Annexure-1

COURSE VS SOS MAPPING

A Stranger Stranger	Co urs			Description of												Course Type	Course Objective
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	13	CMOS	СО	or device						is Design and
	EC	VLSI	,	fabrication		2				develop
2	06	Design	1	process and						Digital
	ı			Electrical						CMOS
				Properties.						circuits using

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CO 2	Analyze the characteristics of CMOS circuits Construction and the comparison between different state-of-theart CMOS technologies and processes		2					
CO 3	Design schematic diagrams, stick diagrams and layouts for digital circuits using CMOS and n-MOS logic						3	
CO 4	Analyze CMOS circuits in terms of area, speed and power dissipation by applying the techniques like transistor sizing & design rules.				77.		2	
CO 5	Design and develop Digital CMOS circuits						3	

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			Microwind	_	 							
		CO 1	Understand the logical gates to construct combination al & sequential circuits to perform different µ- operations and design of basic computer	and the state of t	1						Modifie d	The objective of this course is to Design and Simulate System Design using Logisim
		CO 2	Develop micro Programs for design of Control Unit, CPU		1							
13 E M2 01	Comput er Organiz ation	CO 3	Apply and realize operations like Multiplication, Floating Point algorithms using supporting modern engineering tools.							2		
		CO 4	Understand Memory Hierarchy, mapping procedures and the Peripherals, I/O interface and Direct Memory Access.		1							

		CO 5	Design and Simulation of System Design using Logisim Tool						2		
		CO 1	Understandi ng the concepts of Embedded Networking Communicat ion Standard protocols: RS 232, RS 485, SPI, I2C bus protocols.			***************************************		1	THE PARTY OF THE P	Added	The objective of this course is to Understandin g the concepts of Embedded Networking Communicati on Standard protocols:
13- E M- E3	Embedd ed Network ing	CO 2	Analyze the US B& CAN based synchronizat ion Techniques					1			
2		CO 3	Applying Ethernet communicati on protocols for Embedded Systems					1			
		CO 4	Apply different wireless sensor networks used in embedded systems.						2		
11 E M 401	EMBED DED SYSTE MS	CO 1	Analyze embedded systems,							Modifie d	The objective of this course is to Analyze the basic interfacing and communicati

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A control of the cont												on protocols used in embedded systems.
		CO 2	Analyze and program on chip peripherals and off chip peripherals for a single purpose controller		and the state of t	2						
Parameter and the second secon		CO 3	Analyze the basic interfacing and communicati on protocols used in embedded systems.				10 History 1 His			2		
		CO 4	Analyze and select appropriate software architecture and analyze the features real time operating systems.			2	A Company of the Comp	A A A A A A A A A A A A A A A A A A A				
		CO 5	Develop and demonstrate a small embedded system for a real time application.			2						
13 E M 431	ENTER PRISE PROGR AMMIN G	CO 1	Create and Deploy web application						3	3	Added	The objective of this course is to Apply EJB technologies to Real Life applications

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	G		data warehouse Architecture.									data mining and data warehouse Architecture
		CO 2	Understand the data Pre- processing techniques, and apply association rule mining on transactional data	*	of the same of the		According to the state of the s		1,2			
		CO 3	Apply classification & prediction techniques on various data sets							2		
		CO 4	Apply clustering techniques on large data sets						2			
13.	ADVAN CED	CO 1	Understand and adopt appropriate behavior patterns								Modifie d	The objective of this course is to Analyze and apply various interpersonal skills in dayto-day communicati on
AC 301	EMPLO YARILI	CO 2	Understand ,remember and apply lexical, syntactic skills related to grammar, usage and composition			in the state of th						
		CO 3	Analyze and apply									

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		CO 5	Create and Analysis of digital modules through project oriented approach								3		
- Aller and Alle		CO 1	Understand the working of Microcontrol ler 8051 and Instruction Set	TAXAA AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	1			and the state of t				Retaine d without changes	The objective of this course is to Understand the working of Microcontroll er 8051
11 EC 311	MICRO PROCE SSOR & MICRO	CO 2	Apply Interfacing concepts of few I/O Peripherals to 8051 through programmin g.		2								
	CONTR OLLER	CO 3	Apply the Programmin g concepts of 8086		2								
		CO 4	Understand the working model of ARM Processor		1					de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la			
The state of the s		CO 5	Applying the knowledge of 8051 and working through peripherals								3		
13 E M 332	PCB DESIG N.	CO 1	Understand the active and passive components,				1					Added	The objective of this course is to Understand

			characteristi cs and the materials used along with their properties, mounting components on PCB, classification of PCB boards			- Propries				the basics of PCB Fabrication
		CO 2	Understand different copper clad laminates and their properties, Soldering techniques.			1				
		CO 3	Apply the knowledge of schematic and layout to design a PCB		maketek	2				
		CO 4	Understand the basics of PCB Fabrication and generate foot print for library, etc			1				
11 E M3 30	Real Time Operati ng Systems	CO I	Understand the basic principles of operating systems structures, design and implementati on of processes and introduction to			1			Retaine d without changes	The objective of this course is to Understand the basic principles of Rea 1 time operating systems

