

# Department of Mechanical Engineering

Bengaluru-560107

2018-19

1<sup>st</sup> YEAR

DEPARTMENT	ME	SEMESTER	1	COURSE CODE	18EGDL15	COURSE ID	C105
COURSE TITLE		ENGINEERIN	G GRAPHI	CS			
COURSE OUTCO	OME NO		COUR	SE OUTCO	ME STATEM	ENTS	
		Able to hav drafting	e the kno	wledge of	different co	oordinate sys	stem and
C105.1		software sol	lid edge V	/19			
C105.2	2	Able to draw the orthographic projections of points, lines, planes, solids and isometric projections					
C105.3	}	Able to develop the lateral surfaces of prisms and pyramids					
C105.4	ļ	Able to develop the lateral surfaces of prisms and pyramids					
C105.5	;						
DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18ME25	COURSE ID	C115
COURSE TITLE		ELEMENTS C	F MECHA	NICAL ENG	INEERING		
COURSE OUTCO	OME NO		COUR	SE OUTCO	ME STATEM	ENTS	
C115.1		Able to gai prime mov conditioner.	n knowle vers, robo	dge on va ots & au	rious energ tomation,	y resources, refrigeration	, boilers, 1 & air
C115.2	2	Able to und process, boi	lerstand d lers, IC e	ifferent jo ngines, ref	ining techni rigeration a	ques, metal nd air condi	removal tioner
C115.3	}	Able to apply and use of various engineering materials, refrigeration & air conditioner and different machine tool operation.					
C115.4	ļ	Able to co welding pr system	mpare be rocess, r	etween 2 nachining	strokes and operations	d 4 stroke and refr	engines, igeration
C115.5							



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2<sup>nd</sup> YEAR

DEPARTMENT	ME	SEMESTER	3	COURSE CODE	17ME32	COURSE ID	C202
		MATERIAL S	SCIENCE				<u> </u>
	MF NO		0		ΟΜΕ STATEN	<b>MENTS</b>	
C202.1		Able to unde behavior	erstand the	e properties	of engineeri	ng materials an	d their
C202.2		Able to desc composite n	ribe the pr naterials	rocedure of	heat treatme	ent and process	ing of
C202.3		Able to understand the potentialities of various materials and material selection procedure					
C202.4							
C202.5							
DEPARTMENT	ME	SEMESTER	3	COURSE CODE	17ME33	COURSE ID	C203
COURSE TITLE		BASIC THERMODYNAMICS					
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS					
		Able to learn a	about the fur	ndamentals of	energy interact	ions, laws of therr	nodynamics
C203.1		along with vari	ous processe	s involved and	l properties.		
C203.2		Able to understar property.	nd and obtain	the relationship	between differen	t temperature scale, e	nergy and its
C203.3		Able to apply c	conservation	of energy, the	laws of thermoc	lynamics in various	systems.
C203.4							
C203.5						1	<b></b>
DEPARTMENT	ME	SEMESTER	3	COURSE CODE	17ME34	COURSE ID	C204
COURSE TITLE		MECHANICS	OF MATE	RIAL		-	
COURSE OUTCO	ME NO		COL	JRSE OUTC	OME STATEN	IENTS	
		Able to def	fine Elast	ic Properti	es of Mater	ials, Different	types of various
C204.1		structural m	nembers.		aus una en		, fullous
C204.2		Able to con	nprehend	the relation	on for stress	and strain dist	tribution,
		Shear force columns fro	and Bend om failure	ding mome theories	ent diagram,	Torque and sta	ability of
C204.3		Able to ap	oply the	known and	d comprehe	nded concept	s and to
		calculate th Beams, Sha	e stresses afts, and C	, strains ar Columns.	nd strain ene	ergy in Bars, C	ylinders,
C204.4		Able to anal analytically a distribution	yze the str and graphi for thick a	esses and s cally for str nd thin cylir	trains for plan uctural mem nders.	ne stress condit bers and analyz	ion e stress



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C204.5								
DEPARTMENT	ME	SEMESTER	3	COURSE CODE	17ME35A	COURSE ID	C205	
COURSE TITLE		METAL CAS	FING AND	WELDING	•			
COURSE OUTCO	ME NO		COL	JRSE OUTC	OME STATEN	MENTS		
C205 4		Able to gai	n Knowle	dge about	casting, wel	ding, soldering	g brazing	
C205.1		process and	1 SOII0111Ca		1.1.	1. 1. 0		
C205.2		Able to des inspection i methodolog	scribe mo methods a gies.	ids, castin	gs, welding, es. Also desc	cribe soldering	process, , brazing	
C205.3		Able to ap depending	Able to apply different casting, joining and inspection methods depending on requirement.					
C205.4								
C205.5								
DEPARTMENT	ME	SEMESTER	3	COURSE CODE	17ME36A	COURSE ID	C206	
COURSE TITLE		COMPUTER AIDED MACHINE DRAWING						
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS						
C206.1		Able to draw orthographic projections and sectional views o standard primitives and Machine components.					views of	
C206.2		Able to dra joints and c	aw orthog ouplings.	raphic pro	ojections of	standard threa	d forms,	
C206.3		Able to cre using Solid	ate/model edge.	parts and	l assembly o	f machine cor	nponents	
C206.4								
C206.5								
DEPARTMENT	ME	SEMESTER	3	COURSE CODE	17MEL37A	COURSE ID	C207	
COURSE TITLE		MATERIAL 7	TESTING L	AB				
COURSE OUTCO	ME NO		COL	JRSE OUTC	OME STATEN	MENTS		
		Able to gai	n knowled	dge to con	duct materia	al tests to find	different	
C207.1		treatment p	rocesses a	ind non- de	estructive tes	sts.	the neut	
C207.2		Able to un the materia	derstand a	and demo	nstrate diffe	rent microstru	ctures of	
C207.3		Able to im material de	plement d pending o	lifferent st n the appli	rength and o	characteristic 1	ests of a	
C207.4								
C207.5								



Department of Mechanical Engineering

DEPARTMENT	ME	SEMESTER 3 COURSE 17MEL38A COURSE ID C203						
COURSE TITLE		FOUNDRY A	ND FORGI	NG LAB				
COURSE OUTCO	ME NO		COL	JRSE OUTC	OME STATEN	IENTS		
C208.1		Able to have and its test operations a	ve the Kn sting, und along with	owledge of lerstanding the tools	on the prepa g on basic involved in	ration of foun foundry and each of the pro	dry sand forging ocess	
C208.2		Able to des identify the quality of the	scribe diff importan he mould.	erent para ce of sand	meters invol I testing and	lved in sand n its effects on	noulding, the final	
C208.3		Able to per the desired	rform bas shapes an	ic foundry d with the	and forgin prescribed c	g operations to quality.	to obtain	
C208.4	Able to compare and Analyse the effect of sand and its composition on the strength of the mould using various testing procedures.						and its is testing	
C208.5								

DEPARTMENT	ME	SEMESTER	SEMESTER 4 COURSE 17ME42 COURSE ID C212						
COURSE TITLE		Kinematics of	of Machine	ry					
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS							
C212.1		Able to illu	Able to illustrate the terminology of mechanisms						
C212.2		Able to ide of planar m	entify the hechanism	degrees ons.	of freedom a	and motion c	haracteristics		
C212.3		Able to promote the mathematic	edict the cally.	motion of	f planar me	chanisms gra	phically and		
C212.4		Able to des profile	scribe the	characteri	stics of mot	ion in gears	with involute		
C212.5		Able to calco gear train d	ulate the v rive.	elocity rati	o or number	of teeth for ar	ı epicyclic		
C212.6		Able to drav	v the profi	le of the ca	m for a desir	ed follower m	otion.		
DEPARTMENT	ME	SEMESTER	4	COURSE CODE	17ME43	COURSE ID	C213		
COURSE TITLE		Applied The	rmodynam	nics					
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS							
C213.1		Able to ou know how	Itline the fuel burns	Gas pow s and their	er cycles, w thermodyna	vapour powe amic propertie	r cycles and es.		



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C213.2		Able to excycle, steam	Able to explain the performance and mechanisms of gas power cycle, steam power cycle and refrigeration system						
C213.3		Able to con plant, IC system.	mpute the Engine,	e performa Reciproca	nce of gas pating compo	power plant, ressors and	steam power refrigeration		
C213.4									
C213.5									
DEPARTMENT	ME	SEMESTER	4	COURSE CODE	17ME44	COURSE ID	C214		
COURSE TITLE		Fluid mecha	nics						
COURSE OUTCO	ME NO								
C214.1		Able to une kinematics,	derstand t	the basics of bounda	of fluid pro ry layer in fl	perties, static uid flow as w	cs, dynamics, vell as CFD		
C214.2		Able to exp turbulent homogenei	Able to explain the principle of buoyancy and flotation, laminar and turbulent flow, flow across body and checking dimensional homogeneity						
C214.3		Able to cal drag and ap	culate the plying B	e key flui ernoulli's	d properties, equation to o	, meta centri devices	c height, lift,		
C214.4									
•== ··· ·									
C214.5									
C214.5	ME	SEMESTER	4	COURSE CODE	17ME45B	COURSE ID	C215		
C214.5 DEPARTMENT COURSE TITLE	ME	SEMESTER Machine Too	4 Dis and Ope	COURSE CODE erations	17ME45B	COURSE ID	C215		
C214.5 DEPARTMENT COURSE TITLE COURSE OUTCOM	ME ME NO	SEMESTER Machine Too	4 ols and Ope CC	COURSE CODE erations DURSE OUT	17ME45B	COURSE ID	C215		
C214.5 DEPARTMENT COURSE TITLE COURSE OUTCOM	ME ME NO	SEMESTER Machine Too Able to d mechanics	4 Ols and Ope CC escribe	COURSE CODE erations DURSE OUT	17ME45B	COURSE ID EMENTS Is, machinin naterials.	c215 g processes,		
C214.5 DEPARTMENT COURSE TITLE COURSE OUTCOM C215.1	ME ME NO	SEMESTER Machine Too Able to d mechanics Able to exp materials, t machining	4 Ols and Ope CC escribe of machin plain the processes	COURSE CODE erations DURSE OUT various m ning and cu mechanism enclature,	<b>17ME45B</b> <b>COME STATE</b> nachine tool utting tool m n of machini tool wear, to	COURSE ID EMENTS Is, machinin naterials. ing processes pool life and e	C215 g processes, s, cutting tool economics of		
C214.5 DEPARTMENT COURSE TITLE COURSE OUTCON C215.1 C215.2	ME ME NO	SEMESTER Machine Too Able to d mechanics Able to exp materials, t machining Able to est on surface	4 Dis and Ope Co escribe of machin plain the r processes imate the finish, too	COURSE CODE erations DURSE OUT various m ning and cu mechanism enclature, e effect of ol wear, to	<b>17ME45B</b> <b>COME STATE</b> nachine tool utting tool m n of machinin tool wear, to machining ol life and m	COURSE ID EMENTS Is, machinin naterials. ing processes pool life and e processes an nachining effi	C215 g processes, s, cutting tool economics of d parameters ciency.		
C214.5 DEPARTMENT COURSE TITLE COURSE OUTCON C215.1 C215.2 C215.2 C215.3 C215.4	ME	SEMESTER Machine Too Able to d mechanics Able to exp materials, t machining Able to est on surface	4 Dis and Ope Co describe wo of machin plain the processes imate the finish, too	COURSE CODE erations DURSE OUT various m ning and cu mechanism enclature, e effect of ol wear, to	<b>17ME45B</b> <b>COME STATE</b> nachine tool utting tool m n of machini tool wear, to machining ol life and m	COURSE ID EMENTS Is, machinin naterials. ing processes pol life and e processes an nachining effi	C215 g processes, s, cutting tool economics of d parameters ciency.		
C214.5 DEPARTMENT COURSE TITLE COURSE OUTCOM C215.1 C215.2 C215.2 C215.3 C215.4 C215.5		SEMESTER Machine Too Able to d mechanics Able to exp materials, t machining Able to est on surface	4 Dis and Ope Co escribe w of machin plain the processes imate the finish, too	COURSE CODE erations DURSE OUT various m ning and cu mechanism enclature, e effect of ol wear, to	<b>17ME45B</b> <b>COME STATE</b> nachine tool utting tool m n of machini tool wear, to machining ol life and m	COURSE ID EMENTS Is, machinin haterials. ing processes pol life and e processes an hachining effi	C215 g processes, s, cutting tool economics of d parameters ciency.		
C214.5 DEPARTMENT COURSE TITLE COURSE OUTCOM C215.1 C215.2 C215.3 C215.4 C215.5 DEPARTMENT	ME	SEMESTER Machine Too Able to d mechanics Able to exp materials, t machining Able to est on surface to SEMESTER	4 Dis and Ope CC escribe w of machin plain the processes imate the finish, too	COURSE CODE erations DURSE OUT warious m ning and cu mechanism enclature, e effect of ol wear, too	17ME45B	COURSE ID EMENTS Is, machinin haterials. ing processes pool life and e processes an hachining effi	C215 g processes, s, cutting tool economics of d parameters ciency. C216		
C214.5 DEPARTMENT COURSE TITLE COURSE OUTCOM C215.1 C215.3 C215.4 C215.4 C215.5 DEPARTMENT COURSE TITLE	ME	SEMESTER Machine Too Able to d mechanics Able to exp materials, t machining Able to est on surface to SEMESTER Mechanical I	4 Dis and Ope CC escribe of machin plain the r processes imate the finish, too 4 Measurem	COURSE CODE erations DURSE OUT various m ning and cu mechanism enclature, e effect of ol wear, too COURSE CODE ents and Me	17ME45B TCOME STATE hachine tool utting tool m h of machining tool wear, to machining ol life and m 17ME46B etrology	COURSE ID EMENTS Is, machinin naterials. ing processes pool life and e processes an nachining effi	C215 g processes, s, cutting tool economics of d parameters ciency. C216		



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C216.1		Define terr equipment	Define terms associated to metrology, measurements, measuring equipment's.						
C216.2		Explain dif	ferent me	asuring in	struments ar	nd their utiliz	ation.		
C216.3		Illustrate temperature	the meas e, screw a	surement nd gear pr	of force, ofile.	torque, pres	sure, strain,		
C216.4									
C216.5									
DEPARTMENT	ME	SEMESTER	SEMESTER 4 COURSE 17MEL47B COURSE ID C217 CODE						
COURSE TITLE		Mechanical	Measurem	ents and Me	etrology Lab				
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS							
C217.1		Able to g measuring	Able to gain knowledge on how to use different metrology measuring instruments						
C217.2		Able to und	derstand a	nd demon	strate differe	ent measuring	g instruments		
C217.3		Able to illutemperature	istrate the	e measurer and gear p	nent of forc rofile etc.,	e, torque, pre	essure, strain,		
C217.4									
C217.5									
DEPARTMENT	ME	SEMESTER	4	COURSE CODE	17MEL48B	COURSE ID	C218		
COURSE TITLE		Machine Sho	op						
COURSE OUTCO	ME NO		CC	OURSE OUT	COME STATE	EMENTS			
C218.1		Able to gai	n knowle	dge on dif	ferent machi	ning method	ologies		
C218.2		Able to des	scribe and	demonstr	ate machinir	ng operations	•		
C218.3		Able to illurequirement	ustrate di it.	fferent ma	chining tecl	nniques depe	nding on the		
C218.4									
C218.5									



