Out Comes	Level of CO	K3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	.s K4	
C302.1		P0-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	P0-8	P0-9	PO- 10	PO- 11	PO- 12	PSO-	PSO- 2	PSO- 3	
	K2	2						07			2				the state of the s	5	
C302.2	K3	2							MAC by Low Commences		2				1		
C302.3	K3	2				2 D	r. G. Ba	lakrish	nan, M.I	I., Ph.D.,				ļ			
C302.4	K2	2				And		Princi			2					1	
C302.5	K3	2	1			Ir	idra Gane	san Colle	ge of Eng	ineering	2	V-10 7161 4.		1	1	1	
C302.6	K3 &	<u></u>						ey, Madu			2			1			
C302.0	A2	3	2				and the second se	andam, Ti			2	2	3		2		
C302		2	2			2			_	2	2	2	3	1		4	

### ME3681 CAD CAM COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C303.1	To provide the overview of evolution of automation OTM		
C303.2	To provide the overview of evolution of automation, CIM and its principles.	1,2,,4,5,6,7,8,9,10,11	1,3
C303.3	To learn the various Automation tools, include various material handling system. To train students to apply group technology and FMS.	1,2,3, 7,10,11,12	1,2,3
C303.4	To familiarize the computer aided process planning in manufacturing.	1,2,3,4,5, ,10,11	1,3
C303.5	To introduce to basics of data transaction information in formation	1,2,3,4,5,6,7,8,9,	1,2
C202 (	To introduce to basics of data transaction, information integration and control of CIM. Demonstrate the concept of parametric design for mechanical	1,2,,4,5,6,7,8,9,	1,2,3
C303.6	assembly.	1,2,, ,6,7,8,9,10,11	1,3

Course	Level	Program Outcomes													Program Specific Outcomes				
Out Comes	of CO	К3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	s K4			
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	P0-7	PO-8	PO-9	PO-	PO-	P0-12			DCO			
C303.1	K3	3	2				15				10	11		150-1	F30-2	3			
C303.2	K3	3	2				0.7		*/*****					2					
C303.3	K2	2	1						·······					1		*******			
C303.4	K2	2	1			D <mark>r. G. B</mark> ala	akrishr	ian. M.E	Ph.D.			112214		1					
C303.5	K2	2	1		20000000000000000000000000000000000000		Princip							1					
C303.6	K3 & A2	3	2		1	Indra Ganes IG Valle	an Colleg y, Madura	e of Engi ai Main Ro	neering- ad	2	2	2	-	1					
C303		3	2		1	Manika	idam, Tri	chy 620 0	12.	یک ا	4		3	2					
			200		1		_	-		2	2	2	3	1	Contraction of the local division of the loc				

### ME3691 ROBOTICS COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes		PSOs
C304.1	To learn about basics of robots and their classifications.	POs	
C304.2	Discuss the robot kinematics in various planar mechanisms	1,2,,4,5,6.9,10,11	1,3
	to realif about the concepts in robot dynamics	1,2,3,4,5,6,7,12	1,2,3
C304.4	Explain the concepts in trajectory planning and programming.	1,2,3,4,5,6,7,8,9,	1,3
	To know about the various applications of robots	,3,4,5,6, 9,10,11	1,2
C304.6	Apply the kinematics link and join for the robotics.	1,2,,4,5,6,7,8,9,	1,2,3
	G OF COURSE OUTCOMES	1,2,,4,57,8,9,10,11	1,3

Course	Level					Pr	ogram (	Outcome	s					Program Specif		
Out Comes	of CO	K3	K4	K4	K5	K3, K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	Jutcom	
		PO-1	PO-2	PO-3	PO-4	PO-5 PO-6	PO-6	5 PO-7	PO-8	PO-9	PO-	PO-	PO-	PSO-	K4 PSO-	K4 PSO-
C304.1	K2	2				6					10	11	12	1	2	3
C304.2	K2	2				15	9				2				1	3
C304.3	K2	2					5				2				4	
C304.4	K2	2	497446479-98499999		D 6		1.				2				1	
C304.5	K2	2			Dr. G	. Balakri		M.E., Ph.D	-,		2				1	**************************************
C304.6	K3 & A2	3		2		Ganesan Co			9		2				1	p. louin.
C304	A MAY	2			IĢ	Valley, Ma	durai Mai	n Road		2	2	2	3		2	
		Aut		2	M	lanikandam	Trichy-6	20 012.		2	2	2	3		1	