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			and UI for an application using the principles and concepts of software design and golden rules of UI. Understand various software Quality concepts and testing strategies for development of quality software. Apply various types of UML Diagrams for given							1		
13 EM 333	VISUA L PROGR AMMIN G	CO 1 CO 2	case study using rational rose. Understand the building blocks of .NET framework Understand C# Language Fundamental s Apply Object Oriented Programmin			1			2		Added	The objective of this course is to Understand the building blocks of .NET framework

			g Concepts	1		ı		l	ı	1	1	-	
			through C#										
		CO 4	Apply Interfaces, and collections through C# and understand .NET assemblies				· · · · · · · · · · · · · · · · · · ·			2			
		CO 1	Create static web pages using basic HTML and CSS.					A CANADA	The second state of the se		3	Added	The objective of this course is to Create dynamic web pages using PHP and MYSQL
13 E M3	WEB PROGR AMMIN	CO 2	Apply the fundamental components of the JavaScript programmin g language to a interactive web page.								2		
31	G	CO 3	Understand the concepts of Document Object Model and Event handling mechanisms in JavaScript.				The state of the s						
		CO 4	Create dynamic web pages using PHP and MYSQL.							and the state of t	3		

		co 1	Understand types of database, need for data mining and data warehouse Architecture.							graves.		Retaine d without Change s	The objective of this course is to Understand the need for data mining and data warehouse Architecture
11 OE 432	DATA WARE HOUSI NG AND MININ G	CO 2	Understand the data Pre- processing techniques, and apply association rule mining on transactional data			The state of the s		a man and definite	The second secon	1			
		CO 3	Apply classification & prediction techniques on various data sets								2		
		CO 4	Apply clustering techniques on large data sets	THAT TO THE T						2	,		
13 EC 205	Analog Electron ic Circuits	CO 1	Design different types of feed-back amplifiers and provide general solution for real time problems			3				the state of the s		Modifie d	The objective of this course is to Understand the basics of various amplifiers and provide general solution for real time problems using them
		CO 2	Design different types of			3							

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	Examine the Gunctioning of different combination al logic circuits built with logic gates and the design procedure for developing circuits like adders, decoders, code converters, etc.	
CO 3	Analyze the behavior of flip-flops and the operation of sequential circuits using flip-flops	
CO 4	Implement the design approach for creating sequential circuits like counters, shift registers, etc., and the concept of ASM charts in describing the digital systems	
CO 5	Implement different combination al and	

The state of the s			sequential circuits with NI MyDaq and Labview				And the state of t	· ·			Modifie d	The objective of this course is to understand
		CO	Understand OSI and TCP/IP Models and basics of physical layer and their issues	1				To the state of th		The state of the s		the basic concepts of network protocols, routing algorithms and their design in client server communicati on
13 CS 205	Comput er Network s	CO 2	Demonstrate Data Link layer issues and medium access control sub layers concepts			2						
		CO 3	Analyze and implement the algorithms of network, transport layers and concerned services	2		2						
Verification and the second se		CO 4	Implement the concepts of TCP ,UDP and the application layer conceptions			2						

		CO 5	Demonstrate the basic concepts of protocols and their design including client/server models, connection oriented and connection- less models	3			3					
		CO I	Understand advantages of DBMS and its characteristics, concepts & ER model.	1							Modifie d	The objective of this course is to Understand the characteristic s and concepts of DBMS
13 CS 204	Data Base Manage ment System	CO 2	Demonstrate Relational Database using SQL detailing the role of Relational Algebra and Relational Calculus.		2		,					
		CO 3	Examine storing data, File organization s, Indexing and Illustrates Normal Forms.	2					The state of the s			
		CO 4	Interpret Transaction Management and Concurrency	2								

			control										
			techniques.						٠.				
		CO 5	Create database for a given case study.		2					•			
		CO I	Student will be able to apply measures of efficiency to algorithms and Compare various linear data structures like Stack ADT, Queue ADT, Linked lists.	2			2					Modifie d	The objective of this course is to analyze and compare various data structures
13 ES 204	STRUC	CO 2	Student will be able to analyze and compare linear data structures and analyze different searching and hashing techniques.	2			2						
And the second s		CO 3	Student will be able to analyze and compare various non — linear data structures like Trees and Graphs.			-	2						
		CO 4	Student will be able to analyze and compare varioussortin	2			2						

			g algorithms, to select from a range of possible options, to provide justification for that selection, and to implement the algorithm in a particular context.	The state of the s	ALL STATEMENT TO THE ST	Line and the state of the state				And address of the Annual Section 1. Annual Sect	A description of the second of			
		CO 5	Studentwill be able to understand and execute lab experiments and develop a project along with his/her team members.	A A A A A A A A A A A A A A A A A A A		2	And the state of t	and the second s	THE COLUMN TWO IS NOT THE COLUMN TWO IS NOT		and the second s	A contract of the contract of		
13- BS 200	Mathem	CO 1	Apply various Set Operations and Logical Inferences for solving problems and the principle of Mathematica I Induction.	2			(2						Added	The objective of this course is to apply the basic methods of discrete mathematics in Computer Science
		CO 2	Analyze Combinatori al and Permute Analysis, Binomial theorem, Multinomial theorem and	The state of the s			4	The state of the s		Table Times		A Land Application of the Control of		

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		CO 4	Apply the planning and controlling aspects for economical energy usage.							2		2			
		CO I	Understand the VI characteristi cs of electrical elements, solution of complex problems of DC circuits using transformati ons, nodal, mesh analysis and theorems.										1	Added	The objective of this course is to apply the basic tools of circuit analysis.
13 ES 203	Network	CO 2	Understand the fundamental s and interconnecti on relations of 3 – phase circuits.	1									1		
		CO 3	Analyze the series and parallel resonance and magnetic circuits.	2									2		
		CO 4	Analyze the transient analysis of DC / AC circuits, two										2		