# Department of Mechanical Engineering

Bengaluru-560107

3<sup>rd</sup> YEAR

DEPARTMENT	ME	SEMESTER	MESTER     5     COURSE CODE     15ME51     COURSE ID     C301       NAGEMENT AND ENGINEERING ECONOMICS							
COURSE TITLE		MANAGEM	IENT AND	ENGINEE	RING ECO	NOMICS				
	ME NO		COU	RSE OUTCO	ME STATEN	<b>AENTS</b>				
		Understand	l needs	functions	roles sco	me and evol	ution of			
		Manageme	nt: Impo	rtance. pr	roles, see	Plann	ing and			
		hierarchy o	of plannin	g and also	analyze its	types.				
C301.1			-	-						
		Understand	ling of w	hy econo	mics Is im	portant to en	igineers,			
C301.2		basic intere	est calcula	itions.						
		Discuss De	ecision m	aking, Org	ganizing, St	taffing, Direc	ting and			
C301.3		Controlling	5							
		How to a	rrive at	the Sellin	g Price of	f a compone	ent, cost			
		component	s involve	d in manuf	facturing pr	oduct.				
C301.4		Ta avalvata								
		10 evaluate	lo evaluate assests/ projects and choose alterntaives based on the investment today							
C301.5		investment	louuy				r			
DEPARTMENT	ME	SEMESTER	5	COURSE	15ME52	COURSE ID	C302			
		DINIANGO		CODE						
COURSE TITLE		DYNAMICS	S OF MAC	HINES						
COURSE OUTCO	OME NO		COU	RSE OUTCO	OME STATEN	<b>MENTS</b>				
C302.1		Describe m different m	otion, sta echanism	tic and dynamic and mac	namic equi	librium condi nts.	tions for			
		Understand	l force	transmissio	on and ba	alancing in	different			
		mechanism	is and als	o principle	es of vibrat	tions of singl	e degree			
C302.2		of freedom	mechani	cal system	<u>s</u>		<u> </u>			
		Solve pro	blems of	n force t	ransmissio	n and balar	icing in			
C202 2		different in	reedom m	ns and vit	oration cha	tracteristics (	of single			
		Explain for	rce trans	mission a	and vibrati	on character	istics in			
C302.4		different m	echanical	systems.	ind violati	on enuracien	istics in			
C302.5				<i>.</i>						
DEPARTMENT	ME	SEMESTER	5	COURSE	15ME53	COURSE ID	C303			
				CODE						
COURSE TITLE		TURBO MA	CHINES							
COURSE OUTCO	OME NO		COU	RSE OUTCO	OME STATEN	<b>IENTS</b>				
		Able to	define b	asic defir	nitions of	turbomachi	nes and			
		sketching	of ve	locity tr	iangles f	or differen	t flow			
C303.1		turbomachines.								
		Able to de	rive or C	Obtain exp	ressions fo	or different fl	ow type			
C303.2		turbomachi	ines durin	ig energy t	ransfer.					
		Able to a	apply the	e derived	equations	and knowl	edge of			
C303.3		turbomachi	ines in so	lving nume	erical probl	ems				



# Department of Mechanical Engineering

C303.5DEPARTMENTMESEMESTER5COURSE CODE15ME54COURSE IDC304COURSE TITLEDESIGN OF MACHINE ELEMENTS-1COURSE OUTCOME NOCOURSE OUTCOME STATEMENTSUnderstand basic of Mechanical Design procedure, material properties and selection of material, codes and standards.Design machine components for static, impact and fatigue strength.C304.2Design fasteners, shafts, keys, couplings, riveted and welded joints,Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.C304.5DestentersSEMESTER5COURSE CODECOURSE IDC305.COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSTo understand the importance and different types of non- traditional machining methods.Able to explain principle and procedure of various NTM processesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4COURSE ISMESTER5COURSE ISMESTERCOU	C303.4								
DEPARTMENTMESEMESTER5COURSE CODE15ME54COURSE IDC304COURSE TITLEDESIGN OF MACHINE ELEMENTS-1COURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC304.1Understand basic of Mechanical Design procedure, material properties and selection of material, codes and standards.C304.2Design machine components for static, impact and fatigue strength.C304.3Design fasteners, shafts, keys, couplings, riveted and welded joints,C304.4C304.5DEPARTMENTMESEMESTER5COURSE TITLENON TRADITIONAL MACHININGCOURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC305.1To understand the importance and different types of non- traditional machining methods.Able to explain principle and procedure of various NTM processesC305.4C305.5DEPARTMENTMESEMESTER5COURSE IIILESEMESTERC305.3Diplications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE IIILEAUTOMATION AND ROBOTICS	C303.5								
COURSE TITLEDESIGN OF MACHINE ELEMENTS-1COURSE OUTCOME NOCOURSE OUTCOME STATEMENTSUnderstand basic of Mechanical Design procedure, material properties and selection of material, codes and standards.Design machine components for static, impact and fatigue strength.Design fasteners, shafts, keys, couplings, riveted and welded joints,Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.COURSE 15ME554COURSE ITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSTo understand the importance and different types of non- traditional machining methods.Able to explain principle and procedure of various NTM processesCOURSE JEMESTERS COURSE parameters, limitations, advantages and applications of different NTM processes.COURSE OUTCOME NOCOURSE OUTCOME STATEMENTSTo understand the importance and different types of non- traditional machining methods.Able to explain principle and procedure of various NTM processesGaos.3 applications of different NTM processes.COURSE ITILEME SEMESTER5COURSE COURSECOURSE ITILEAUTOMATION AND ROBOTICS	DEPARTMENT	ME	SEMESTER	5	COURSE	15ME54	COURSE ID	C304	
COURSE TITLE         DESIGN OF MACHINE ELEMENTS-1           COURSE OUTCOME NO         COURSE OUTCOME STATEMENTS           C304.1         Understand basic of Mechanical Design procedure, material properties and selection of material, codes and standards.           C304.2         Design machine components for static, impact and fatigue strength.           Design fasteners, shafts, keys, couplings, riveted and welded joints,         Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.           C304.3         Desmestrer         5         COURSE         COURSE ID         C305           DEPARTMENT         ME         SEMESTER         5         COURSE         COURSE ID         C305           COURSE OUTCOME NO         COURSE OUTCOME STATEMENTS         To understand the importance and different types of non-traditional machining methods.         Able to explain principle and procedure of various NTM processes           C305.3         Illustrate the process parameters, limitations, advantages and applications of different NTM processes.         C305.4         COURSE IS         COURSE ID         C306           COURSE TITLE         AUTOMATION AND ROBOTICS         COURSE ID         C306         COURSE ID         C306					CODE				
COURSE OUTCOME NO         COURSE OUTCOME STATEMENTS           C304.1         Understand basic of Mechanical Design procedure, material properties and selection of material, codes and standards.           C304.2         Design machine components for static, impact and fatigue strength.           C304.3         Design fasteners, shafts, keys, couplings, riveted and welded joints,           Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.           C304.4         component.           C304.5         DEPARTMENT           ME         SEMESTER         5           COURSE OUTCOME NO         COURSE OUTCOME STATEMENTS           C305.1         To understand the importance and different types of non-traditional machining methods.           Able to explain principle and procedure of various NTM processes           C305.3         applications of different NTM processes.           C305.4         COURSE ITLE           CAUSS.5         COURSE INTERS	COURSE TITLE		DESIGN OF	MACHIN	E ELEME	NTS-1			
C304.1Understand basic of Mechanical Design procedure, material properties and selection of material, codes and standards.C304.2Design machine components for static, impact and fatigue strength.C304.2Design fasteners, shafts, keys, couplings, riveted and welded joints,Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.C304.4COURSE IDC304.5SEMESTERDEPARTMENTMESEMESTER5COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC305.1To understand the importance and different types of non- traditional machining methods.Able to explain principle and procedure of various NTM processesC305.3applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE ITLEAUTOMATION AND ROBOTICS	COURSE OUTCO	OME NO		COURSE OUTCOME STATEMENTS					
C304.1       properties and selection of material, codes and standards.         Design machine components for static, impact and fatigue strength.         Design fasteners, shafts, keys, couplings, riveted and welded joints,         Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.         C304.4       C304.4         C304.5       DEPARTMENT         ME       SEMESTER       5       COURSE         COURSE TITLE       NON TRADITIONAL MACHINING       C305         COURSE OUTCOME NO       COURSE OUTCOME STATEMENTS       To understand the importance and different types of non-traditional machining methods.         Able to explain principle and procedure of various NTM processes       Illustrate the process parameters, limitations, advantages and applications of different NTM processes.         C305.3       DEPARTMENT       ME       SEMESTER       5       COURSE 15ME563       COURSE ID       C306			Understand	l basic o	f Mechani	ical Desigr	procedure,	material	
C304.2Design machine components for static, impact and fatigue strength.C304.2Design fasteners, shafts, keys, couplings, riveted and welded joints,Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.C304.4COURSE level and deformation in the different parts of the machine components, to determine the dimensions of the component.C304.4COURSE 15ME554COURSE IDC305DEPARTMENTMESEMESTER5COURSE 15ME554COURSE IDC305COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSID understand the importance and different types of non-traditional machining methods.C305.2C305.3Illustrate the process parameters, limitation	C304.1		properties a	and select	ion of mat	erial, codes	s and standard	ls.	
C304.2strength.Design fasteners, shafts, keys, couplings, riveted and welded joints,C304.3joints,Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.C304.4component.C304.5EMESTERDEPARTMENTMESEMESTER5COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC305.1To understand the importance and different types of non- traditional machining methods.Able to explain principle and procedure of various NTM processesC305.2Illustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE 1ITLEC306			Design ma	achine co	mponents	for static,	, impact and	fatigue	
Design fasteners, shafts, keys, couplings, riveted and welded joints,C304.3Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.C304.4Course components, to determine the dimensions of the component.C304.5EmesserCOURSE CODECOURSE IDDEPARTMENTMESEMESTER5COURSE CODECOURSE IDC305COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME STATEMENTSCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSTo understand the importance and different types of non- traditional machining methods.C305.1To understand the process parameters, limitations, advantages and applications of different NTM processes.Illustrate the process parameters, limitations, advantages and applications of different NTM processes.DEPARTMENTMESEMESTER5COURSE CODEISME563COURSE IDC306COURSE TITLEAUTOMATION AND ROBOTICSCOURSE IDC306C306	C304.2		strength.						
C304.3joints,Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.C304.4component.C304.5EMESTER5DEPARTMENTMESEMESTER5COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC305.1To understand the importance and different types of non- traditional machining methods.C305.2ProcessesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4C305.5C305.5EMESTER5COURSE ITILEAUTOMATION AND ROBOTICS			Design fas	teners, sh	afts, keys	, couplings	s, riveted and	l welded	
Analyze the stress level and deformation in the different parts of the machine components, to determine the dimensions of the component.C304.4component.C304.5SEMESTER5COURSE CODE15ME554COURSE IDC305DEPARTMENTMESEMESTER5COURSE CODE15ME554COURSE IDC305COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME STATEMENTSCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC305.1To understand the importance and different types of non-traditional machining methods.C305.2ProcessesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE CODE15ME563COURSE IDC306COURSE TITLEAUTOMATION AND ROBOTICS	C304.3		joints,						
of the machine components, to determine the dimensions of the component.C304.4component.C304.5SEMESTER5COURSE CODE15ME554COURSE IDC305DEPARTMENTMESEMESTER5COURSE CODE15ME554COURSE IDC305COURSE OUTCOME NOCOURSE OUTCOME STATEMENTSTo understand the importance and different types of non- traditional machining methods.To understand the importance and procedure of various NTM processesC305.1To understand the process parameters, limitations, advantages and applications of different NTM processes.C305.3COURSE of COURSE ISME563COURSE IDC306DEPARTMENTMESEMESTER5COURSE COURSE15ME563COURSE IDC306COURSE TITLEAUTOMATION AND ROBOTICSCOURSE IDC306C306COURSE IDC306			Analyze th	e stress lo	evel and d	eformation	in the differ	ent parts	
C304.4Component.C304.5MESEMESTER5COURSE CODE15ME554COURSE IDC305COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC305.1To understand the importance and different types of non- traditional machining methods.Able to explain principle and procedure of various NTM processesC305.2Illustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4SEMESTER5COURSE CODE15ME563COURSE IDC306DEPARTMENTMESEMESTER5COURSE CODE15ME563COURSE IDC306	C204 4		of the mach	nine comp	bonents, to	determine	the dimensio	ns of the	
C304.5MESEMESTER5COURSE CODE15ME554COURSE ID COURSE IDC305COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSTo understand the importance and different types of non- traditional machining methods.Able to explain principle and procedure of various NTM processesC305.2Illustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4COURSE ISEMESTER5COURSE COURSEISEMESTER5COURSE CODECOURSE IDC306COURSE TITLEAUTOMATION AND ROBOTICS	C304.4		component	•					
DEPARTMENTMESEMESTERSCOURSETSMESSACOURSE IDCSOSCOURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC305.1To understand the importance and different types of non- traditional machining methods.C305.1To understand the importance and procedure of various NTM processesC305.2ProcessesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTERSEMESTER5COURSE CODECOURSE TITLEAUTOMATION AND ROBOTICS		ME	CEMECTED	SEMESTER 5 COURSE 15ME554 COURSE ID C30					
COURSE TITLENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSTo understand the importance and different types of non- traditional machining methods.To understand the importance and different types of non- traditional machining methods.C305.1To understand the importance and procedure of various NTM processesC305.2processesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE CODE15ME563COURSE IDC306COURSE TITLEAUTOMATION AND ROBOTICS	DEPARTIVIENT	IVIE	SEIVIESTER	5	CODF	121015224	COOKSEID	C305	
COURSE INTENON TRADITIONAL MACHININGCOURSE OUTCOME NOCOURSE OUTCOME STATEMENTSTo understand the importance and different types of non- traditional machining methods.To understand the importance and different types of non- traditional machining methods.C305.1Able to explain principle and procedure of various NTM processesC305.2processesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE CODE15ME563COURSE IDC306COURSE TITLEAUTOMATION AND ROBOTICS			CODE           NON TRADITIONAL MACHINING						
COURSE OUTCOME NOCOURSE OUTCOME STATEMENTSC305.1To understand the importance and different types of non- traditional machining methods.C305.1Able to explain principle and procedure of various NTM processesC305.2processesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE CODE15ME563COURSE IDC306COURSE TITLEAUTOMATION AND ROBOTICS			NON TRADITIONAL MACHINING						
C305.1To understand the importance and different types of non- traditional machining methods.C305.1Able to explain principle and procedure of various NTM processesC305.2processesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.3SEMESTERDEPARTMENTMESEMESTER5COURSE TITLEAUTOMATION AND ROBOTICS	COURSE OUTCO	DME NO	<b>—</b> 1	COU	RSE OUTCO			-	
C305.1traditional machining methods.Able to explain principle and procedure of various NTM processesC305.2processesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.3applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE TITLEAUTOMATION AND ROBOTICS	6305.4		To underst	tand the	1mportance	ce and diff	terent types	of non-	
C305.2ProcessesIllustrate the process parameters, limitations, advantages and applications of different NTM processes.C305.3applications of different NTM processes.C305.4C305.5DEPARTMENTMESEMESTER5COURSE CODE15ME563COURSE IDC306COURSE TITLEAUTOMATION AND ROBOTICS	C305.1			machining voloin n	g methods		ro of vorio	NTM	
processes         Illustrate the process parameters, limitations, advantages and applications of different NTM processes.         C305.4         C305.5         DEPARTMENT         ME       SEMESTER         5       COURSE 15ME563         COURSE ID         COURSE TITLE	C305 2		nrocesses	xpiani pi	incipie ai	ia procedu		15 11 111	
C305.3       applications of different NTM processes.         C305.4       C305.5         DEPARTMENT       ME         SEMESTER       5         COURSE TITLE       AUTOMATION AND ROBOTICS			Illustrate th	ne proces	s paramet	ers limitat	ions advanta	ages and	
C305.4     C305.5       DEPARTMENT     ME       SEMESTER     5       COURSE     15ME563       COURSE TITLE     AUTOMATION AND ROBOTICS	C305.3		application	s of diffe	rent NTM	processes.	ions, uu vunu	iges and	
C305.5     DEPARTMENT     ME     SEMESTER     5     COURSE     15ME563     COURSE ID     C306       COURSE TITLE     AUTOMATION AND ROBOTICS	C305.4	1				1			
DEPARTMENT     ME     SEMESTER     5     COURSE     15ME563     COURSE ID     C306       COURSE TITLE     AUTOMATION AND ROBOTICS	C305.5								
CODE     CODE       COURSE TITLE     AUTOMATION AND ROBOTICS	DEPARTMENT	ME	SEMESTER	5	COURSE	15ME563	COURSE ID	C306	
COURSE TITLE AUTOMATION AND ROBOTICS				-	CODE				
	COURSE TITLE		AUTOMAT	ION AND	ROBOTICS	5			
COURSE OUTCOME NO COURSE OUTCOME STATEMENTS	COURSE OUTCO	OME NO		COU		OME STATEN	<b>IENTS</b>		
Classify various types of automation and manufacturing		_	Classify y	arious t	vnes of	automation	and manut	facturing	
C306.1 Systems.	C306.1		systems.	unous t	pes of a	uutomution	und mana	lucturing	
Discuss different robot configurations, motions, drive systems,			Discuss dif	ferent rol	oot configu	urations, m	otions, drive	systems,	
<b>C306.2</b> and its performance parameters.	C306.2		and its perf	ormance	parameter	s.	,	5	
Describe the basic concepts of control systems, feedback			Describe t	he basic	concepts	of contro	ol systems, t	feedback	
components, actuators, and power transmission systems used			component	s, actuato	ors, and po	ower transi	nission syste	ms used	
C306.3 in robots.	C306.3		in robots.		-				
Explain the working of transducers, sensors, and machine			Explain th	e workin	ig of tran	sducers, s	ensors, and	machine	
C306.4 VISION Systems.	C306.4								
Discuss the future capabilities of sensors, mobility systems and C306.5 artificial intelligence in the field of robotics			vision syste	ems.	a la titat e e e C		h. 11. a		