## CME384 POWER PLANT ENGINEERING COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.			
C305.1	Course Outcomes To study the coal based thermal power plants.	POs	PSOs
	To study the diesel gas turbing and the	1,2 ,6,7,8,9,10,11	1,3
		1,2,3, 10,11,12	1,3
		1,2,3,4,5, 10,11	1,3
C305.6	To study energy, economic and environmental issues of power plants Able to utilize Refrigeration and Provel	2,3,4,5,6,7,8,9	. 1,2
	igoration and Psychometric chart	4,5,6,7,8,9,10 1,2,4.,7,8,9	1,2,3
ALLIN	G OF COURSE OUTCOMES WITH PROGRAM OUTCOMES	· · · · · · · · · · · · · · · · · · ·	1,3

Course	Level					Pr	ogram (	Outcom	es					Program Specific			
Out Comes	of CO	K3	K4	K4	K5	K3, K5,	A3	A2	A3			T		Outcome		es	
		PO-1	PO-2	DO D		K6		114	AS	A3	A3	A3	A2	K4	K4	K4	
		101	FU-2	PO-3	PO-4	PO-5	PO-6	P0-7	PO-8	PO-9	PO-	PO-	PO-	DCO	The second	-	
C305.1	K2	2	1000						100	F0-9	10	11	12	PSO-	PSO-	PSO-	
C305.2	K2	2	1							10					2	3	
C305.3	K2	2								C.	>			1			
C305.4	K2	2			- 1055 1970-64	************				-				1			
C305.5	K2	2	1						Dr. G.	Balakr	shnan.	M.E., Ph.C	1	1		·	
C305.6	K2	2	1			11 ( 14 - 19 ) ( 14 )		3		Pr	incipal			1			
C305		2	1						Indra Ga	anesan Go (allev, Ma	ollege of durai Ma	Engineerin	g	1	Wolfshilds		
								3	Mar	nikandam	, Trichy-6	20 012.		1			

# ME3581 Metrology and Measurements Laboratory <u>COURSE OUTCOMES</u>

After successful completion of the course, the students should be able to

CO No.	the should be able to		
C306.1	Course   Outcomes .   Demonstrate the basic working concepts of the various measuring .	POs	PSOs
C306.2	instruments. Learned the difference in accuracy and precision among various techniques.	1,2,3,4,5,6,7,8	1,3
C306.3	Discuss the methods of calibrating the equipment.	2,3,4,5,6,7,8,9,	1,2
C306.4	Compute the displacement force on L	1,2,,4,5,6,7,10,11	1,2,3
C306.5 C306.6	Explain the various types of gear trains and simple mechanisms.	1,2, ,9,10,11	1,3
A DOWN	Utilize the principles learnt in kinematics and dynamics of machinery	1,2,3,4,5,6,7,8,9	1,3

Course Out	Level						Program (	)utcomes	Program Outcomes												
Comes	ofCO	К3	K4	K4	K5	K3, K5,	A3	A2	40					Program Specific Outcomes							
-		PO-1	PO-2	PO-3	PO-4	K6 PO-5			A3	A3	A3	A3	A2	K4	K4						
C306.1	K3	3			_	FO-5	P0-6	P0-7	PO-8	PO-9	PO-10	PO-11	DO 12			K4					
C306.2	K1	2	-			3				16	. /	10.11	PO-12	PSO-1	PSO-2	PSO-3					
		2	T					******	771761.0614101111-1-0700/01-771	115	./			2		2					
C306.3	K3	2								01											
C206 4	87.4								C D I	- /-						1					
C306.4	K1	2				Abry any service	7	D	r. G. Bal	akrishr	ian, M.E	. Ph.D.			With the second second second	1					
C306.5	K3	2	1							Princin	al										
		1998	1					In	dra Ganes	an Colled	e of Engir	100min m				1					
C306.6	K2	3	2						IG Valle	v. Madura	i Main Ro	leening		1		1					
0204						3	.		Manikar	dam Tri	chy-620 0	Dad				1					
C306		2	2	2	1	. 3				iuani, m	.ny-620 Q.	12.		2		2					
				Contraction of the			AN ISSUE		3	3	3	3	2								
												5	3			2					