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			Understand		-		 							Added	The objective
			the basics of											Added	of this course
			Modulation												is to
			and			,									Understand
			demodulatio												the basics of
			n												Communicati
			techniques,												
		CO	Different										1		on mechanisms
13	Commu	1	types of										1		mechanisms
E	nication		filtering												
M2 02	Systems		techniques												
02	J		and Radio												
			Receiver												
			characteristi												
			cs												
			Understand		\dashv				-						
		CO	the sampling								-				
		2	techniques		2						1	Ì	2		
			and signal to								- 1				
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		CO 3	schemes,	1				2				1		2		ļ
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			block codes.							Ì						
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			an				-	ı								is to
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			g of basic													dynamic web
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		1	related to						I I					1		Servlets /JSP
		•	text,													
11	Internet		hyperlinks,		ÌΙ		- 1									
E	Progra		Images and				-									
M3	mming		ordered/unor													
01			dered lists.										8			
			Students will		Ħ											
			be able to													
			Apply inline,													
		co	internal,											2		
		2	external CSS						Ì							
			to define													
			look and feel													
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		CO 3	(style) of single/multip le web pages. Students will be able to Apply basic Object Oriented programmin g concepts like Encapsulatio n, Inheritance and polymorphis m to solve various computing problems.	2			2						
		CO 4	Students demonstrate an understandin g of Servlets/JSP concepts to process data from HTML forms.		Control de Control de	,	3				3		
13	Design of	CO I	Design Basic Electronics Systems and circuits	1						,	2	Modifie d	The objective of this course is to Design Basic Electronics Systems and circuits
EC 201	Electron ic Systems	CO 2	Design Basic amplifiers	1	2		2						
		CO 3	Design linear amplifiers using op- amps	1	2	,	2						

		CO 4	Design basic applications of diode, BJT and JFET	2	Party.			2				Modifie	The objective
		co I	Understand the representatio n, manipulation and processing operations of DT signals and systems		1		1			***************************************		d	of this course is to Understand the processing operations of DT signals and systems
		CO 2	Interpret the analysis of DT systems using Z.T.				2	2			2		
13 ES 205	Signal Processi ng	CO 3	Apply the Fourier Transformati on techniques for DT sequences and their applications		2		2	2					
		CO 4	Ability to design, Implementat ion and realization of digital filters.			The state of the s	2	2			2		
13 ES 202	Object Oriente d Progra mming	CO I	The student will be able to understand basic Concepts of OOP, fundamentals of java and apply the concepts of classes and objects through Java Language.					2				Modifie d	The objective of this course is to understand basic Concepts of OOP, fundamentals of java

		CO 2	The student will be able to apply constructors, Overloading, parameter passing, access control in Java programming. The student will be able to apply Inheritance, Packages, Interfaces.	2		2					
		CO 4	The student will be able to apply Exception Handling, I/O Streams and understand Basic Concepts of MultiThreading	2		2					
		CO 5	Students will be able to develop programs and projects in java.	2		2					
	Micro controll	CO I	Understand and remember the fundamentals of the microcontroller s like architecture, memory organization.			1		and and the state of the state		Retaine d without Change s	The objective of this course is to Understand the fundamentals of the microcontrollers and their architectures
11E M3 34	ers Interfaci ng & System Design	CO 2	Apply the instructions in writing basic assembly language programming. Apply the			2					
	-	CO 3	concepts of interrupts, timers in applications where required. Analyze the differences in architectures of			2			2		

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			8051 and PIC μc's and Analyze Different I/O devices and their interfacing to 8051 μc											
		CO 1	Kinesics: To enable the students with the study of body language as it is an essential component of soft skills.	1									Modified	The objective of this course is to To enable the students to understand English usage and grammar
13 HS	ENGLIS H	CO 2	Lexis: Vocabulary building	l	:						ا	ļ		
101	n.	CO 3	English usage and mechanics: Grammar and verbal reasoning				2		·					
		CO 4	Office communication to improve learning skills				2							
		CO 1	Understand the method of identifying the meaning of words and apply them in contexts.						2				Modified	The objective of this course is to Understand and analyze techniques of reading and formal communication
13 HS 102	LANGU AGE AND REASO NING	CO 2	Understand and analyze different cultures and the importance of empathy in cross- cultural communication.					2						
	SKILLS	CO 3	Understand and analyze seven techniques of reading and improve reading speed.						2					
		CO 4	Understand and apply writing strategies in office/ formal communication						2					
11 BS 105	ECOLO GY AND ENVIR ONMEN T	CO 1	Understand the importance of Environmental education and conservation of natural resources							1			Retained without changes	The objective of this course is to Understand the importance of Environmental education and conservation of natural resources
		CO 2	Understand the importance of ecosystems and								1			

1	ļ		biodiversity.	1		ı	1		1				ı	,	ı	,
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		CO 3	Understand the knowledge on solid waste management							-			ı			
		CO 4	Understand the knowledge on disaster management and EIA process										ı			
1.2	THINA	CO 1	realize and understand the basic aspiration, harmony in the human being.						1						Added	The objective of this course is to understand the basic aspiration, harmony in the human being.
HS VA	N HUMA 104 LUE S	CO 2	envisage the roadmap to fulfill the basic aspiration of human beings.	2				2								3
THANKS I		CO 3	Analyze the profession and his role in this existence.						2				2			
		CO 4	Develops holistic perception by understanding harmony in nature						2				2			
13 BS 101	LINEAR ALGEB RA AND MULTI VARIA TE CALCU	CO 1	Perform elementary operations on matrices including determination of rank and inverse, demonstrate mastery in using matrix algebra to find the solution to a linear system equations, iterative methods: Jacobi's method and Gauss - Seidal method .Determine the eigen values and eigen vectors, Cayley-Hamilton theorem and its applications, nature of the quadratic forms	2	2			2	444						Modified	The objective of this course is to understand the basic operations of linear algebra and calculus
	LUS	CO 2	Interpret and apply differential calculus on problems involving rate of change. Explain the geometrical interpretation and applications of Rolle's theorem and mean value theorems. Analyze the maximization and minimization problems.	2	- Table			2				(AMA)				