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DEPARTMENT	ME	SEMESTER	5	COURSE CODE	15MEL57	COURSE ID	C307		
COURSE TITLE		FLUID MECHANICS AND MACHINERY LAB							
COURSE OUTCO	OME NO		COU	RSE OUTCO	OME STATEN	/IENTS			
C307.1		Able to define fluid mechanics, fluid and their properties							
C307.2	2	Able to obtain or derive mathematical relation and conduct th experiment					duct the		
C307.3	}	Able to calculate the efficiency and discharge by the machineries							
C307.4	ŀ								
C307.5									
DEPARTMENT	ME	SEMESTER	5	COURSE CODE	15MEL58	COURSE ID	C308		
COURSE TITLE		ENERGY L	AB						
COURSE OUTCO	OME NO		COU	RSE OUTCO	OME STATEN	<b>INTS</b>			
C308.1		Able to de engines	fine basic	e terms an	d performa	nce paramete	ers of IC		
C308.2	2	Able to wr equipments	tite the Participation of the state of the s	rocedure o suring app	of working paratus	of various IC	C engine		
C308.3	}	Able to calculate the performance parameters of IC engines properties of fuel and lubricating oils					engines,		
C308.4									
C308.5	5								

DEPARTMENT	ME	SEMESTER	SEMESTER     6     COURSE OL     15ME61     COURSE ID     C312							
COURSE TITLE		Finite Element Analysis								
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS								
C311.1	L	Able to k conditions	Able to know the principles of energy methods, stress conditions and finite element method.							
C311.2	2	Able to I different fi	Derive sh nite elem	ape funct ents.	ions & st	iffness matr	ices for			
C311.3	8	Able to obt Beams, Co	tain Stiffr nduction	ness matrix elements	and Load	vector of ba	r, Truss,			
C311.4	L	Able to sol Numerical	lve proble Integratio	ems on Ba on	r, Truss, B	eams, Heat	Fransfer,			
C311.5	5									
DEPARTMENT	ME	SEMESTER	6	COURSE CODE	15ME62	COURSE ID	C312			
COURSE TITLE		Computer in	tegrated N	Aanufacturi	ng					
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS								
C312.1	L	Able to de program, F	efine Aut Robotic s	omation, ( ystems, A	CIM, CAD dditive ma	, CAM, CN nufacturing,	C, CNC Industry			



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		4.0 and IO	4.0 and IOT.				
		Able to e	explain t	he basics	of auton	nated manuf	acturing
		industries	through	mathema	atical mod	lels and ca	ategorize
		different t	ypes of	automated	d flow lin	es, robotic	systems,
C312.2		additive ma	anufactur	ing technic	ques.		
		Able to exe	ecute prog	grams for v	various mai	nufacturing p	rocesses
C312.3		and robot p	rogramm	ning.		_	
		Able to an	alyze the	automate	d flow line	s to reduce t	time and
C312.4		enhance pr	oductivit	y			
		Able to visu	alize and a	appreciate 1	the modern	trends in	d
(312 5		applications	of Intern	ot of Things	leading to 9	nuustry 4.0 ar Smart Manufa	iu cturing
DEPARTMENT	MF		6		15MF63		C313
		<b>DEMILOTEN</b>	Ũ	CODE	10111200		6010
COURSE TITLE		Heat Transf	er				
	MF NO		COU	RSF OUTCO	ME STATEN	<b>AFNTS</b>	
6242.4		Able to state the different modes of Heat Transfer					
C313.1		Able to state the different modes of Heat Transfer Able to derive the laws from the modes in Heat Transfer					or
C313.2		Able to derive the laws from the modes in Heat Transfer Able to draw/ Apply the heat flow rate and effectiveness of					
(212.2		Able to draw/ Apply the heat flow rate and effectiveness of conduction, convection and radiation heat transfer					eness of
C313.3		conduction, convection and radiation heat transfer					
C313.4							
C313.5		SEMESTER 6 COURSE 15ME64 COURSE ID C314					
C313.5 DEPARTMENT	ME	SEMESTER	6	COURSE CODE	15ME64	COURSE ID	C314
C313.5 DEPARTMENT COURSE TITLE	ME	SEMESTER Design of Ma	6 achine Ele	COURSE CODE ments -II	15ME64	COURSE ID	C314
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO	ME ME NO	SEMESTER Design of Ma	6 achine Ele COU	COURSE CODE ments -II RSE OUTCC	15ME64	COURSE ID	C314
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1	ME ME NO	SEMESTER Design of Ma Able to def	6 achine Ele COU	COURSE CODE ments -II RSE OUTCO	15ME64 ME STATEN ed beams a	COURSE ID MENTS nd springs	C314
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1	ME ME NO	SEMESTER Design of Ma Able to def Able to se	6 achine Ele COU ine stress lect the t	COURSE CODE ments -II RSE OUTCC ses in curve flexible (b	<b>15ME64</b> <b>DME STATEN</b> ed beams a elt, rope a	COURSE ID MENTS nd springs nd chain) dr	C314
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2	ME ME NO	SEMESTER Design of Ma Able to def Able to se gears.	6 achine Ele COU ine stress lect the	COURSE CODE ments -II RSE OUTCC ses in curve flexible (b	<b>15ME64</b> <b>OME STATEN</b> ed beams a elt, rope a	COURSE ID MENTS nd springs nd chain) dr	C314
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2	ME ME NO	SEMESTER Design of Ma Able to def Able to se gears. Able to ex	6 achine Ele COU ine stress lect the plain the	COURSE CODE ments -II RSE OUTCC ses in curve flexible (b stresses in	<b>15ME64</b> <b>DME STATEN</b> ed beams a elt, rope as n curved be	<b>COURSE ID</b> <b>MENTS</b> nd springs nd chain) dri eams, springs	C314 ives and s, power
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3	ME	SEMESTER Design of Ma Able to def Able to se gears. Able to ex transmittin	6 achine Ele COU ine stress lect the t plain the g elemen	COURSE CODE ments -II RSE OUTCC ses in curve flexible (b stresses in ts and IC e	<b>15ME64</b> <b>OME STATEN</b> ed beams a elt, rope a n curved be engine parts	COURSE ID MENTS nd springs nd chain) dr eams, springs	<b>C314</b> ives and s, power
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3	ME	SEMESTER Design of Ma Able to def Able to se gears. Able to ex transmittin Able to def	6 achine Ele COU ine stress lect the plain the g elemen termine	COURSE CODE ments -II RSE OUTCC ses in curve flexible (b stresses in ts and IC e the stresse	<b>15ME64</b> <b>OME STATEN</b> ed beams a elt, rope as n curved be engine parts s in curved	COURSE ID MENTS nd springs nd chain) dri eams, springs a. 1 beams, spri	C314 ives and s, power ings and
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.4	ME	SEMESTER Design of Ma Able to def Able to se gears. Able to ex transmittin Able to de gears.	6 achine Ele COU ine stress lect the i plain the g elemen termine	COURSE CODE ments -II RSE OUTCO ses in curve flexible (b stresses in ts and IC e the stresse	<b>15ME64</b> <b>OME STATEN</b> ed beams a elt, rope a n curved be engine parts s in curved	COURSE ID MENTS nd springs nd chain) dr eams, springs a. 1 beams, spri	C314 ives and s, power ings and
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.4	ME	SEMESTER Design of Ma Able to def Able to se gears. Able to ex transmittin Able to de gears. Able to calc	6 achine Ele COU fine stress lect the f plain the g elemen termine f	COURSE CODE ments -II RSE OUTCC ses in curve flexible (b stresses in ts and IC e the stresse flexible driv	<b>15ME64</b> <b>OME STATEN</b> ed beams a elt, rope as n curved be engine parts s in curved	COURSE ID MENTS nd springs nd chain) dri eams, springs abs, clutch, bea	C314 ives and s, power ings and arings
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.4 C314.5 DEPARTMENT		SEMESTER Design of Ma Able to def Able to se gears. Able to ex transmittin Able to de gears. Able to calc and IC engir	6 achine Ele COU ine stress lect the plain the g elemen termine termine	COURSE CODE ments -II RSE OUTCO ses in curve flexible (b stresses in ts and IC e the stresse flexible driv	<b>15ME64</b> <b>OME STATEN</b> ed beams a elt, rope a n curved be engine parts s in curved e sizes, brea	COURSE ID MENTS nd springs nd chain) dr eams, springs abs, clutch, bea	C314 ives and s, power ings and arings
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.4 C314.5 DEPARTMENT	ME	SEMESTER Design of Ma Able to def Able to def Able to se gears. Able to ex transmittin Able to de gears. Able to calc and IC engin SEMESTER	6 achine Ele COU ine stress lect the i plain the g elemen termine i ulate the i ne parts 6	COURSE CODE ments -II RSE OUTCO ses in curve flexible (b stresses in ts and IC e the stresse flexible driv COURSE CODE	15ME64 ME STATEN ed beams a elt, rope a n curved be ngine parts s in curved re sizes, brea 15ME652	COURSE ID MENTS nd springs nd chain) dr eams, springs abs, clutch, bea COURSE ID	C314 ives and s, power ings and arings C315
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.4 C314.5 DEPARTMENT COURSE TITLE	ME	SEMESTER Design of Ma Able to def Able to def Able to se gears. Able to ex transmittin Able to de gears. Able to calc and IC engir SEMESTER Mechanics o	6 achine Ele COU ine stress lect the s plain the g elemen termine s ulate the s ne parts 6 f Composi	COURSE CODE ments -II RSE OUTCC ses in curve flexible (b stresses in ts and IC e the stresse flexible driv COURSE CODE	15ME64 OME STATEN ed beams a elt, rope a n curved be engine parts s in curved re sizes, brea 15ME652	COURSE ID MENTS nd springs nd chain) dr eams, springs abs, springs beams, springs course ID	C314 ives and s, power ings and arings C315
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.3 C314.4 C314.4 C314.5 DEPARTMENT COURSE TITLE COURSE OUTCO		SEMESTER Design of Ma Able to def Able to se gears. Able to ex transmittin Able to de gears. Able to calc and IC engir SEMESTER Mechanics o	6 achine Ele COU ine stress lect the g elemen termine t ulate the ne parts 6 f Composi	COURSE CODE ments -II RSE OUTCC ses in curve flexible (b stresses in ts and IC e the stresse flexible driv COURSE CODE ite Materials RSE OUTCC	15ME64 OME STATEN ed beams a elt, rope a n curved be engine parts s in curved e sizes, brea 15ME652	COURSE ID MENTS nd springs nd chain) dri eams, springs d beams, springs d beams, springs course ID	C314 ives and s, power ings and arings C315
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.4 C314.4 C314.5 DEPARTMENT COURSE TITLE COURSE OUTCO		SEMESTER Design of Ma Able to def Able to def Able to se gears. Able to ex transmittin Able to de gears. Able to calc and IC engir SEMESTER Mechanics o Able to idu	6 achine Ele COU ine stress lect the i plain the g elemen termine i ulate the f ne parts 6 f Composi COU entify the	COURSE CODE ments -II RSE OUTCO ses in curve flexible (b stresses in ts and IC e the stresse flexible drive COURSE CODE ite Materials RSE OUTCO	15ME64 OME STATEN ed beams a elt, rope a n curved be engine parts s in curved e sizes, brea 15ME652	COURSE ID MENTS nd springs nd chain) dr eams, springs add chain) dr eams, springs dr eams, springs course in Abeams, springs dr dr dr dr dr dr dr dr dr dr dr dr dr	C314 ives and s, power ings and arings C315
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.3 C314.4 C314.4 C314.5 DEPARTMENT COURSE TITLE COURSE OUTCO		SEMESTER Design of Ma Able to def Able to def Able to se gears. Able to ex transmittin Able to de gears. Able to calc and IC engir SEMESTER Mechanics o Able to idu	6 achine Ele COU ine stress lect the r plain the g elemen termine f ulate the f he parts 6 f Composi COU entify the	COURSE CODE ments -II RSE OUTCO ses in curve flexible (b stresses in ts and IC e the stresse flexible driv COURSE CODE ite Materials RSE OUTCO e propertie l composi	15ME64 ME STATEN ed beams a elt, rope at n curved be engine parts s in curved re sizes, brea 15ME652 SME STATEN es of fibre tes, as we	COURSE ID MENTS nd springs nd chain) dri eams, springs d beams, springs d beams, springs course ID COURSE ID	C314 ives and s, power ings and arings C315 naterials common
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.4 C314.4 C314.5 DEPARTMENT COURSE TITLE COURSE TITLE COURSE OUTCO		SEMESTER Design of Ma Able to def Able to def Able to se gears. Able to ex transmittin Able to de gears. Able to calc and IC engir SEMESTER Mechanics o Able to idu used in co manufacture	6 achine Ele COU ine stress lect the i plain the g elemen termine i ulate the f ne parts 6 f Composi COU entify the ommercia	COURSE CODE ments -II RSE OUTCO ses in curve flexible (b stresses in ts and IC e the stresse flexible drive COURSE CODE ite Materials RSE OUTCO e propertie l composi niques.	15ME64 OME STATEN ed beams a elt, rope a n curved be ngine parts s in curved e sizes, brea 15ME652 SOME STATEN es of fibre tes, as we	COURSE ID MENTS nd springs nd chain) dr eams, springs abs, springs d beams, springs course in Aks, clutch, bea COURSE ID MENTS and matrix r 11 as some of	C314 ives and s, power ings and arings C315 c315
C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1 C314.2 C314.3 C314.3 C314.4 C314.5 DEPARTMENT COURSE TITLE COURSE TITLE COURSE OUTCO		SEMESTER Design of Ma Able to def Able to def Able to se gears. Able to ex transmittin Able to calc and IC engir SEMESTER Mechanics o Able to idd used in co manufactur Able to pro	6 achine Ele COU ine stress lect the i plain the g elemen termine i ulate the i he parts 6 f Composi COU entify the ommercia ring techri edict the	COURSE CODE ments -II RSE OUTCO ses in curve flexible (b stresses in ts and IC e the stresse flexible driv COURSE CODE ite Materials RSE OUTCO e propertie il composi niques. failure stresse	15ME64 ME STATEN ed beams a elt, rope at n curved be engine parts s in curved re sizes, brea 15ME652 S ME STATEN es of fibre tes, as we ength of a	COURSE ID MENTS nd springs nd chain) dr eams, springs abs, clutch, bea COURSE ID MENTS and matrix r 11 as some of laminated co	C314 ives and s, power ings and arings C315 C315