			Illustrate the applications of integral calculus in solving problems on area, volume, displacement, work, etc. Computing improper integrals, Beta, Gamma functions and their properties. Compute multiple integrals by changing the order of integration and change of variables such as polar, spherical and cylindrical coordinates.	2	2	- The state of the	2	The state of the s				
	-	CO 4	Determine gradient, divergence and curl of vector point functions with their properties. Calculate the line, surface and volume integrals, Green's, Gauss divergence and Stoke's theorems and their applications.	2	2		2					
		CO I	Describe different situations required to model differential equations. Classify the differential equations and identify suitable solution techniques	2	2						Modified	The objective of this course is to understand the basic operations of Differential Equations
13	DIFFER S ENTIAL EQUATI ONS	CO 2	Illustrate modeling an engineering problem as a first order ordinary differential equation (ODE) and solving it using numerical methods available viz. Taylor, Euler, modified Euler and Runge-Kutta method	2	1					- Wilder		
		CO 3	Analyze engineering problem solutions in particular electric circuits, deflection of beams, free oscillations, forced oscillations and resonance through differential equations	2	2							

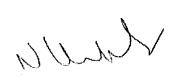
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		CO 3	Illustrate to model an engineering problem second order PDEs namely one dimensional wave and heat equations, two dimensional Laplace equation into PDEs and find their general solutions using C.F and P.I.	2	2	The state of the s			The series will be a series of the series of		Annual Control of the		
		CO I	Explain how ultrasonic waves are produced and detected,	yana ya ka ka ka ka ka ka ka ka ka ka ka ka ka		-	an analytical property of the control of the contro	The state of the s		and the contract of the contra		Modified	The objective of this course is to Understand the fundamental concepts of engineering physics
			Determine flaws present inside a material using NDT techniques.										
13 BS 103	ENGINE ERING PHYSIC S	CO 2	Compute the magnetic induction produced by current carrying conductors by using Biot-Savart law & Ampere's law, Compute the Lorentz force experienced by a charged particle.	1									
		CO 3	Understand different aberrations in lenses and their corrections, phenomenon of interference in thin films of uniform thickness	1		z.							
		CO 4	Explain the working of optoelectronic devices like LED, photodiode, photo transistor and solar cells, Explain the phenomenon of superconductivity and its applications	1									
11 BS 104	ENGINE ERING CHEMI STRY	CO 1	Examine water quality and select appropriate purification technique for intended problem		2	2						Modified	The objective of this course is to Understand the

	concepts of engineering chemistry
Predict potential complications from CO combining various chemicals or metals in an engineering setting	
Discuss fundamental aspects of CO electrochemistry 3 and materials science relevant to corrosion phenomena	
Apply phase rule, polymers, conducting polymers and nano chemistry to engineering processes	
CO An ability to analyze & generate experimental skills	
Identify different mathematical problems and reformulate them to 1 facilitate numerical treatment using an appropriate technique.	The objective of this course is to Understand the fundamental concepts of mathematical methods
MATHE series, Fourier series, Fourier transforms and Z- transforms to analyze various signals.	
CO 3 Construct the probability distribution of a random variable, based on a real-world situation, and use it to compute expectation and variance and to estimate unknown parameters of populations and apply the tests of hypotheses.	
13 ENGINE CO Understands structure of 1 ES ERING 1 crystalline solids,	The objective of this course

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103	MATER IALS		kinds of crystal imperfections and appreciates structure-property relationship in crystals.			The same of the sa	**************************************					is to Understand the fundamental concepts of engineering materials and their characteristic
												S
		CO 2	Understands the role of electronic energy band structures of solids in governing various electrical and optical properties of materials.									
		CO 3	Understands role of molecular vibrations in determining thermal properties of materials and deformation of materials in response to action of load, for identification of materials having specific engineering applications.	ſ								
		CO 4	Understands spin and orbital motion of electrons in determining magnetic properties of materials and identifies their role in classification soft & hard magnetic materials having specific engineering applications.	1								
13 ES 102	MEASU RMENT S	CO 1	Understand and apply the fundamentals of a measurement system, characteristics, transducers and metrology using simulation and experimentation tools.	2	2						Modified	The objective of this course is to Understand and apply the fundamentals of a measurement system using simulation and experimentation tools
		CO 2	Understand various electrical & computer parameters, and apply different measuring	2	2							



			techniques on various electrical parameters using simulation and experimentation tools.										
	-	CO 3	Understand electronic & electro- physiological parameters, and apply measuring techniques on electronic parameters using simulation and experimentation tools.	2	2								
		CO 4	Understand and apply different measuring techniques on civil and mechanical parameters using simulation and experimentation tools.	2	2						100		
11	ENGINE ERING GRAPHI	CO 1	Draft Orthographic views, projections of planes and , solidsmanually and by using CAD software Tool (AutoCAD)				2					Retained without changes	The objective of this course is to Use the CAD software Tool (AutoCAD) for Drafting various views
ES 104	CS WITH CAD	CO 2	Drafting Sectional views , Isometric views manually and by using AutoCAD				2						
		CO 3	Development of surfaces and perspectives views manually and by using AutoCAD				2						
		CO l	Project based workshop to prepare different models with the aid of workshop trades i.e., Carpentry and Tin smithy								2	Modified	The objective of this course is to prepare different models with the aid of workshop trades
13 ES 105	WORKS HOP PRACTI CE	CO 2	Project based workshop to prepare different models with the aid of workshop trades i.e., House wiring and Fitting								2		
		CO 3	Project based workshop to prepare different models with the aid of workshop trades i.e., Pitting								2		
13	PROBL	СО	Illustrate how problems are	2		L	2		<u> </u>	<u> </u>		Modified	The objective