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		Able to understand the linear elasticity with emphasis on the						
C21E 2		difference	between	n isotrop	ic and a	anisotropic	material	
		Able to an	alvsis de	esign onti	mization a	nd test simu	lation of	
C315.4		advanced c	omposite	structures	and Comp	onents		
C315.5								
DEPARTMENT	ME	SEMESTER	6	COURSE CODE	15ME664	COURSE ID	C316	
COURSE TITLE		Total Quality Management						
COURSE OUTCO	ME NO		COU	RSE OUTCO	OME STATEN	IENTS		
		Able to id	lentify a	nd demon	strate the	principles o	f TQM,	
C316.1		Quality Gu	rus, Lead	lership and	l Customer	Satisfaction.		
C316.2		Able to des	cribe the	tools used	l in Quality	Managemen	t	
		Able to app	ply the co	ncept of S	ix Sigma a	nd Statistical	Process	
C316 3		Control. C	onstruct	the Contro	of Charts,	Interpret the	type of	
C316.4			aiuaic.					
C316.4								
DEPARTMENT	ME	SEMESTER	SEMESTER 6 COURSE 15MEL67 COURSE ID C317					
				CODE				
COURSE TITLE		Heat Transf	er Lab					
COURSE OUTCO	ME NO		COU	RSE OUTCO	ME STATEN	1ENTS		
C317.1		Able to def	ïne basic	terms and	modes of l	neat transfer		
C317.1		Able to def Able to w	ine basic	terms and Procedure	modes of h of work	neat transfer	ous heat	
C317.1		Able to def Able to w transfer e conditionin	ine basic rite the quipment	terms and Procedure s as we	modes of l e of work ell as ref	neat transfer ing of vario rigeration a	ous heat and Air	
C317.1 C317.2		Able to def Able to w transfer e conditionin Able to o	ine basic vrite the quipment g system calculate	terms and Procedure s as we the hea	modes of l e of work ell as ref t transfer	neat transfer ing of vario rigeration a rate, heat	ous heat and Air transfer	
C317.1 C317.2		Able to def Able to w transfer e conditionin Able to o coefficients	ine basic vrite the quipment g system calculate s and	terms and Procedure is as we the hea performan	modes of h e of work ell as ref t transfer ce of RA	neat transfer ing of vario rigeration a rate, heat AC by co	ous heat and Air transfer nducting	
C317.1 C317.2		Able to def Able to w transfer e conditionin Able to coefficients experiment	ine basic vrite the quipment g system calculate s and s, also	terms and Procedure s as we the hea performan temperatu	modes of h e of work ell as ref t transfer ce of RA re distribu	neat transfer ing of vario rigeration a rate, heat AC by con tion of stea	ous heat and Air transfer nducting ady and	
C317.1 C317.2 C317.3		Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he	ine basic vrite the quipment g system calculate s and s, also eat condu	terms and Procedure s as we the hea performan temperatu ction using	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical	neat transfer ing of vario rigeration a rate, heat AC by con tion of stea approach.	ous heat and Air transfer nducting ady and	
C317.1 C317.2 C317.3 C317.4		Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he	ine basic vrite the quipment g system calculate s and s, also eat condu	terms and Procedure s as we the hea performan temperatu ction using	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical	neat transfer ing of vario rigeration a rate, heat AC by con tion of stea approach.	ous heat and Air transfer nducting ady and	
C317.1 C317.2 C317.3 C317.3 C317.4 C317.5		Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he	ine basic vrite the quipment g system calculate s and s, also eat condu	terms and Procedure s as we the heaperforman temperatu ction using	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical	neat transfer ing of vario rigeration a rate, heat AC by con tion of stea approach.	ous heat and Air transfer nducting ady and	
C317.1 C317.2 C317.3 C317.4 C317.5 DEPARTMENT	ME	Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER	ine basic vrite the quipment g system calculate s and s, also eat condu	terms and Procedure s as we the hea performan temperatu ction using	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical <b>15MEL68</b>	neat transfer ing of vario rigeration a rate, heat AC by con tion of stea approach.	ous heat and Air transfer nducting ady and C318	
C317.1 C317.2 C317.2 C317.3 C317.4 C317.5 DEPARTMENT COURSE TITLE	ME	Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER Modelling an	ine basic vrite the quipment g system calculate s and s, also eat condu 6 hd Analysi	terms and Procedure s as we the hea performan temperatu ction using	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical	neat transfer ing of vario rigeration a rate, heat AC by con tion of stea approach.	ous heat and Air transfer nducting ady and C318	
C317.1 C317.2 C317.2 C317.3 C317.4 C317.5 DEPARTMENT COURSE TITLE COURSE OUTCO	ME	Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER Modelling an	rine basic vrite the quipment g system calculate s and s, also eat condu 6 6 nd Analysi COU	terms and Procedure s as we the hea performan temperatu ction using COURSE CODE s Lab	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical 15MEL68	neat transfer ing of vario rigeration a rate, heat AC by contion of stea approach. COURSE ID	ous heat and Air transfer nducting ady and C318	
C317.1 C317.2 C317.2 C317.3 C317.4 C317.5 DEPARTMENT COURSE TITLE COURSE TITLE COURSE OUTCO C318.1	ME	Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER Modelling an Able to finit	rine basic vrite the quipment g system calculate s and j s, also eat condu 6 6 nd Analysi COU	terms and Procedure s as we the hea performan temperatu ction using COURSE CODE s Lab RSE OUTCC	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical <b>15MEL68</b> <b>DME STATEN</b> is & amp; A	neat transfer ing of vario rigeration a rate, heat AC by contion of stea approach. COURSE ID	ous heat and Air transfer nducting ady and C318	
C317.1 C317.2 C317.2 C317.3 C317.4 C317.5 DEPARTMENT COURSE TITLE COURSE OUTCO C318.1	ME	Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER Modelling an Able to fin Able to co	ine basic vrite the quipment g system calculate s and j s, also eat condu 6 6 nd Analysi COU ite Eleme omprehen	terms and Procedure s as we the hea performan temperatu ction using COURSE CODE s Lab RSE OUTCC ent Analysi	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical <b>15MEL68</b> <b>DME STATEN</b> is & amp; A frequency,	neat transfer ing of vario rigeration a rate, heat AC by contion of stea approach. COURSE ID MENTS pplications Damping of	ous heat and Air transfer nducting ady and C318	
C317.1 C317.2 C317.2 C317.3 C317.4 C317.5 DEPARTMENT COURSE TITLE COURSE TITLE COURSE OUTCO	ME	Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER Modelling an Able to fini Able to co degree of w	ine basic vrite the quipment g system calculate s and s, also eat condu 6 d Analysi COU ite Eleme omprehen vibrating	terms and Procedure s as we the hea performan temperatu ction using <b>COURSE</b> <b>COURSE</b> <b>CODE</b> s Lab <b>RSE OUTCC</b> ent Analysi d natural systems, c	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical <b>15MEL68</b> <b>DME STATEN</b> is & amp; A frequency, critical spec	neat transfer ing of vario rigeration a rate, heat AC by contion of stea approach. COURSE ID MENTS pplications Damping context	c318	
C317.1 C317.2 C317.2 C317.3 C317.4 C317.4 C317.5 DEPARTMENT COURSE TITLE COURSE TITLE COURSE OUTCO C318.1	ME	Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER Modelling an Able to fin Able to co degree of w distribution	ine basic vrite the quipment g system calculate s and s, also eat condu 6 d Analysi COU ite Eleme omprehen vibrating in journ	terms and Procedure s as we the hea performan temperatu ction using COURSE CODE s Lab RSE OUTCC ant Analysi d natural systems, c al bearing	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical <b>15MEL68</b> <b>DME STATEN</b> is & amp; A frequency, critical spec	neat transfer ing of vario rigeration a rate, heat AC by contion of stea approach. COURSE ID MENTS pplications Damping of ed of shafts,	c318	
C317.1 C317.2 C317.2 C317.3 C317.4 C317.5 DEPARTMENT COURSE TITLE COURSE OUTCO C318.1	ME	Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER Modelling an Able to fin Able to co degree of w distribution	rine basic vrite the quipment g system calculate s and s, also eat condu 6 d Analysi cou ite Eleme omprehen vibrating n in journ lculate an	terms and Procedure s as we the hea performan temperatu ction using <b>COURSE</b> <b>CODE</b> s Lab <b>RSE OUTCC</b> ant Analysi d natural systems, c al bearing d interpres	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical <b>15MEL68</b> <b>DME STATEN</b> is & amp; A frequency, critical spee	neat transfer ing of vario rigeration a rate, heat AC by contion of stea approach. COURSE ID MENTS pplications Damping of ed of shafts, d strains using ending To or	ous heat         ind       Air         transfer         inducting         ady       and         C318         of single         pressure         ng strain         ient and	
C317.1 C317.2 C317.2 C317.3 C317.4 C317.5 DEPARTMENT COURSE TITLE COURSE OUTCO C318.1 C318.2		Able to def Able to w transfer e conditionin Able to o coefficients experiment transient he SEMESTER Modelling an Able to fini Able to co degree of v distribution Able to ca gauges, pho balance ma	ine basic vrite the quipment g system calculate s and s, also eat condu 6 nd Analysi COU ite Eleme omprehen vibrating n in journ lculate an oto elasti	terms and Procedure s as we the hea performan temperatu ction using <b>COURSE</b> <b>COURSE</b> <b>CODE</b> <b>s Lab</b> <b>RSE OUTCC</b> ant Analysi d natural systems, c al bearing nd interpre- c compress ting in diff	modes of h e of work ell as ref t transfer ce of RA re distribu g numerical <b>15MEL68</b> <b>DME STATEN</b> is & amp; A frequency, critical spece et stress and seion and be rerent plane	neat transfer ing of vario rigeration a rate, heat AC by contion of stea approach. COURSE ID MENTS pplications Damping of ed of shafts, d strains usin ending To or s.	Dus heat         and         transfer         nducting         ady         and    C318          of single         pressure         ng strain         tient and	



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	hole and to analyse governor equilibrium speed, sensitivity and power.
C318.5	

4<sup>th</sup> YEAR

DEPARTMENT	ME	SEMESTER	7	COURSE CODE	15ME71	COURSE ID	C401		
COURSE TITLE		ENERGY ENGINEERING							
COURSE OUTCO	OME NO		COUF	RSE OUTCO	ME STATEN	IENTS			
C401.1		Able to fundamenta	Enable ds.	to com	prehend t	he knowle	edge of		
C401.2	2	Able to understand various parameters related to the powe plants.							
C401.3Able to understand the mathematical relationship with to Economic Analysis of power plants.					n respect				
C401.4	ŀ								
C401.5									
DEPARTMENT	ME	SEMESTER	7	COURSE CODE	15ME72	COURSE ID	C402		
COURSE TITLE		FLUID POWER SYSTEMS							
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS							
C402.1		Enables to Hydraulic a	underst and Pneur	and the natic syste	Principle a m.	and compor	nents of		
C402.2	2	Enables to understand the working of Hydraulics pumps and motors, able to calculate performance of Pumps and motors.							
C402.3	}	Understand Hydraulic and Pneumatic control components and their graphic symbols.							
C402.4		Able to d	esign Hy	/draulic/Pi	neumatic (	Circuits. Un	derstand		



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		basic fluid power maintenance procedures.					
		Understand	the usage	of logic gat	tes & m	ulti cylinder	
C402.5		applications					
DEPARTMENT	ME	SEMESTER	7	COURSE CODE	15ME73	COURSE ID	C403
COURSE TITLE		CONTROL	ENGINEE	RING			
COURSE OUTCO	ME NO		COUF	RSE OUTCO	ME STATEM	ENTS	
		Able to re	cognize	control s	ystem and	its types,	control
C403.1		actions.					
		Able to c	letermine	the sys	tem gover	ning equati	ons for
C402.2		physical m	iodels (E	lectrical,	Thermal,	Mechanical,	Electro
C403.2		Able to cal	.). culate the	e gain of t	he system	using block	diaoram
C403.3		and signal f	low grap	h	ine system	using block	ulugium
C403.4		Able to illu	strate the	response	of 1st and 2	nd order sys	stems.
		Able to dete	rmine the	stability of	transfer fur	octions in con	nplex
C403.5		domain and	frequency	domain.			
		Able to emp	loy state e	quations t	o study the	controllability	y and
C403.6		observability	observability				
DEPARTMENT	IVIE	SEIVIESTER	/	COURSE	15ME/45	ID	C404
COURSE TITLE		SMART MA	TERIALS	AND MEM	1S		
COURSE OUTCO	ME NO		COUR		ME STATEM	ENTS	
C404 1		Identify the	smart str	uctures, v	ibration abs	orbers and I	MEMS.
		Summarize the properties of shape memory alloy.					
C404.2		reheological fluids and optical fibers.					
		Describe the sensor and actuator devices and characterize the					
C404.3		smart struct	ure.				
		Carryout th	ne case s	studies of	MEMS f	or performa	nce and
C404.4		reliability a	ccounting				
C404.5	N 4 5	CENTER	-	COUDEE	45845354	COLUDEE	6405
DEPARTIVIENT	IVIE	SEIVIESTER	/	CODE	15IVIE/51	ID	C405
COURSE TITLE		AUTOMOT	IVE ELEC	TRONICS			
COURSE OUTCO	ME NO		COUF	SE OUTCO	ME STATEM	ENTS	
		Recall the basic concepts and electronic systems used in					
C405.1		automobiles					
		automobile	s subic co	neepts u		ie systems	
		automobile Summarize	suble etc. different	t technolo	gical advar	nces in auto	omobiles
C405.2		automobile Summarize including d	different iagnostics	t technolo s of system	pgical advants	nces in auto	omobiles
C405.2		automobile Summarize including d Select sens	different iagnostics ors, actu	t technolo s of system ators and	pgical advants and sub	nces in auto systems. ystems for	omobiles
C405.2 C405.3		automobile Summarize including d Select sens application	different iagnostics sors, actu s in auton	t technolo s of system ators and nobiles	ogical advants and sub	nces in auto systems. ystems for	omobiles different



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DEPARTMENT	ME	SEMESTER	7	COURSE CODE	15MEL76	COURSE ID	C406		
COURSE TITLE		DESIGN LAB							
COURSE OUTCO	ME NO		COUF	RSE OUTCO	ME STATEN	IENTS			
C406.1		Able to ide of vibratin Governors,	Able to identify the longitudinal and Torsional single degree of vibrating systems, also to identify different types of Governors, Gyroscope.						
C406.2		Able to comprehend natural frequency, Damping of single degree of vibrating systems, critical speed of shafts, pressure distribution in journal bearing							
C406.3		Able to calculate and interpret stress and strains using strain gauges, photo elastic compression and bending and to orient and balance masses rotating in different planes.							
Able to analyse stress concentration in rectangular pla hole and to analyse governor equilibrium speed, ser and power						late with ensitivity			
C406.5									
DEPARTMENT	ME	SEMESTER	7	COURSE CODE	15MEL77	COURSE ID	C407		
COURSE TITLE		CIM LAB					<u> </u>		
COURSE OUTCO	ME NO		COUF	RSE OUTCO	ME STATEN	IENTS			
C407.1		Able to wr package fo Turning, D	ite CNC or simula rilling &a	part progration of 1 mp; Milli	cams using machining ng.	CADEM si operations	mulation such as		
C407.2		Able to und Systems Ro	lerstand v	vrite progr	ams for Fle	exible Manu	facturing		
C407.3		Able to understand the operating principles of hydraulics, pneumatics and electro– pneumatic systems.							
C407.4				•	*				
C407.5									

DEPARTMENT	ME	SEMESTER	8	COURSE CODE	15ME81	COURSE ID	C411	
COURSE TITLE		Operations Research						
COURSE OUTCO	OME NO		COURSE OUTCOME STATEMENTS					
	Able to define terminologies and procedures associated						ted with	
C411.1	L	different Operations Research techniques.						



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C411.2		Able to describe the importance, Characteristics and limitations of OR techniques					
C411.3		Able to apply OR technique/strategies to solve industrial and managerial related problems.					
C411.4		Able to all and time.	locate and	l schedule	the resour	ces and optin	ium cost
C411.5		Able to revi	ew and eva	aluate proje	ect duration	and Critical pat	h.
DEPARTMENT	ME	SEMESTER	8	COURSE CODE	15ME82	COURSE ID	C412
COURSE TITLE		Additive ma	nufacturing	5	•		
COURSE OUTCO	ME NO		COU		OME STATEN	MENTS	
C412.1		Understand using Polyr	l the diff mer, Powc	erent pro ler and Na	cess of Ad ano material	lditive Manuf s manufacturi	acturing. ng.
C412.2		Analyse the different characterization techniques					
		Describe the various NC, CNC machine programing and					
C412.3		Automation techniques					
C412.4							
C412.5							
DEPARTMENT	ME	SEMESTER	8	COURSE CODE	15ME835	COURSE ID	C413
COURSE TITLE		PRODUCT LIFE CYCLE MANAGEMENT					
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS					
		Explain the various strategies involved in Product Life Cycle					
C413.1		Manageme	nt and Pro	oduct Data	Manageme	ent	
C413.2		Carry out design	the decon	nposition	and model	simulation in	product
C413.3		Implement	structurin	ig in new p	product deve	elopment proc	ess.
C413.4		Select the t	ools need	ed to forec	cast the tech	nology innova	ation.
C413.5		Carry out pr	oduct stru	cturing usi	ng virtual pro	oduct developm	ent tools



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2019-20

1<sup>ST</sup> YEAR

DEPARTMENT	ME	SEMESTER	1	COURSE CODE	18EGDL15	COURSE ID	C105	
COURSE TITLE		ENGINEERIN	IG GRAPHI	CS				
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS						
C105.1		Able to hav drafting sof	e the kno tware soli	wledge of d edge V1	different co 9	oordinate sys	stem and	
C105.2		Able to dr planes, solid	aw the c ds and iso	orthograph metric pro	ic projectio ojections	ns of point	ts, lines,	
C105.3		Able to dev	elop the l	ateral surfa	aces of prisr	ns and pyrai	nids	
C105.4								
C105.5								
DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18ME25	COURSE ID	C115	
COURSE TITLE		ELEMENTS OF MECHANICAL ENGINEERING						
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS						
C115.1		Able to gai prime mov conditioner	n knowle /ers, rob	dge on va ots & au	tious energ	y resources, refrigeration	boilers, & air	
C115.2		Able to und process, boi	lerstand d ilers, IC e	ifferent jo ngines, ref	ining techni frigeration a	ques, metal nd air condi	removal tioner	
<b>C115.3</b> Able to apply and use of various engineering mate refrigeration & air conditioner and different machine operation.						naterials, ine tool		
C115.4		Able to co welding pr system	ompare bornocess, r	etween 2 nachining	strokes and operations	d 4 stroke and refr	engines, igeration	
C115.5								



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2<sup>ND</sup> YEAR

DEPAR TMENT	M E	SEMESTER	3	COURSE CODE	18ME32	COURSE ID	C202		
COURSE		Mechanics of Materi	als						
TITLE						-			
	16			COURSE OUTC		5			
NO									
C202.1		Able to define Ela loads and energy s	stic Prope stored in v	erties of Materia arious structura	lls, Different types l members.	of stress due to ap	plication of		
C202.2		Able to comprehe moment diagram,	nd the relation of the relatio	ation for stress ad stability of co	and strain distribu olumns from failur	tion, Shear force a e theories	nd Bending		
C202.3	5	Able to apply the and strain energy	known ar in Bars, C	nd comprehend ylinders, Beams	ed concepts and to s, Shafts, and Colu	o calculate the stres mns.	sses, strains		
C202.4	ļ	Able to analyze the stresses and strains for plane stress condition analytically and graphically for structural members and analyze stress distribution for thick and thin cylinders.							
C202.5	;								
DEPAR TMENT	M E	SEMESTER	3	COURSE CODE	18ME33	COURSE ID	C203		
COURSE TITLE		Basic Thermodynam	ics						
COURSE				COURSE OUT	OME STATEMENT	rs			
OUTCON	IE								
NO						<u></u>	1		
C203.1		Able to learn about various processes ir	t the fundation of the	properties.	gy interactions, law	s of thermodynamic	s along with		
C203.2		Able to understand property.	and obtain	the relationship	between different t	emperature scale, en	nergy and its		
C203.3	5	Able to apply conse	rvation of e	energy, the laws	of thermodynamics	in various systems.			
C203.4									
C203.5	;								
DEPAR TMENT	M E	SEMESTER	3	COURSE CODE	18ME34	COURSE ID	C204		
COURSE		Material Science							
OUTCON	IE				UIVIE STATEIVIENT	3			



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		Able to understand	the proper	rties of engineeri	ng materials and the	eir behavior				
C204.1	L									
C204.2	2	Able to describe the p	procedure of	heat treatment ar	nd processing of compo	osite materials				
C204.3	3	Able to understand th	ne potentiali	ties of various mat	erials and material sele	ection procedure				
C204.4	1									
C204.5	5									
DEPAR TMENT	M E	SEMESTER	3	COURSE CODE	18ME35A	COURSE ID	C205			
COURSE TITLE		Metal cutting and fo	rming							
COURSE OUTCON NO	1E	COURSE OUTCOME STATEMENTS								
C205.1	L	Describe various cutting tool materials, machine tools, machining processes and metal forming processes								
C205.2	2	Explain the me nomenclature, machining proce	echanism tool esses and	of machinin wear, metal forming	ng processes, cu tool life g processes.	utting tool mate and econom	erials, tool nics of			
C205.3	8	Estimate the effect of machining processes and parameters on surface finish, tool wear, tool life, machining efficiency and to estimate the effect of different forces acting on the dies during sheet metal operations.								
C205.4	1	•								
C205.5	5									
DEPAR TMENT	M E	SEMESTER	3	COURSE CODE	18ME36A	COURSE ID	C206			
COURSE TITLE		COMPUTER AIDE	D MACHIN	E DRAWING						
COURSE OUTCON NO	1E			COURSE OUT	COME STATEMENT	ſS				
C206.1	L	Able to draw or and Machine cor	rthograph mponents	ic projections	and sectional vi	iews of standard	primitives			
C206.2	2	Able to draw couplings.	orthogra	phic projectio	ons of standard	thread forms,	joints and			
C206.3	8	Able to create/m	odel part	s and assembly	y of machine con	ponents using So	olid edge.			
C206.4	1									
C206.5	5									
DEPAR TMENT	M E	SEMESTER	3	COURSE CODE	18MEL37A	COURSE ID	C207			
COURSE TITLE		MATERIAL TESTI	NG LAB		1		1			



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COURSE				COURSE OUT	COME STATEMENT	rs						
OUTCON	1E											
NO		Able to sain 1			un et e n'e 1 de ete	4	1					
		Able to gain h	cnowledg	to conduct	material tests	to find differen	it material					
		destructive tests	to gain	knowledge at	bout the heat the	annent processes	s and non-					
<b>C207.</b> 1	L	destructive tests.										
C207.2	2	Able to understand and demonstrate different microstructures of the material.										
C207.3	3	Able to implement different strength and characteristic tests of a material depending on the application.										
C207.4	1	11										
C207 5												
	, N4	CENTER	2	COLIBSE	101151304		C208					
	F	SEIVIESTER	SEMIESTER 3 COURSE ISIMIELSEA COURSE ID C208									
	_	Workshon and Mac	Workshop and Machine Shop Processo									
TITLE		workshop and wae		luctice								
COURSE				COURSE OUT	COME STATEMENT	rs						
OUTCON	1E											
NO												
		Able to describ	be variou	us machine t	ools, machining	g processes, me	chanics of					
		machining and c	utting too	ol materials.								
C208.1	L											
C208.2	2	Able to explain	the mech	anism of mac	hining processes,	, cutting tool mat	terials, tool					
		nomenclature, to	ol wear,	tool life and e	conomics of mac	hining processes						
C208.3	3	Able to estimate	the effec	t of machining	g processes and p	parameters on sur	face finish,					
		tool wear, tool li	fe and ma	achining effici	ency.							
C208.4	1											
C208.5	5											

DEPARTMENT	ME	SEMESTER	4	COURSE CODE	18ME42	COURSE ID	C212		
COURSE TITLE		Applied The	rmodynan	nics					
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS							
Able to outline the Gas power cycles, van know how fuel burns and their thermodynam						vapour powe amic properti	er cycles and es.		
C212.1									
C212.2 Able to explain the performance and mechanisms of gas pow cycle, steam power cycle and refrigeration system									



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C212.3		Able to compute the performance of gas power plant, steam power plant, IC Engine, Reciprocating compressors and refrigeration system.							
C212.4									
C212.5									
DEPARTMENT	ME	SEMESTER	4	COURSE CODE	18ME43	COURSE ID	C213		
COURSE TITLE		Fluid Mechanics							
COURSE OUTCO	ME NO		C	OURSE OUT	ICOME STATE	EMENTS			
C213.1		Able to unkinematics.	derstand t , concept	the basics of bounda	of fluid pro ry layer in fl	perties, statio uid flow as v	cs, dynamics, vell as CFD		
C213.2		Able to explain the principle of buoyancy and flotation, laminar and turbulent flow, flow across body and checking dimensional homogeneity							
C213.3		Able to calculate the key fluid properties, meta centric height, lift, drag and applying Bernoulli's equation to devices							
C213.4									
C213.5									
DEPARTMENT	ME	SEMESTER 4 COURSE 18ME44 COURSE ID C214							
				CODE					
COURSE TITLE		Kinematics of	of Machine	CODE					
COURSE TITLE	ME NO	Kinematics of	of Machine CC	CODE s DURSE OUT		EMENTS			
COURSE TITLE COURSE OUTCO C214.1	ME NO	Kinematics of Able to illu	of Machine CC Istrate the	CODE s DURSE OUT terminolo	rcome state	EMENTS misms			
COURSE TITLE COURSE OUTCO C214.1	ME NO	Kinematics of Able to illu Able to ide of planar m	of Machine Co Istrate the entify the nechanism	CODE s DURSE OUT terminolo degrees o is.	rcome state ogy of mecha of freedom a	EMENTS unisms and motion c	haracteristics		
COURSE TITLE COURSE OUTCO C214.1 C214.2 C214.3	MENO	Kinematics of Able to illu Able to ide of planar m Able to pr mathematic	of Machine CC Istrate the entify the nechanism edict the cally.	CODE s DURSE OUT terminolo degrees out is. motion o	rcome state ogy of mecha of freedom a f planar me	EMENTS unisms and motion c chanisms gra	haracteristics		
COURSE TITLE COURSE OUTCO C214.1 C214.2 C214.3 C214.4	MENO	Kinematics of Able to illu Able to ide of planar m Able to pr mathematic Able to des profile	of Machine CO Istrate the entify the nechanism edict the cally. scribe the	CODE s DURSE OUT terminolo degrees o is. motion o character	rcome state ogy of mecha of freedom a f planar mea istics of mot	EMENTS unisms and motion c chanisms gra ion in gears	haracteristics aphically and with involute		
COURSE TITLE COURSE OUTCO C214.1 C214.2 C214.3 C214.3 C214.4 C214.4	MENO	Kinematics of Able to illu Able to ide of planar m Able to pr mathematic Able to des profile Able to calcu gear train du	of Machine CC Istrate the entify the nechanism edict the cally. scribe the ulate the v rive.	CODE s DURSE OUT terminolo degrees o is. motion o characteri elocity rati	rcome state ogy of mecha of freedom a f planar mea istics of mot o or number	EMENTS unisms und motion c chanisms gra ion in gears of teeth for ar	haracteristics aphically and with involute		
COURSE TITLE COURSE OUTCO C214.1 C214.2 C214.2 C214.3 C214.4 C214.4 C214.5 C214.6	MENO	Kinematics of Able to illu Able to ide of planar m Able to pr mathematic Able to des profile Able to calcu gear train du Able to draw	of Machine CC Istrate the entify the nechanism edict the cally. scribe the ulate the v rive. v the profi	CODE s DURSE OUT terminolo degrees o is. motion o character elocity rati	rcome state ogy of mecha of freedom a f planar mer istics of mot o or number im for a desire	EMENTS unisms and motion c chanisms gra ion in gears of teeth for ar ed follower m	haracteristics aphically and with involute n epicyclic otion.		
COURSE TITLE COURSE OUTCO C214.1 C214.2 C214.2 C214.3 C214.4 C214.4 C214.5 C214.6 DEPARTMENT	MENO	Kinematics of Able to illu Able to ide of planar m Able to pr mathematic Able to des profile Able to calcu gear train du Able to draw SEMESTER	of Machine CC Instrate the entify the nechanism edict the cally. scribe the ulate the v rive. v the profi	CODE s DURSE OUT terminolo degrees o s. motion o character elocity rati le of the ca COURSE CODE	rcome state ogy of mecha of freedom a f planar mea istics of mot o or number o or number im for a desire 18ME45	EMENTS unisms and motion c chanisms gra ion in gears of teeth for ar ed follower m COURSE ID	haracteristics aphically and with involute nepicyclic otion. <b>C215</b>		
COURSE TITLE COURSE OUTCO C214.1 C214.2 C214.2 C214.3 C214.4 C214.4 C214.5 C214.6 DEPARTMENT COURSE TITLE	MENO	Kinematics of Able to illu Able to ide of planar m Able to pr mathematic Able to des profile Able to calcu gear train de Able to draw SEMESTER Metal Castin	of Machine CC Istrate the entify the nechanism edict the cally. scribe the ulate the v rive. v the profi 4	CODE s DURSE OUT terminolo degrees of is. motion o characteri elocity rati le of the ca COURSE CODE	FCOME STATE ogy of mecha of freedom a f planar mea istics of mot o or number o or number m for a desire 18ME45	EMENTS unisms and motion c chanisms gra ion in gears of teeth for ar ed follower m COURSE ID	haracteristics aphically and with involute n epicyclic otion. C215		



# Department of Mechanical Engineering

		Able to gain Knowledge about casting, welding, soldering brazing process and solidification						
C215.1								
C215.2		Able to de inspection methodolog	escribe m methods gies.	olds, cast and furna	ings, weldir ces. Also de	ng, solidifica escribe solde	tion process, ring, brazing	
		Able to a	oply diffe	erent casti	ing, joining	and inspect	ion methods	
C215.3		depending	on require	ement.		Ĩ		
C215.4								
C215.5								
DEPARTMENT	ME	SEMESTER	4	COURSE CODE	18ME46B	COURSE ID	C216	
COURSE TITLE		Mechanical	Mechanical Measurements and Metrology					
	OME NO COURSE OUTCOME STATEMENTS							
C216.1		Define terms associated to metrology, measurements, measuring equipment's.						
		Explain dif	ferent me	asuring in	struments ar	nd their utiliz	ation.	
C216.2								
		Illustrate	the meas	surement	of force,	torque, pres	sure, strain,	
C216.3		temperatur	e, screw	and gear p	rofile.			
C216.4								
C216.5								
DEPARTMENT	ME	SEMESTER	4	COURSE CODE	18MEL47B	COURSE ID	C217	
COURSE TITLE		Mechanical	Measurem	ents and Mo	etrology Lab			
COURSE OUTCO	ME NO		C	OURSE OUT	ICOME STATE	EMENTS		
C217.1		Able to g measuring	gain knov instrumer	wledge of nts	n how to	use differer	nt metrology	
C217.2		Able to und	derstand a	nd demon	strate differe	ent measuring	g instruments	
		Able to illu	istrate the	measurer	nent of force	e torque pre	essure strain	
C217.3		temperature	e, screw	and gear p	rofile etc.,	e, torque, pre	, strain,	
C217.4								
C217.5								
DEPARTMENT	ME	SEMESTER	4	COURSE CODE	18MEL48A	COURSE ID	C218	
		Foundry and	l I Forging I	ah				
		1 oundry and			COME STAT			



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Bengaluru-560107

	Able to have the Knowledge on the preparation of foundry sand and
	its testing, understanding on basic foundry and forging operations
C218.1	along with the tools involved in each of the process
	Able to describe different parameters involved in sand moulding,
	identify the importance of sand testing and its effects on the final
C218.2	quality of the mould.
	Able to perform basic foundry and forging operations to obtain the
C218.3	desired shapes and with the prescribed quality.
	Able to compare and Analyse the effect of sand and its composition
C218.4	on the strength of the mould using various testing procedures.
C218.5	

3<sup>RD</sup> YEAR

DEPARTMENT	ME	SEMESTER	5	COURSE CODE	17ME51	COURSE ID	C301	
COURSE TITLE		MANAGEMENT AND ENGINEERING ECONOMICS						
COURSE OUTCO	OME NO		COU		OME STATEN	/IENTS		
C301.1		Understand needs, functions, roles, scope and evolution of Management; Importance, purpose of Planning and hierarchy of planning and also analyze its types.						
C301.2 Understanding of why economics Is important to engineer interest calculations.					ers, basic			
C301.3	l	Discuss Decision making, Organizing, Staffing, Directing ar Controlling					ing and	
C301.4	ļ	How to arrivinvolved in r	ve at the S manufactu	elling Price Iring produ	of a compo ct.	onent, cost con	nponents	
C301.5		To evaluate assests/ projects and choose alternatives based on the investment today						
DEPARTMENT	ME	SEMESTER	5	COURSE CODE	17ME52	COURSE ID	C302	
COURSE TITLE		DYNAMICS	S OF MAC	HINERY				
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS						
C302.1		Describe motion, static and dynamic equilibrium conditions for different mechanisms and machine elements.						
C302.2		Understand force transmission and balancing in different mechanisms and also principles of vibrations of single degree of freedom mechanical systems						
C302.3		Solve production of the solution of the soluti	blems or nechanisn	ns on force transmission and balancing in anisms and vibration characteristics of single				