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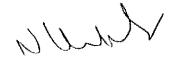
ES 101	EM SOLVIN G THROU GH PROGR AMMIN G	1	solved using computers and programming.									of this course is to Apply C programming concepts to solve real world problems
		CO 2	Illustrate user defined C functions and different operations on list of data.	2			2					
		CO 3 CO	Implement Linear Data Structures and compare them. Implement Binary	-	2			 			 	
		4	Trees.		2					İ		
13	ENGINE	CO 1	Understand the concept of forces and apply the static equilibrium equations.	yan.		,	2				Modified	The objective of this course is to Understand the basic concepts of engineering mechanics
ES 106	ERING MECHA NICS	CO 2	Analyze co-planar and non co-planar system of forces.	2			2					
	Mes	CO 3	Apply the concept of centroid & centre of gravity to determine moment of inertia.	2			2					
		CO 4	Analyze the rigid bodies under translation and rotation with and without considering forces.	2			2					
13 ES 201	THERM ODYNA MICS	CO I	Apply first law of thermodynamics to non flow systems	2		_	2				Added	The objective of this course is to Understand the fundamental concepts of thermodynam ics
		CO 2	Apply steady flow energy equation and second law of thermodynamics to various processes and engineering	2			2					

			devices					1				
	-	CO 3	apply principle of entropy and thermodynamic relations to thermodynamic system and process	2		2						
		CO 4	Evaluate the performance of Otto, Diesel, Dual cycles and Refrigeration cycles	2		2						
		CO 1	Explain how ultrasonic waves are produced and detected, Determine flaws present inside a material using NDT techniques.	1						, in the state of	Modified	The objective of this course is to Understand the fundamental concepts of engineering physics
13 BS 103	ENGINE ERING PHYSIC S	CO2	Compute the magnetic induction produced by current carrying conductors by using Biot-Savart law & Ampere's law, Compute the Lorentz force experienced by a charged particle.	1								
		CO3	Understand different aberrations in lenses and their corrections, phenomenon of interference in thin films of uniform thickness	1								
		CO4	Explain the working of optoelectronic devices like LED, photodiode, photo transistor and solar cells, Explain the phenomenon of superconductivity and its applications	1								

Annexure-1

COURSE VS SOS MAPPING

Co urs e	Course Title	CO NO	Description of the Course	a	b	C	d	e	f	g	.	100	j	k	Course Type	Course Objective
Co de			Outcome													
(18		CO 1	Understand 3 and 5 stage pipelines of ARM and able to program the ARM processor.	1									(H)		Retaine d Without Change s	The objective of the course is to provide strong foundation in ARM Processor Architecture and understand their use in SoC applications
13- E	ADVA N CED EMBE D		Applying instructions													
_{M-}	DED	СО	set of ARM								Ì					
430	PROCE SSOR	2	7 processor using assembly language											2		
		CO 3	Understandi ng the AMBA bus architecture	1												
		CO 4	Analyze different advanced ARM cores and their use in SoC applications Understand											2	Modifie	The objective



13	CMOS	СО	or device]					is Design and
EC	VLSI	1	fabrication			2			develop
206	Design	I	process and						Digital
			Electrical Properties.						CMOS circuits using

	1						Microwind
	Analyze the characteristics of CMOS circuits Construction and the comparison between different state-of-theart CMOS technologies and processes	-	2				
CO 3	Design schematic diagrams, stick diagrams and layouts for digital circuits using CMOS and n-MOS logic					3	
CO 4	Analyze CMOS circuits in terms of area, speed and power dissipation by applying the techniques like transistor sizing & design rules.					2	
CO 5	Design and develop Digital CMOS circuits					3	

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			using												
			Microwind												
			Understand	İ						1				Modifie	The objective
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			gates to)											is to Design
			construct					İ							and Simulate
1			combination			ļ									System
	<u> </u>		al &												Design using
Ì		СО	sequential] '			-	.							Logisim
		1	circuits to)				ij							208.0
			perform												
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			operations												
			and design					İ							
			of basic												
			computer			- 1									
			Develop		十		1	╁	1	 					
			micro												
		СО	Programs for												
		2	design of					l							
			Control												
			Unit, CPU												
13	Comput		Apply and		T										
E	er		realize			ļ									
M2	Organiz		operations												
01	ation		like												
			Multiplicatio												
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			engineering			-									
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			Hierarchy,												
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			procedures												
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			I/O interface	•				ĺ							
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			Memory												
			Access.												
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		CO 5	Design and Simulation of System Design using Logisim Tool Understandi ng the concepts of Embedded Networking Communicat ion Standard protocols: RS 232, RS 485, SPI, I2C bus protocols.					1		2	Added	The objective of this course is to Understandin g the concepts of Embedded Networking Communicati on Standard protocols:
13- E M- E3	Embedd ed Network ing	CO 2	Analyze the US B& CAN based synchronizat ion Techniques					1				
2		CO 3	Applying Ethernet communicati on protocols for Embedded Systems				water of the state	1	A contract of the contract of			
		CO 4	Apply different wireless sensor networks used in embedded systems.			***************************************				2		
11 E M 401	EMBED DED SYSTE MS	CO 1	Analyze embedded systems,								Modifie d	The objective of this course is to Analyze the basic interfacing and communicati

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	1	,	* ·		 		 				
											on protocols used in embedded systems.
		CO 2	Analyze and program on chip peripherals and off chip peripherals for a single purpose controller		2						
		CO 3	Analyze the basic interfacing and communicati on protocols used in embedded systems.						2		
		CO 4	Analyze and select appropriate software architecture and analyze the features real time operating systems.		2						
		CO 5	Develop and demonstrate a small embedded system for a real time application.		2						
13 E M 431	ENTER PRISE PROGR AMMIN G	CO 1	Create and Deploy web application					3	3	Added	The objective of this course is to Apply EJB technologies to Real Life applications

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11	WARE	СО	types of											d	of this course
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432	AND	1	need for data											Change	Understand
	MININ		mining and									L		S	the need for