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		degree of freedom mechanical systems.						
		Explain fo	orce trans	mission a	and vibrati	on character	istics in	
C302.4		different m	echanical	systems.				
C302.5								
DEPARTMENT	ME	SEMESTER	5	COURSE	17ME53	COURSE ID	C303	
				CODE				
COURSE TITLE		TURBO MACHINES						
COURSE OUTCO	ME NO		COU	RSE OUTCO	OME STATEN	/IENTS		
		Able to	define b	asic defii	nitions of	turbomachi	nes and	
		sketching	of ve	locity tr	iangles f	for differen	t flow	
C303.1		turbomachi	ines.					
		Able to de	rive or C	)btain exp	ressions fo	or different fl	ow type	
C303.2		turbomachi	ines durin	g energy t	ransfer.			
		Able to a	apply the	derived	equations	and knowl	edge of	
C303.3		turbomachi	ines in sol	lving nume	erical probl	ems		
C303.4								
C303.5			1					
DEPARTMENT	ME	SEMESTER	5	COURSE	17ME54	COURSE ID	C304	
				CODE				
COURSE TITLE		DESIGN OF	MACHIN	E ELEME	NTS-			
COURSE OUTCO	ME NO		COU	RSE OUTCO	OME STATEN	/IENTS		
		Understand basic of Mechanical Design procedure, material						
C304.1		properties and selection of material, codes and standards.						
		Design machine components for static, impact and fatigue						
C304.2		strength.						
		Design fasteners, shafts, keys, couplings, riveted and welded						
C304.3		joints,						
		Analyze th	e stress le	evel and d	eformation	in the differ	ent parts	
C204 4		of the mach	nne comp	bonents, to	determine	the dimensio	ns of the	
C304.4		component	•					
	БАГ	CENALCTED	-	COUDEE	17845554		C205	
DEPARTIVIENT	IVIE	SEIVIESTER	5	CODE	1/1012334	COORSEID	C305	
		NON TRAD	ITIONAL	MACHINU	NC			
		NON IKAD						
COURSE OUTCO		<b>77</b> 1		RSE OUTCO			6	
C205 4		To underst	tand the	1mportance	te and diff	terent types	of non-	
C305.1		traditional machining methods.						
C205 2		Able to explain principle and procedure of various NTM						
		Able to en	xplain pr	inciple ar	nd procedu	ire of variou	IS NIM	
		Able to end processes	xplain pr	inciple ar	nd procedu	ire of variou	is NIM	
C305.2		Able to en processes Illustrate the application	xplain pr	rinciple ar s paramet rent NTM	nd procedu ers, limitat	ire of variou ions, advanta	ages and	
C305.3		Able to en processes Illustrate th application	xplain pr he proces s of differ	inciple ar s paramet rent NTM	nd procedu ers, limitat processes.	ire of variou	ages and	
C305.2 C305.3 C305.4		Able to en processes Illustrate th application	xplain pr he proces s of differ	inciple ar s paramet rent NTM	nd procedu ers, limitat processes.	ions, advanta	ages and	



Department of Mechanical Engineering Bengaluru-560107

DEPARTMENT	ME	SEMESTER	5	COURSE	17ME563	COURSE ID	C306	
COURSE TITLE		AUTOMAT	ION AND	ROBOTICS	5		L	
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS						
		To identify potential areas for automation and justify need for						
C306.1		automation				5 5		
		To select	suitable	major co	ontrol com	ponents req	uired to	
C306.2		automate a	process o	or an activi	ty.	11 0 1		
C306.3		To study the various parts of robots and helds of robotics.					CS.	
C306.4		To study the various kinematics and inverse kinematics of robots.					natics of	
C306.5		To study the	e control o	f robots for	r some speci	fic application	s.	
DEPARTMENT	ME	SEMESTER	5	COURSE CODE	17MEL57	COURSE ID	C307	
COURSE TITLE		FLUID MECHANICS AND MACHINERY LAB						
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS						
C307.1		Able to def	ine fluid	mechanics	, fluid and	their properti	es	
C307.2		Able to obtexperiment	tain or de	rive mathe	ematical rel	ation and cor	duct the	
C307.3		Able to o machinerie	calculate s	the efficient	ciency and	discharge	by the	
C307.4								
C307.5								
DEPARTMENT	ME	SEMESTER	5	COURSE CODE	17MEL58	COURSE ID	C308	
COURSE TITLE		ENERGY L	AB					
COURSE OUTCO	ME NO		COU	RSE OUTCO	OME STATEN	/IENTS		
		Able to de	fine basic	e terms an	d performa	nce paramete	ers of IC	
C308.1		engines						
C308.2		Able to write the Procedure of working of various IC engine equipments and measuring apparatus						
C308.3		Able to cal properties of	lculate th	e perform d lubricati	ance parai ng oils	meters of IC	engines,	
C308.4					-v			
C308.5								

DEPARTMENT	ME	SEMESTER	6	COURSE CODE	17ME61	COURSE ID	C311	
COURSE TITLE		Finite Element Analysis						
COURSE OUTCOME NO COURSE OUTCOME STATEMENTS					MENTS			
C311.1		Able to k	now the	e principl	es of en	ergy method	s, stress	



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		conditions and finite element method.								
		Able to I	Derive sh	nape funct	tions & st	iffness matr	ices for			
C311.2		different fir	nite elem	ents.						
		Able to obtain Stiffness matrix and Load vector of bar, Truss,								
C311.3		Beams, Conduction elements								
C211.4		Able to sol	ve proble	ems on Ba	ir, Truss, B	eams, Heat	l ransfer,			
C311.4		Numerical	megrano	JII						
	ME	SEMESTED	6	COURSE	171462		C212			
DEFAILINEI		SEIVILSTER	0	CODE	17101202		C312			
COURSE TITLE		Computer in	tegrated N	Manufacturi	ng					
COURSE OUTCO	ME NO	-	COU		ME STATEN	IENTS				
		Able to de	fine Aut	omation (	CIM CAD	CAM CN	C CNC			
		program. F	Robotic s	vstems. A	dditive ma	nufacturing.	Industry			
C312.1		4.0 and IO	Г.	5		U,	5			
		Able to e	explain t	he basics	of auton	nated manuf	facturing			
		industries	through	mathema	atical mod	lels and ca	tegorize			
		different t	ypes of	automated	l flow lin	es, robotic	systems,			
c312.2 additive manufacturing techniques.										
(212.2		Able to execute programs for various manufacturing processes								
		Able to analyze the automated flow lines to reduce time and								
C312.4		enhance productivity								
		Able to visualize and appreciate the modern trends in								
		Manufactur	ing like ad	lditive man	ufacturing, I	ndustry 4.0 ar	nd			
C312.5		applications of Internet of Things leading to Smart Manufacturing.								
DEPARTMENT	ME	SEMESTER	6	COURSE	17ME63	COURSE ID	C313			
				CODE						
COLLOCE TITLE		Heet Tuen of			Heat Transfer					
COURSE TITLE		Heat Transf	er			451170				
COURSE TITLE	OME NO	Heat Transfe	er COU		ME STATEN	MENTS				
COURSE TITLE COURSE OUTCO C313.1	OME NO	Heat Transfe	er COU te the diff	<b>RSE OUTCO</b> ferent mod	<b>ME STATEN</b> es of Heat	MENTS Transfer				
COURSE TITLE COURSE OUTCO C313.1 C313.2	OME NO	Heat Transference of the state	er COU te the diff ive the la	<b>RSE OUTCC</b> ferent mod	ME STATEN es of Heat ne modes ir	MENTS Transfer 1 Heat Transf	čer			
COURSE TITLE COURSE OUTCO C313.1 C313.2	OME NO	Heat Transfe         Able to stat         Able to der         Able to dra	er COU te the diff ive the la aw/ Appl	<b>RSE OUTCO</b> ferent mod tws from the heat	<b>DME STATEN</b> les of Heat ne modes in t flow rate	MENTS Transfer h Heat Transf and effectiv	er eness of			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3	OME NO	Heat Transfe         Able to stat         Able to der         Able to dra         conduction	er COU te the diff ive the la aw/ Appl , convect	RSE OUTCO ferent mod tws from the ly the heat ion and rad	<b>ME STATEN</b> es of Heat ne modes ir t flow rate diation heat	MENTS Transfer h Heat Transf and effectiv t transfer	eness of			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4	OME NO	Heat Transfe         Able to stat         Able to der         Able to dra         conduction	er COU te the diff ive the la aw/ Appl , convect	<b>RSE OUTCO</b> ferent mod tws from the ly the heat ion and rad	<b>DME STATEN</b> les of Heat ne modes ir t flow rate diation heat	MENTS Transfer 1 Heat Transf and effectiv t transfer	er eness of			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4 C313.5	OME NO	Heat Transference of the star Able to star Able to der Able to dra conduction	er COU te the diff ive the la aw/ Appl , convect	RSE OUTCO ferent mod aws from the ly the heat ion and rac	<b>ME STATEN</b> es of Heat ne modes ir t flow rate diation heat	MENTS Transfer h Heat Transf and effectiv t transfer	er eness of			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4 C313.5 DEPARTMENT	DME NO	Heat Transfe Able to star Able to der Able to dra conduction SEMESTER	er COU te the diff ive the la aw/ Appl , convect	RSE OUTCO ferent mod tws from the ly the heat ion and rac COURSE CODE	ME STATEN es of Heat ne modes ir t flow rate diation heat 17ME64	MENTS Transfer In Heat Transf and effectiv t transfer COURSE ID	Fer eness of C314			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4 C313.5 DEPARTMENT	DME NO	Heat Transfe Able to star Able to der Able to dra conduction SEMESTER	er COU te the diff ive the la aw/ Appl , convect 6 achine Ele	RSE OUTCO ferent mod tws from the ly the heat ion and rac ion and rac COURSE CODE	ME STATEN es of Heat ne modes in t flow rate diation heat 17ME64	MENTS Transfer h Heat Transf and effectiv transfer COURSE ID	er eness of C314			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4 C313.5 DEPARTMENT COURSE TITLE	MENO	Heat Transfer Able to star Able to der Able to dra conduction SEMESTER Design of Ma	er COU te the diff ive the la aw/ Appl , convect 6 achine Ele	RSE OUTCO ferent mod tws from the ly the heat ion and rac COURSE CODE ments -II	ME STATEN es of Heat ne modes in t flow rate diation heat 17ME64	MENTS Transfer In Heat Transf and effectiv t transfer COURSE ID	eness of C314			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4 C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO	DME NO	Heat Transfer Able to star Able to der Able to dra conduction SEMESTER Design of Ma	er COU te the diff ive the la aw/ Appl , convect 6 achine Ele COU	RSE OUTCO ferent mod tws from the ly the heat ion and rac COURSE CODE ments -II RSE OUTCO	ME STATEN es of Heat ne modes ir t flow rate diation heat 17ME64	MENTS Transfer In Heat Transf and effective transfer COURSE ID MENTS	eness of C314			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4 C313.4 C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1	ME NO	Heat Transfer Able to star Able to der Able to dra conduction SEMESTER Design of Ma Able to def	er COU te the diff ive the la aw/ Appl , convect 6 achine Ele COU	RSE OUTCO ferent mod tws from the ly the heat ion and rad COURSE CODE ments -II RSE OUTCO ses in curve	DME STATEN es of Heat ne modes in t flow rate diation heat 17ME64 DME STATEN ed beams at	MENTS Transfer In Heat Transf and effective transfer COURSE ID MENTS Ind springs	eness of C314			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4 C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1	DME NO	Heat Transfer Able to star Able to der Able to dra conduction SEMESTER Design of Ma Able to def Able to se	er COU te the diff ive the la aw/ Appl , convect 6 achine Ele COU ine stress lect the f	RSE OUTCO ferent mod tws from the ly the heat ion and rac COURSE CODE ments -II RSE OUTCO ses in curve flexible (b	ME STATEN es of Heat ne modes in t flow rate diation heat 17ME64 ME STATEN ed beams at elt, rope at	MENTS Transfer In Heat Transf and effective transfer COURSE ID MENTS Ind springs Ind chain) dr	Fer eness of C314 ives and			
COURSE TITLE COURSE OUTCO C313.1 C313.2 C313.3 C313.4 C313.4 C313.5 DEPARTMENT COURSE TITLE COURSE OUTCO C314.1	ME NO	Heat Transfer Able to star Able to der Able to dra conduction SEMESTER Design of Ma Able to def Able to se gears.	er COU te the diff ive the la aw/ Appl , convect 6 achine Ele COU ïne stress lect the f	RSE OUTCO ferent mod tws from the ly the heat ion and rac COURSE CODE ments -II RSE OUTCO ses in curve flexible (b	ME STATEN es of Heat ne modes in t flow rate diation heat 17ME64 DME STATEN ed beams at elt, rope at	MENTS Transfer In Heat Transfer and effective transfer COURSE ID MENTS Ind springs Ind chain) dr	C314			



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		transmitting elements and IC engine parts.						
		Able to de	termine t	he stresse	s in curved	l beams, spr	ings and	
C314.4		gears.						
		Able to calculate the flexible drive sizes, breaks, clutch, bearings						
C314.5	845	and IC engin	ne parts	COUDEE	47845655		C24 F	
DEPARTMENT	ME	SEIVIESTER	Ð	COURSE	1/11/1655	COURSE ID	C315	
COURSE TITLE		Automobile	Engineerii	ıg				
COURSE OUTCO	OME NO		COU	RSE OUTCO	OME STATEN	/IENTS		
C315.1		Identifying	different	parts of a	n automobi	le and it's wo	orking	
C315.2		Understand	l the worl	king of tra	nsmission a	and braking s	ystems	
C315.3		Compreher	nd the wo	rking of st	eering and	suspension s	ystems	
C315.4		Learn vario	ous types	of fuels ar	nd injection	systems		
		Know the ca	use of au	tomobile ei	missions, its	effects on		
	ЛАГ	environment and methods to reduce the emissions.				C21C		
DEPARTMENT	IVIE	SEIVIESTER	D	CODE	1/11/1604	COORSE ID	C310	
COURSE TITLE		Total Quality Management						
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS						
		Able to identify and demonstrate the principles of TQM,						
C316.1		Quality Gurus, Leadership and Customer Satisfaction.						
C316.2		Able to des	scribe the	tools used	l in Quality	Managemen	t	
		Able to app	ply the co	ncept of S	ix Sigma a	nd Statistical	Process	
C316.3		data and evaluate.						
C316.4								
C316.5								
DEPARTMENT	ME	SEMESTER	6	COURSE	17MEL67	COURSE ID	C317	
				CODE				
COURSE TITLE		Heat Transf	er Lab					
COURSE OUTCO	OME NO		COU	RSE OUTCC	OME STATEN	<b>MENTS</b>		
C317.1		Able to def	ïne basic	terms and	modes of l	neat transfer		
		Able to w	rite the	Procedure	e of work	ing of vario	ous heat	
C217 2		transfer e	quipment	as we	ell as ref	rigeration a	and Air	
		Able to	calculate	the heat	t transfer	rate heat	transfer	
		coefficients	s and	performan	ce of R	AC by co	nducting	
		experiments, also temperature distribution of steady and						
C317.3		transient he	eat condu	ction using	g numerical	approach.		
C317.4								
C317.5								
DEPARTMENT	ME	SEMESTER	6	COURSE CODE	17MEL68	COURSE ID	C318	