	1					_			 _			_
	G		data warehouse Architecture.									data mining and data warehouse Architecture
		CO 2	Understand the data Pre- processing techniques, and apply association rule mining on transactional data						1,2			
		CO 3	Apply classification & prediction techniques on various data sets	*A A A STOCK OF THE STOCK OF TH						2		
		CO 4	Apply clustering techniques on large data sets						2			
13	ADVAN CED	CO 1	Understand and adopt appropriate behavior patterns		The second secon	managamanananananananananananananananana					Modifie d	The objective of this course is to Analyze and apply various interpersonal skills in dayto-day communicati
AC 301	EMPLO YABILI TY SKILLS	CO 2	Understand ,remember and apply lexical, syntactic skills related to grammar, usage and composition		Linking and the state of the st							
		CO 3	Analyze and apply									

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			various													
]	interpersonal													
			skills in day-]			
			to-day													
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		1	and PLD													the basics of
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			PLDs									
		CO 5	Create and Analysis of digital modules through project oriented approach							3		
		CO Î	Understand the working of Microcontrol ler 8051 and Instruction Set	1					, in the second		Retaine d without changes	The objective of this course is to Understand the working of Microcontroll er 8051
11 EC 311	MICRO PROCE SSOR & MICRO	CO 2	Apply Interfacing concepts of few I/O Peripherals to 8051 through programmin g.	 2								
311	CONTR OLLER	CO 3	Apply the Programmin g concepts of 8086	2								
		CO 4	Understand the working model of ARM Processor	1								
		CO 5	Applying the knowledge of 8051 and working through peripherals							3		
13 E M 332	PCB DESIG N.	CO 1	Understand the active and passive components,			1					Added	The objective of this course is to Understand

			characteristics and the materials used along with their properties, mounting components on PCB, classification of PCB boards							ent frequency		the basics of PCB Fabrication
		CO 2	Understand different copper clad laminates and their properties, Soldering techniques.			1			***************************************			
		CO 3	Apply the knowledge of schematic and layout to design a PCB	The state of the s		2						
		CO 4	Understand the basics of PCB Fabrication and generate foot print for library, etc			11						
11 E M3 30	Real Time Operati ng Systems	CO 1	Understand the basic principles of operating systems structures, design and implementati on of processes and introduction to			The state of the s					Retaine d without changes	The objective of this course is to Understand the basic principles of Rea I time operating systems

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			distributed]	.									
		ļ	operating					l						
			systems.			_		ļ	<u> </u>	ļ				
			Understand											
			task state,											
			process											
			synchronizat											
		СО	ion and						ĺ	1				
	İ	2	analyze				1							
			various											
			synchronizat											
			ion and											
			deadlock					İ		ĺ				
			problems		-	_	<u> </u>	ļ			 <u> </u>			
			Apply											
		-	different real			l								
		CO 3	time models,				2							•
)	languages and											
			scheduling.											
			Apply		╁	-								
	-		RTOS in											
		CO	various									2		
		4	application											
			domains.											:
													Modifie	The objective
									١.				d	of this course
			Understand											is to
			traditional											Understand
		00	and modern											process
		co	software								1			models and
		1	process models used											stages
			in the											involved in the
13-	SOFTW		development											development
CS	ARE ENGIN		of software											of software
-	EERIN		systems.											systems.
301	G		Understand								_			oj otoma.
			the											
		00	traditional											
		CO 2	and modern								1			
l		~	trends in								ĺ			
			system											
			modeling		<u> </u>									
		CO	Design the									3		
		3	architecture											

			and UI for an application using the principles and concepts of software design and golden rules of UI.									
	ı	CO 4	Understand various software Quality concepts and testing strategies for development of quality software.							1		
		CO 5	Apply various types of UML Diagrams for given case study using rational rose.							3		
13	ISUA L	CO I	Understand the building blocks of .NET framework			- manual	models.				Added	The objective of this course is to Understand the building blocks of .NET framework
	ROGR MMIN G	CO 2 CO 3	Understand C# Language Fundamental s Apply Object Oriented			1			2			

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			1											
			g Concepts		İ		ĺ							
			through C#											
		CO 4	Apply Interfaces, and collections through C# and understand .NET assemblies						The state of the s	The state of the s	2			
													Added	The objective
			Create static					1		İ				of this course is to Create
İ		CO	web pages								ŀ	3		dynamic web
		'	using basic				Ì							pages using
			HTML and											PHP and
		<u> </u>	CSS. Apply the		-	\vdash	_		_	_	-			MYSQL
			Apply the fundamental											
		ļ	components											
			of the											
		CO 2	JavaScript									2		
		2	programmin g language	İ				İ						
			to a											
13 E	WEB PROGR		interactive											
M3	AMMIN		web page.					_						
31	G		Understand the concepts											
			of Document											
			Object											
		CO	Model and											
		3	Event handling		2						^			
			mechanisms											
			in											
			JavaScript.				_			\perp				
			Create dynamic											
		СО	web pages											
		4	using PHP									3		
			and											
			MYSQL.				[

		CO 1	Understand types of database, need for data mining and data warehouse Architecture.				The state of the s	. Address	Retaine d without Change s	The objective of this course is to Understand the need for data mining and data warehouse Architecture
11 OE 432	DATA WARE HOUSI NG AND MININ G	CO 2	Understand the data Pre- processing techniques, and apply association rule mining on transactional data				1 , 2			
		CO 3	Apply classification & prediction techniques on various data sets					2		
		CO 4	Apply clustering techniques on large data sets				2			
13 EC 205	Analog Electron ic Circuits	CO	Design different types of feed-back amplifiers and provide general solution for real time problems		3				Modifie d	The objective of this course is to Understand the basics of various amplifiers and provide general solution for real time problems using them
		CO 2	Design different types of		3					

ı	1				ı						,		•	
			Oscillators											
			and provide			-								
			general											
			solution for											
			real time				İ							
			problems,											
į		ļ												
			and Design											
			active filters											
			using											
			OPAMPs											
			Design other											
1			non-linear											
			applications											
			of OPAMPs											
			such as											
	İ		precision								l .			
		00												
		СО	rectifier,				3							
		3	zero .											
			crossing											
		İ	detector,											
			etc,											
			Design the											
			applications											
			of 555timer											
			Analyze										*	
			different											
		CO	types of				2							
		4	Power											
			amplifiers											
-			Understand							_	_		Modifie	The objective
			the										d	of this course
			representatio										u	
														is to
			n of data											Understand
			using						· .					different
			different											combinationa
13	Basics		codes and											1 and
EC	10	СО	the	1										sequential
203	Digital	1	principles of											circuits and
	Systems		Boolean											work with NI
			algebra to											MyDaq &
			manipulate											Labview
			and											
			minimize						;					
'			logic											
			expressions											
	I	L	evbressions					L	L					

	Examine the
	functioning
	of different
	combination
	al logic
	circuits built
	with logic
	gates and the
co	design
2	procedure
	for
	developing
	circuits like
	adders,
	decoders,
	code
	converters,
	etc.
	Analyze the
	behavior of
	flip-flops
	and the
CO 3	operation of 2
)	sequential
	circuits
	using flip-
	flops
	Implement
	the design
	approach for
	creating
	sequential
	circuits like
СО	counters,
	shift 2 2 1 1 1
	registers,
	etc., and the
	concept of
	ASM charts
	in describing
	the digital
	systems
	Implement
	1:00
CO	different
5	combination
	al and

		CO 1	sequential circuits with NI MyDaq and Labview Understand OSI and TCP/IP Models and basics of physical layer and							Modifie d	The objective of this course is to understand the basic concepts of network protocols, routing algorithms and their design in client server communicati
13 CS 205	Comput er Network s	CO 2	their issues Demonstrate Data Link layer issues and medium access control sub layers concepts		-	2					on
		CO 3	Analyze and implement the algorithms of network, transport layers and concerned services	2		2					
		CO 4	Implement the concepts of TCP ,UDP and the application layer conceptions		,	2	4.5				

		CO 5	Demonstrate the basic concepts of protocols and their design including client/server models, connection oriented and connection- less models	3		and the second s	3					
		CO	Understand advantages of DBMS and its characteristics, concepts & ER model.	7							Modifie d	The objective of this course is to Understand the characteristic s and concepts of DBMS
1 CS 20	Manage	CO 2	Demonstrate Relational Database using SQL detailing the role of Relational Algebra and Relational Calculus.		2							
		CO 3	Examine storing data, File organization s, Indexing and Illustrates Normal Forms.	2								
		CO 4	Interpret Transaction Management and Concurrency	2				Tallana and the same of the sa				

			control											
			techniques.											
			Create											
		СО	database for		2									
		5	a given case		7									
			study.							ļ				
			Student will										Modifie	The objective
			be able to										d	of this course
			apply											is to analyze
			measures of											and compare
			efficiency to											various data
			algorithms											structures
		СО	and											
		1	Compare	2			2							
			various											
			linear data											
			structures like Stack											
			ADT, Queue			,								
			ADT, Queue ADT,											
			Linked lists.											
			Student will				\dashv		 	\vdash	-			
			be able to											
			analyze and											
			compare											
13	DATA	-	linear data											
ES 204	STRUC TURES	CO 2	structures	2			2							
204	IONES	2	and analyze		.									
			different											
			searching											
			and hashing											
			techniques.											
			Student will											
			be able											
			toanalyze									:		
		CO	and compare various non	2			2							
		3	– linear data	Z			2							
			structures			r								
			like Trees											
			and Graphs.											
			Student will		\dashv		$\vdash \vdash$		 	\vdash		 		
			be able to											
		CO 4	analyze and	2			2	:						
		4	compare											
			varioussortin											

		And the control of th	g algorithms, to select from a range of possible options, to provide justification for that selection, and to implement the algorithm in a particular	A A A A A A A A A A A A A A A A A A A	LA LA LA CAMPAGNICA CONTRACTOR CO	- the state of the	balla de la constanta de la co	A A A A A A A A A A A A A A A A A A A	And Andrews (Andrews	A construction of the cons				
Additional to the state of the		CO 5	context. Studentwill be able to understand and execute lab experiments and develop a project along with his/her team members.	And the state of t	A CONTRACTOR OF THE CONTRACTOR	2					A CONTRACTOR OF THE CONTRACTOR			
13- BS 206	Mathem	co 1	Apply various Set Operations and Logical Inferences for solving problems and the principle of Mathematica I Induction.	2			- Language Committee Commi	2				Library and the second	Added	The objective of this course is to apply the basic methods of discrete mathematics in Computer Science
		CO 2	Analyze Combinatori al and Permute Analysis, Binomial theorem, Multinomial theorem and	A LANGE TO THE PARTY OF THE PAR	The property of the second sec	The state of the s								

		CO ₃	Principle of Inclusion and Exclusion. Analyzediffe rent types of Graphs,Lattices, Sorting and Searchingtechniques and Applications of Graphs	2		Allert					
		CO 4	Applyproced ure for solving Spanning Trees and different methods for solving Recurrence Relations.			2					
		CO 1	Understand the various forms of available ene rgy and energy related aspects.					1	1	Modifie d	The objective of this course is to Understand the various forms of available ener gy and energy related aspects.
13 AC 201	Energy and Society	CO 2	Apply energ y auditing methodology to estimate energy conservation of different case studies.					2	2		
		CO 3	Understand the environment al and geological					1	1		

1	ı	1		impacts on			1				1				
				the energy vice versa.											
			CO 4	Apply the planning and controlling aspects for economical energy usage.						2		2			
			CO 1	Understand the VI characteristi cs of electrical elements, solution of complex problems of DC circuits using transformati ons, nodal, mesh analysis and theorems.	1								1	Added	The objective of this course is to apply the basic tools of circuit analysis.
	13 ES 203	Network Theory	CO 2	Understand the fundamental s and interconnecti on relations of 3 – phase circuits.	1								***************************************		
			CO 3	Analyze the series and parallel resonance and magnetic circuits.	2					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			2		
			CO 4	Analyze the transient analysis of DC / AC circuits, two	2								2		