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COURSE TITLE	Modelling and Analysis Lab
COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C318.1	Able to finite Element Analysis & amp; Applications
C318.2	Able to comprehend natural frequency, Damping of single degree of vibrating systems, critical speed of shafts, pressure distribution in journal bearing
C318.3	Able to calculate and interpret stress and strains using strain gauges, photo elastic compression and bending To orient and balance masses rotating in different planes.
C318.4	Able to analyse stress concentration in rectangular plate with hole and to analyse governor equilibrium speed, sensitivity and power.
C318.5	

 $4^{TH}$  YEAR

DEPARTMENT	ME	SEMESTER	7	COURSE CODE	15ME71	COURSE ID	C401	
COURSE TITLE		ENERGY ENGINEERING						
COURSE OUTCO	OME NO		COUF	RSE OUTCO	ME STATEN	IENTS		
C401.1		Able to Enable to comprehend the knowledge of fundamentals.						
C401.2		Able to un plants.	derstand	various p	arameters 1	related to th	e power	
C401.3		Able to und to Economi	derstand t	he mather is of powe	natical rela r plants.	tionship witl	h respect	
C401.4	ļ							
C401.5								
DEPARTMENT	ME	SEMESTER	7	COURSE CODE	15ME72	COURSE ID	C402	
COURSE TITLE		FLUID POW	VER SYST	EMS				
COURSE OUTCO	OME NO	COURSE OUTCOME STATEMENTS						
C402.1		Enables to Hydraulic a	o underst and Pneur	and the natic syste	Principle a	and compor	nents of	
C402.2		Enables to motors, abl	understar e to calcu	nd the wor	rking of Hy rmance of H	ydraulics pu Pumps and m	mps and notors.	
C402.3		Understand their graphi	l Hydraul ic symbol	ic and Pne s.	eumatic cor	trol compon	ents and	
C402.4		Able to d basic fluid	esign Hy power ma	draulic/Pi	neumatic ( procedures	Circuits. Un	derstand	
C402.5		Understand applications	the usage	of logic ga	tes & n	nulti cylinder		



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DEPARTMENT	ME	SEMESTER	<b>7</b>	COURSE	15ME73	COURSE ID	C403	
COURSE TITLE		CONTROL	ENGINEE	RING				
		COURSE OUTCOME STATEMENTS						
		Able to recognize control system and its types control						
C403.1		actions.						
		Able to determine the system governing equations for						
		physical models (Electrical, Thermal, Mechanical, Electro						
C403.2		Mechanical).						
		Able to calculate the gain of the system using block diagram						
C403.3		and signal f	flow grap	h				
C403.4		Able to illu	strate the	response	of 1st and 2	and order sys	stems.	
		Able to dete	rmine the	stability of	<sup>f</sup> transfer fur	nctions in con	nplex	
C403.5		domain and	frequency	/ domain.				
		Able to emp	loy state e	equations t	o study the	controllabilit	y and	
	NAE		/ 7	COURCE	15145745	COURCE	C404	
DEPARTIVIENT	IVIE	SEIVIESTER	/	CODE	15IVIE/45		C404	
		SMADT MA	TEDIALS		15			
		SMART MATERIALS AND MEMS						
COURSE OUTCO	DME NO							
C404.1		Identify the smart structures, vibration absorbers and MEN				MEMS.		
		Summarize the properties of shape memory alloy,						
C404.2		reheologica	al fluids a	nd optical	fibers.	1 1 .	• .1	
C404 3		Describe the sensor and actuator devices and characterize the						
C404.3		Small structure.						
C404.4		reliability a	ccounting	$\frac{1}{3}$			ince and	
C404 5			eeounning	2				
DEPARTMENT	MF	SEMESTER	7	COURSE	15MF751	COURSE	C405	
		•=	-	CODE		ID	0.00	
COURSE TITLE		AUTOMOT	IVE ELEC	TRONICS			<u> </u>	
	MF NO		COUF		ME STATEN	IFNTS		
		Recall the	basic co	ncents at	nd electron	ic systems	used in	
C405.1		automobile	s	meepts a		iie systems	useu m	
		Summarize different technological advances in automobiles						
C405.2		including d	iagnostic	s of systen	ns and sub s	systems.		
		Select sens	sors, actu	ators and	control s	ystems for	different	
C405.3		application	s in auton	nobiles				
C405.4								
C405.5								
DEPARTMENT	ME	SEMESTER	7	COURSE	15MEL76	COURSE	C406	
				CODE		ID		
COURSE TITLE		DESIGN LA	B					
COURSE OUTCO	ME NO		COUF	RSE OUTCO	ME STATEN	IENTS		



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	5							
		Able to identify the longitudinal and Torsional single degree						
		of vibrating systems, also to identify different types of						
C406.1		Governors, Gyroscope.						
		Able to co	mprehen	d natural	frequency,	Damping of	of single	
		degree of v	vibrating	systems, c	ritical spee	ed of shafts,	pressure	
C406.2		distribution	in journa	al bearing				
		Able to cal	culate an	d interpre	t stress and	l strains usi	ng strain	
		gauges, ph	oto elasti	c compres	sion and b	ending and	to orient	
C406.3		and balance	e masses i	rotating in	different p	lanes.		
		Able to ana	alyse stre	ss concent	ration in re	ectangular pl	late with	
		hole and to	o analyse	e governor	equilibriu	m speed, se	ensitivity	
C406.4		and power.						
C406 E								
C406.5								
DEPARTMENT	ME	SEMESTER	7	COURSE	15MEL77	COURSE	C407	
DEPARTMENT	ME	SEMESTER	7	COURSE CODE	15MEL77	COURSE ID	C407	
DEPARTMENT COURSE TITLE	ME	SEMESTER CIM LAB	7	COURSE CODE	15MEL77	COURSE ID	C407	
COURSE TITLE	ME OME NO	SEMESTER CIM LAB	7 COUF	COURSE CODE	15MEL77 ME STATEN	COURSE ID IENTS	C407	
COURSE TITLE	ME OME NO	SEMESTER CIM LAB Able to wr	7 COUF	COURSE CODE	15MEL77 ME STATEN ams using	COURSE ID IENTS CADEM siz	C407	
COURSE TITLE	ME DME NO	SEMESTER CIM LAB Able to wr package for	7 COUF ite CNC or simula	COURSE CODE RSE OUTCO part progr ation of 1	15MEL77 ME STATEM ams using nachining	COURSE ID IENTS CADEM sin operations	C407 mulation such as	
COURSE TITLE COURSE OUTCO	ME OME NO	SEMESTER CIM LAB Able to wr package fo Turning, Di	7 COUF ite CNC or simula rilling &a	COURSE CODE RSE OUTCO part progration of 1 ump; Millin	<b>15MEL77</b> <b>ME STATEN</b> rams using nachining ng.	COURSE ID IENTS CADEM siz operations	<b>C407</b> mulation such as	
COURSE TITLE COURSE OUTCO	ME DME NO	SEMESTER CIM LAB Able to wr package fo Turning, Di Able to und	7 COUF ite CNC or simula rilling & a lerstand v	COURSE CODE RSE OUTCO part progr ation of 1 ump; Millin vrite progr	<b>15MEL77</b> <b>ME STATEN</b> rams using nachining ng. ams for Fle	COURSE ID IENTS CADEM sit operations	C407 mulation such as facturing	
COURSE TITLE COURSE OUTCO C407.1 C407.2	ME OME NO	SEMESTER CIM LAB Able to wr package fo Turning, D Able to uno Systems Ro	7 COUF ite CNC or simula rilling &a lerstand v obotics	COURSE CODE RSE OUTCO part progr ation of 1 amp; Millin vrite progr	<b>15MEL77</b> <b>ME STATEN</b> ams using nachining ng. ams for Fle	COURSE ID IENTS CADEM size operations exible Manuf	<b>C407</b> mulation such as facturing	
C408.5 DEPARTMENT COURSE TITLE COURSE OUTCO C407.1 C407.2		SEMESTER CIM LAB Able to wr package fo Turning, D Able to un Systems Ro Able to un	7 ite CNC or simula rilling &a lerstand v obotics nderstand	COURSE CODE RSE OUTCO part progration of 1 amp; Millin vrite progr the oper	<b>15MEL77</b> <b>ME STATEN</b> rams using nachining ng. ams for Fle ating prince	COURSE ID IENTS CADEM sin operations exible Manuf ciples of hy	C407 mulation such as facturing draulics,	
C408.5 DEPARTMENT COURSE TITLE COURSE OUTCO C407.1 C407.2 C407.3		SEMESTER CIM LAB Able to wr package fo Turning, D Able to un Systems Ro Able to un pneumatics	7 ite CNC or simula rilling &a lerstand v obotics nderstand and elect	COURSE CODE RSE OUTCO part progration of 1 ump; Millin vrite prograther the oper the oper	<b>15MEL77</b> <b>ME STATEN</b> ams using nachining ng. ams for Fle ating princ natic system	COURSE ID IENTS CADEM sit operations exible Manuf ciples of hy ns.	<b>C407</b> mulation such as facturing draulics,	
C408.5 DEPARTMENT COURSE TITLE COURSE OUTCO C407.1 C407.2 C407.3 C407.4		SEMESTER CIM LAB Able to wr package fo Turning, D Able to un Systems Ro Able to un pneumatics	7 ite CNC or simula rilling & a lerstand v obotics nderstand and elect	COURSE CODE RSE OUTCO part progr ation of 1 ump; Millin write progr the oper the oper tro– pneum	<b>15MEL77</b> <b>ME STATEN</b> rams using nachining ng. ams for Fle ating princ natic system	COURSE ID IENTS CADEM sit operations exible Manuf ciples of hy ns.	C407 mulation such as facturing draulics,	

DEPARTMENT	ME	SEMESTER	8	COURSE CODE	15ME81	COURSE ID	C411		
COURSE TITLE		Operations I	Research						
COURSE OUTCO	ME NO		COL	IRSE OUTCO	OME STATEN	MENTS			
C411.1		Able to de different O	Able to define terminologies and procedures associated with different Operations Research techniques.						
C411.2	1	Able to de of OR tech	scribe the niques	importan	ce, Characte	eristics and lin	mitations		
C411.3	}	Able to apply OR technique/strategies to solve industrial and managerial related problems.							
C411.4	•	Able to all and time.	locate and	l schedule	the resour	ces and optin	num cost		
C411.5	5	Able to revi	ew and eva	aluate proje	ect duration	and Critical pat	h.		



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DEPARTMENT	ME	SEMESTER	8	COURSE CODE	15ME82	COURSE ID	C412		
COURSE TITLE		Additive ma	nufacturing	g					
COURSE OUTCO	ME NO		COU	IRSE OUTCO	OME STATE	MENTS			
C412.1		Understand using Polyr	l the diff ner, Powo	erent prod der and Na	cess of Ad no material	lditive Manuf s manufacturi	acturing. ng.		
C412.2	C412.2 Analyse the different characterization techniques								
C412.3 Describe the various NC, CNC machine programing Automation techniques						ing and			
C412.4	C412.4								
C412.5	1								
DEPARTMENT	ME	SEMESTER	8	COURSE CODE	15ME835	COURSE ID	C413		
COURSE TITLE		PRODUCT	LIFE CYC	LE MANA	GEMENT				
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS							
C413.1		Explain the Manageme	e various nt and Pro	strategies oduct Data	involved i Manageme	in Product Li ent	fe Cycle		
C413.2		Carry out the decomposition and model simulation in product design							
C413.3		Implement	structurin	ig in new p	product deve	elopment proc	ess.		
C413.4		Select the t	ools need	ed to forec	ast the tech	nology innova	ation.		
C413.5		Carry out pr	oduct stru	cturing usir	ng virtual pro	oduct developm	ent tools		



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2018-19

DEPARTMENT	ME	SEMESTER	1	COURSE	18MDE12	COURSE ID	C102			
		Advanced Th	eory of Vi	brations						
		Auvanceu III								
COURSE OUTCO	DIVIE NO	COURSE OUTCOME STATEMENTS								
		Apply Newton's equation of motion and energy methods to								
		model	·				1			
		basic vibral	ing mech	anical syst	em, model t	indamped and				
		forced	systems	and struc	stures for f	lee and harm	onically			
C102.1		vibrations								
	•	Model sing	le-and m	ulti-degree	e of freedor	n for free and	d forced			
		vibrations	and de	termine	response to	o vibration.	natural			
		frequencies	frequencies							
C102.2		and modes of	and modes of vibration.							
		Apply the	fundame	ntals of v	vibration to	its measurem	ent and			
C102.3		analysis.	analysis.							
		Solve reali	Solve realistic vibration problems in mechanical engineering							
		design	design							
C102.4	,	that involve	that involves application of most of the course syllabus							
C102.5										
DEPARTMENT	ME	SEMESTER	1	COURSE	18MDE13	COURSE ID	C103			
				CODE						
COURSE TITLE		Continuum n	nechanics							
COURSE OUTCO	OME NO		COL	JRSE OUTCO	OME STATEN	IENTS				
C103.1		Treat generation	al stresses	s and defor	mations in c	continuous ma	terials.			
		Formulate a	nd solve	specific te	chnical prob	plems of displa	acement.			
C103.2		strain and st	ress.	- <b>I</b>	· · · · ·	I I I I I I				
C103.3		Perform exp	periments	with stres	ses and defo	rmations.				
		Model and	analyse	the stres	ses and de	formations of	simple			
C103.4	ļ	geometries	under an	arbitrary lo	oad in solids		1			
C103.5										
DEPARTMENT	ME	SEMESTER	1	COURSE	18MDE14	COURSE ID	C104			
				CODE						
COURSE TITLE		Dynamics and	d Mechani	sm Designs						
COURSE OUTCO	OME NO		COL	JRSE OUTC	OME STATEN	IENTS				
		Apply the	tools of	analytical	dynamics y	vith the main	goal of			
		developing	mathema	tical mod	els that des	cribe the dyna	amics of			
C104.1		systems of r	igid bodi	es.		5				
		Formulate	equation	s of mot	ion for con	mplicated me	chanical			
C104.2		systems /lin	kages and	d hods for	solving thes	e equations.				
		Understand	multi b	Understand multi body dynamics in mechanical engineering						
C104.3		÷				0	-			
		design.								



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C104.5	1									
DEPARTMENT	ME	SEMESTER	1	COURSE	18MDE15	COURSE ID	C105			
				CODE						
COURSE TITLE		Fracture Me	Fracture Mechanics							
COURSE OUTCO	OME NO		COL	IRSE OUTC	OME STATEN	IENTS				
		Develop ba	sic funda	mental un	derstanding	of the effects	of crack			
		like defect	ts on th	e perforr	nance of a	aerospace, ci	vil, and			
C105.1		mechanical	engineeri	ing structu	res.					
		Select appr	opriate m	aterials fo	r engineerin	ig structures t	o ensure			
0105.0		damage tole	erance by	knowing	the critical v	values of parai	meters at			
C105.2		Crack tip.	1 - 4 -	anahin	L					
		displacement	g relati	onsnip nd datarm	ining oritica	rack up	opening			
C105 3		numerical n	numerical methods.							
		Employing	suitable	testing me	ethods to de	etermine fation	ue crack			
C105.4		propagation	propagation rates in engineering structures.							
C105.5	1									
DEPARTMENT	ME	SEMESTER	1	COURSE	18MDEL16	COURSE ID	C106			
				CODE						
COURSE TITLE		Design labora	atory -1							
COURSE OUTCO	OME NO		COL		OME STATEN	IENTS				
C106.1		Able to stat	e effect of	f load on d	lifferent stru	ctural member	:s			
C106.2		Able to dev	elop num	erical prog	grams for an	alysis using M	IAT Lab			
		Able to	analyze	structural	systems	subjected loa	ads and			
C106.3		displacemen	nts using 1	FEA softw	/are					
C106.4										
C106.5										
DEPARTMENT	ME	SEMESTER	1	COURSE	18RMI17	COURSE ID	C107			
				CODE						
COURSE TITLE		Research Me	thodology	and IPR						
COURSE OUTCO	OME NO		COL	JRSE OUTC	OME STATEN	IENTS				
		Discuss rea	search me	ethodolog	y and the te	chnique of de	efining a			
C107.1		research pro	oblem.							
		Explain th	ne functio	ons of th	e literature	review in	research,			
		carrying ou	t a literatu	ire search,	developing	theoretical and	d			
C107.2		Conceptual	Iramewo	rks and wr	iting a revie	W.				
C107.3		Explain var	rious rese	arch desig	ns and their	cnaracteristics	<b>.</b>			
		Explain the	e art of in	nterpretation	on and the a	art of writing	research			
C107.4		reports.								
C107.5										



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DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18MEA21	COURSE ID	C111	
COURSE TITLE		Finite Elemen	t Method	s				
COURSE OUTCO	OME		CO	URSE OUTCO	OME STATEME	INTS		
C111.1		Know the p finite element	principle nt metho	s of energ d.	y methods, s	stress conditi	ons and	
C111.2		Derive shape functions & amp; stiffness matrices for differe finite elements.						
C111.3		Obtain Stiffness matrix and Load vector of bar, Truss, Beams frames and plates.						
C111.4		solve problems on Bar, Truss, Beams, frames, plates, Numerica Integration						
C111.5								
DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18MDE22	COURSE ID	C112	
COURSE TITLE		Advanced Ma	chine Des	sign				
COURSE OUTCO	OME		CO	URSE OUTCO	OME STATEME	ENTS		
C112.1		Able to und brittle mater growth, surf	erstand t rials, fati face failu	he concepts gue design re mechani	s of failure th and testing, sms	eories for du crack nuclea	ctile and tion and	
C112.2		Apply the s components	tress and with Va	d strain life riable Amp	e approach to litude Loadir	b design the	machine	
C112.3		Analyze the crack, stress Loading	e design s and st	of machir rain life ar	ne component oproach with	nts based on Variable An	fatigue, mplitude	
C112.4								
C112.5								
DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18MDE23	COURSE ID	C113	
COURSE TITLE		Tribology and	l Bearing	Design				
COURSE OUTCO	OME		CO	URSE OUTCO	OME STATEME	INTS		
C113.1		Understand wear.	the prin	ciples of v	viscosity, lub	rication, fric	tion and	
C113.2		Acquire a hydrodynam power loss.	compro nic beari	ehensive ngs on wo	knowledge rking, load o	of hydrosta carrying, fric	tic and tion and	



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C113.3		Interpret the antifriction, applications	nterpret the lubrication significance and advantages of ntifriction, porous and magnetic bearings use practical pplications.							
		Determine p	Determine pressure distribution, load carrying capacity, frictional							
C113.4		force power	orce power loss in different bearings.							
C113.5										
DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18MEA242	COURSE ID	C114			
COURSE TITLE		Computer ap	Computer application in design							
COURSE OUTCO	OME	COURSE OUTCOME STATEMENTS								
C114.1		Able to understand the concepts and tools of computer applications as used in the engineering profession.								
C114.2		Able to le Graphics pr CAM and ( between Sys	Able to learn the principles of CAD/CAM/CAE Systems, Graphics programming, Geometric Modeling Systems, CAD, CAM and CAE Integration, and standards for Communicating between Systems							
		To learn to	create t	echnically	correct surfa	ce and solid	models			
C114.3		that are com	mon to a	und useful f	or visualizati	on.				
C114.4										
C114.5										
DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18MEA252	COURSE ID	C115			
COURSE TITLE		Automobile S	ystem Des	sign						
COURSE OUTCO	OME		COL	JRSE OUTCO	OME STATEME	INTS				
C115.1		Gain an ins maintenance automotive	sight int e, which industry	o aspects o will be use	of vehicle d ful for taking	esign, opera g up a positio	tion and on in the			
		Apply the	knowled	dge in cre	eating a pro	eliminary de	esign of			
C115.2		automobile	sub syste	ems.	- 1	-	-			
		Identify c	onstructi	on, work	king, preve	ntive main	tenance,			
C115.3		troubleshoot	oubleshooting diagnosis of various Automobile Systems.							
1		T1 //C 35				<u>, , , , , , , , , , , , , , , , , , , </u>	1 •			
C115 A		Identify M	odern to	echnology	and safety	measures	used in			
C115.4		Identify M Automotive	odern to Vehicles	echnology 3.	and safety	measures	used in			



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DEPARTMENT	ME	SEMESTER	4	COURSE CODE	17MDE41	COURSE ID	C211
COURSE TITLE	-	Tribology and	l Bearing	Design			
COURSE OUTCO	OME		CO	URSE OUTCO	OME STATEMI	ENTS	
C115.1		Understand wear.	the prin	ciples of v	viscosity, lub	prication, fric	tion and
C115.2		Acquire a hydrodynam power loss.	compro nic beari	ehensive ] ngs on wo	knowledge rking, load o	of hydrosta carrying, fric	tic and tion and
C115.3		Interpret the antifriction, applications	he lubr porous	ication si s and ma	gnificance agnetic bea	and advanta rings use	nges of practical
C115.4		Determine p force power	ressure loss in c	distribution lifferent bea	, load carryii arings.	ng capacity, f	rictional
C115.5							

DEPARTMENT M	IE	SEMESTER	4	COURSE CODE	17CAE421	COURSE ID	C212
COURSE TITLE		Fracture Mec	hanics				
COURSE OUTCOME NO	Ξ		CO	URSE OUTCO	OME STATEMI	ENTS	
C115.1		Develop bas like defects mechanical	sic funda s on tl engineer	amental und ne perforn ing structur	lerstanding on nance of action of actions.	of the effects erospace, civ	of crack vil, and
C115.2		Select appro damage tole crack tip.	priate n rance by	naterials for knowing t	r engineering he critical va	g structures to alues of parar	o ensure neters at
C115.3		Establishing SIF and de methods.	relation etermini	ship betweeng critical	en crack tip o crack sizes	ppening displa s through n	acement, umerical
C115.4		Employing propagation	suitable rates in	testing me engineering	thods to det g structures.	ermine fatigu	ie crack



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Bengaluru-560107

2019-20

DEPARTMENT	ME	SEMESTER	1	COURSE	18MDE12	COURSE ID	C102			
		A dream and Th	a a mar of X72	CODE						
COURSE IIILE		Advanced In	Advanced Theory of Vibrations							
COURSE OUTCO	OME NO		COL	JRSE OUTC		IENTS				
		Apply Newton's equation of motion and energy methods to								
		model								
		basic vibrating mechanical system, model undamped and damped								
		forced	systems			ree and narm	onically			
C102.1		vibrations.								
		Model sing	le-and m	ulti-degree	e of freedor	n for free and	d forced			
		vibrations	and de	termine	response to	o vibration,	natural			
		frequencies								
C102.2		and modes of	and modes of vibration.							
		Apply the fundamentals of vibration to its measurement and								
C102.3		analysis.	analysis. Solve realistic vibration problems in mechanical engineering							
		Solve realistic vibration problems in mechanical engineering								
C102 4		design that involves application of most of the course syllabus								
C102.4			s applica			ise syndous				
DEPARTMENT	MF	SEMESTER	1	COURSE	18MDF13	COURSEID	C103			
		0111101111	-	CODE	10.002 110		0100			
COURSE TITLE		Continuum n	nechanics							
COURSE OUTCO	ME NO		COURSE OUTCOME STATEMENTS							
C103.1		Treat generation	al stresses	s and defor	mations in c	continuous ma	terials.			
		Formulate a	nd solve	specific te	chnical prot	olems of displa	acement,			
C103.2		strain and st	ress.							
C103.3		Perform exp	periments	with stres	ses and defo	rmations.				
		Model and	analyse	the stres	ses and de	formations of	simple			
C103.4		geometries	under an	arbitrary lo	oad in solids					
C103.5										
DEPARTMENT	ME	SEMESTER	1		18MDE14	COURSE ID	C104			
		Dynamics an	d Mechani	sm Designs						
		Dynamics an			ONAE STATEN					
COOKSE OUTCO		A mentry the			demonstate u	with the main	and of			
		Apply the	10018 01 mathema	analytical	als that dos	oribe the dyna	goal of			
C104 1		systems of t	igid hodi	es.	cis that ueso		unies of			
		Formulate equations of motion for complicated mechanical								
C104.2		systems /lin	kages and	d hods for	solving these	e equations.	-inallival			
		Understand	multi b	ody dyna	mics in me	echanical eng	ineering			
C104.3		design.		5 5 5		6	. 0			



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C104.4										
C104.5										
DEPARTMENT	ME	SEMESTER	1	COURSE	18MDE15	COURSE ID	C105			
				CODE						
COURSE TITLE		Fracture Me	Fracture Mechanics							
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS								
		Develop ba	sic funda	mental un	derstanding	of the effects	of crack			
		like defect	ts on th	e perform	nance of a	aerospace, ci	vil, and			
C105.1		mechanical	engineeri	ing structu	res.					
		Select appr	opriate m	aterials fo	or engineerir	ng structures t	o ensure			
0105.0		damage tole	erance by	knowing	the critical v	alues of parai	neters at			
C105.2		Crack tip.	n malati	onchin	haturaan	ana alt tin	ononina			
		displacement	g relation	onsnip nd determ	between (	al crack sizes	through			
C105.3		numerical n	numerical methods.							
		Employing	Employing suitable testing methods to determine fatigue crack							
C105.4		propagation	propagation rates in engineering structures.							
C105.5					-					
DEPARTMENT	ME	SEMESTER	1	COURSE	18MDEL16	COURSE ID	C106			
				CODE						
COURSE TITLE		Design labora	atory -1							
COURSE OUTCO	ME NO		COL	JRSE OUTC	OME STATEN	1ENTS				
C106.1		Able to stat	e effect o	f load on c	lifferent stru	ctural member	S			
C106.2		Able to dev	elop num	erical prog	grams for an	alysis using M	AT Lab			
		Able to	analyze	structural	systems	subjected loa	ads and			
C106.3		displacemen	nts using	FEA softw	vare					
C106.4										
C106.5				•						
DEPARTMENT	ME	SEMESTER	1	COURSE	18RMI17	COURSE ID	C107			
				CODE						
COURSE TITLE		Research Me	thodology	and IPR						
COURSE OUTCO	ME NO		COL	JRSE OUTC	OME STATEN	IENTS				
		Discuss rea	search me	ethodolog	y and the te	chnique of de	efining a			
C107.1		research pro	oblem.							
		Explain th	ne functio	ons of th	e literature	review in	research,			
C107.2		carrying ou	t a literati	are search,	developing	theoretical and	1			
C107.2		Conceptual	iramewo	rks and wi	na and their	W.				
C107.3			ious rese	aren desig			». 			
C107 4		explain the	e art of 1	merpretati	on and the a	art of writing	research			
C107.4										
C107.5										



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DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18MEA21	COURSE	C111		
COURSE TITLE		Finite Element Methods							
		Know the	principle	s of energy	v methods	stress condit	ions and		
C111.1		finite eleme	ent metho	s of ellerg	y methous, s		ions and		
		Derive sha	pe functi	ions &am	o: stiffness r	natrices for	different		
C111.2		finite eleme	ents.	1	,				
		Obtain Stif	fness ma	trix and L	oad vector o	of bar, Truss,	, Beams,		
C111.3		frames and plates.							
		solve problems on Bar, Truss, Beams, frames, plates,							
C111.4		Numerical Integration							
C111.5			-						
DEPARTMENT	ME	SEMESTER 2 COURSE 18MDE22 COURSE C112							
COURSE TITLE		Advanced M	lachine De	esign					
COURSE OUTCO	OME NO		COU	IRSE OUTCO	OME STATEM	ENTS			
		Able to un	derstand	the conce	pts of failur	e theories fo	r ductile		
		and brittle	e materi	ials, fatig	ue design	and testing	, crack		
C112.1		nucleation	and grow	vth, surface	e failure mec	chanisms			
		Apply the s	stress and	d strain life	e approach to	b design the	machine		
		A nolvero th	s with va	ariable An	nplitude Loa	aing nta haaad an	fations		
		Analyze in crack stres	e design	01 macmi ain life ar	ne component	Neriable A	naligue,		
C112.3		Loading	ss and su	am me ap			npinude		
C112 4		20000008							
C112.5									
DEPARTMENT	MF	SEMESTER	2	COURSE	18MDF23	COURSE	C113		
			_	CODE		ID			
COURSE TITLE		Tribology ar	nd Bearing	g Design					
COURSE OUTCO	OME NO		COU		OME STATEM	ENTS			
	-	Understand	the prin	ciples of y	viscosity lub	rication fric	tion and		
C113.1		wear.	r the prin		(15005hty, 140	ficution, file	tion and		
		Acquire a	compre	ehensive	knowledge	of hydrosta	atic and		
		hydrodyna	mic beari	ings on wo	orking, load	carrying, fric	tion and		
C113.2		power loss.				_			
		Interpret t	he lubr	ication si	gnificance	and advant	ages of		
		antifriction	, porou	s and m	agnetic bea	rings use	practical		
C113.3		application	s.	1			•,		
C113.4		Determine	pressur	e distribu	ution, load	carrying o	capacity,		



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		frictional force power loss in different bearings.						
C113.5								
DEPARTMENT	ME	SEMESTER	2	COURSE	18MEA242	COURSE	C114	
				CODE		ID		
COURSE TITLE		Computer Application in Design						
COURSE OUTCO	ME NO	COURSE OUTCOME STATEMENTS						
		Able to understand the concepts and tools of computer						
C114.1		applications as used in the engineering profession.						
		Able to learn the principles of CAD/CAM/CAE Systems,						
		Graphics programming, Geometric Modeling Systems, CAD,						
		CAM and CAE Integration, and standards for Communicating						
C114.2		Detween Systems.						
C114 2		that are common to and useful for visualization						
C114.3								
C114.4								
DEPARTMENT	MF	SEMESTER	2	COURSE	18MFA252	COURSE	C115	
	WIL .	SEIVIESTER	-	CODE	1010124232	ID	0115	
COURSE TITLE		Automobile System Design						
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS						
		Gain an insight into aspects of vehicle design, operation and						
		maintenance, which will be useful for taking up a position in						
C115.1		the automotive industry						
C115.2		Apply the knowledge in creating a preliminary design of automobile sub systems.						
		Identify construction, working, preventive maintenance,						
C115.3		troubleshooting diagnosis of various Automobile Systems.						
C115.4		Identify Modern technology and safety measures used in						
C115.4		Automotive venicies.						
	MF	SEMESTER	1	COURSE	18MDEL26	COURSE	C106	
		SEIVIESTEIN	-	CODE		ID	6100	
COURSE TITLE		Design labor	atory -II					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS						
		Able to state and explain thermal, structural and fluid forces on						
C106.1		structural members						
		Able to develop fine element model using for different						
C106.2		structural and fluid systems						
		Able to analyze structural, fluid systems for loads and						
C106.3		displacements using FEA software						
C106 4		Able to investigate using structural, fluid systems responses for various load conditions						
C106.4		TOT VATIOUS		unions				
C106.5		1						



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DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18MDE31	COURSE ID	C201		
COURSE TITLE		Design for M	Ianufactu	re and Asse	embly				
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS							
		Describe the different types of manufacturing systems and							
		compare their suitability for economic production of various							
C201.1		components and products.							
		Identify factors and causing mechanisms of the defects likely							
		to occur with different manufacturing processes in producing mechanical products and the relevant design approaches to							
C201.2		rectify them.							
		Select proper materials and manufacturing processes for							
		designing							
		products/components by applying the relevant principles for							
C201.3		ease and economic production.							
C201.4									
C201.5									
DEPARTMENT	ME	SEMESTER	2	COURSE CODE	18CAE321	COURSE ID	C202		
COURSE TITLE		Experimental Mechanics							
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS							
		Able to understand different techniques of finding structural							
C202.1		stress and strains							
		Able to develop mathematical relationships for calculation of							
C202.2		stress and strain in different techniques like strain gauges,							
		Apply the principles and techniques of brittle coating analysis							
C202.3		and holographic analysis							
C202.4		<u>U</u>	1	<i>y</i>					
C202.5									
DEPARTMENT	ME	SEMESTER	2	COURSE	18MDE332	COURSE	C203		
				CODE		ID			
COURSE TITLE		Composite N	/laterials [	Fechnology					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS							
		Understand the Composites materials. Manufacturing process.							
C203.1		And it's NDT Tests.							
C203.2		Outline the stress-strain relations for Composites materials							
		Determine the composite structures for space, aerospace,							
0000 0		automobile, marine, electrical & amp; electronics, and							
C203.3		sports& recreational. And its applications.							



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C203.4	
C203.5	