1			4							_						
			port					İ								
			networks													
			and solve										ĺ			
		Ì	complex													
			networks													
			using													
			topology.											ĺ		
			Develop a				T	1				一				
			circuit			١.										
			model for a								İ					
			given													
			practical		l											
			case, apply													
			the basic													
			tools of													
İ			circuit													
		СО	analysis for													
		5		3	3									3		
		,	getting desired													
			response and refine the				l									
			circuit													
			model if													
			necessary													
			based on													
			obtained													
-		<u> </u>	response.					ļ								
			Understand			,									Added	The objective
			the basics of													of this course
			Modulation													is to
			and												:	Understand
			demodulatio							İ						the basics of
			n													Communicati
		СО	techniques,		Ì											on
13		1	Different						i					1		mechanisms
E	Commu		types of							l			1			
M2	nication		filtering										ĺ			
02	Systems		techniques													
			and Radio		ĺ											
			Receiver						i							
			characteristi													
			CS		_					[
			Understand						I							
		CO	the sampling		2			ļ	ĺ					2		
		2	techniques		~									_		
			and signal to													

			noise ratio of different pulse modulation schemes Design and understand the Digital Modulation schemes, bandwidth estimation and clock		2	The state of the s			2		
		CO 4	Understandi ng the source coding techniques and estimate the error detection and correction of different block codes.						2		
11 E M3 01	Internet Progra mming	CO 1	Students demonstrate an understandin g of basic HTML tags related to text, hyperlinks, Images and ordered/unor dered lists.			1			1	Added	The objective of this course is to Create dynamic web pages using Servlets /JSP
		CO 2	Students will be able to Apply inline, internal, external CSS to define look and feel	William Control of the Control of th					2		

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		CO 3	(style) of single/multip le web pages. Students will be able to Apply basic Object Oriented programmin g concepts like Encapsulation, Inheritance and polymorphis m to solve various computing problems. Students demonstrate an understandin g of Servlets/JSP concepts to process data from HTML	2			3				3		
13 EC 201	Design of Electron ic Systems	CO 2	Design Basic Electronics Systems and circuits Design Basic amplifiers Design linear	1	2		2			The second secon	2	Modifie d	The objective of this course is to Design Basic Electronics Systems and circuits
		CO 3	amplifiers using op- amps	1	2		2					20	

		CO 4	Design basic applications of diode, BJT and JFET	2				2						
		CO I	Understand the representatio n, manipulation and processing operations of DT signals and systems	1	1	a principal de la constitución d	1				, side to the second se		Modifie d	The objective of this course is to Understand the processing operations of DT signals and systems
		CO 2	Interpret the analysis of DT systems using Z.T.				2	2				2		
13 ES 205	Signal Processi ng	CO 3	Apply the Fourier Transformati on techniques for DT sequences and their applications		2		2	2						
		CO ₄	Ability to design, Implementat ion and realization of digital filters.				2	2				2		
13 ES 202	Object Oriente d Progra mming	CO 1	The student will be able to understand basic Concepts of OOP, fundamentals of java and apply the concepts of classes and objects through Java Language.					2					Modifie d	The objective of this course is to understand basic Concepts of OOP, fundamentals of java

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		CO 2	The student will be able to apply constructors, Overloading, parameter passing, access control in Java programming. The student will be able to apply Inheritance, Packages, Interfaces.	2		The state of the s	2					
		CO 4	The student will be able to apply Exception Handling, I/O Streams and understand Basic Concepts of MultiThreading	2	-		2					
		CO 5	Students will be able to develop programs and projects in java.	2			2					
	Micro control	CO 1	Understand and remember the fundamentals of the microcontroller s like architecture, memory organization.			and the state of t	1111	and the state of t			Retaine d without Change s	The objective of this course is to Understand the fundamentals of the microcontrollers and their architectures
11E M3 34	ers Interfaci ng & System Design	CO 2	Apply the instructions in writing basic assembly language programming. Apply the				2					
		CO 3	concepts of interrupts, timers in applications where required. Analyze the				2					
		4	differences in architectures of							2		

			8051 and PIC µc's and Analyze Different I/O devices and their interfacing to 8051 µc										The abjective
		CO I	Kinesics: To enable the students with the study of body language as it is an essential component of soft skills.	1								Modified	The objective of this course is to To enable the students to understand English usage and grammar
13 HS	ENGLIS H	CO 2	Lexis: Vocabulary building	1									
101	11	CO 3	English usage and mechanics: Grammar and verbal reasoning			2							
	,	CO 4	Office communication to improve learning skills			2			ŕ				
		CO I	Understand the method of identifying the meaning of words and apply them in contexts.					2				Modified	The objective of this course is to Understand and analyze techniques of reading and formal communication
13 HS 102	LANGU AGE AND REASO NING	CO 2	Understand and analyze different cultures and the importance of empathy in crosscultural communication.				2						
	SKILLS	CO 3	Understand and analyze seven techniques of reading and improve reading speed.					2					
		CO 4	Understand and apply writing strategies in office/ formal communication					2					
11 BS 105	ECOLO GY AND ENVIR ONMEN T	CO 1	Understand the importance of Environmental education and conservation of natural resources						1			Retained without changes	The objective of this course is to Understand the importance of Environmental education and conservation of natural resources
		CO 2	Understand the importance of ecosystems and							l			

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		CO 3	Understand the knowledge on solid waste management										1			
		CO 4	Understand the knowledge on disaster management and EIA process										ı			
	INDAA	CO 1	realize and understand the basic aspiration, harmony in the human being.										-		Added	The objective of this course is to understand the basic aspiration, harmony in the human being.
13 _N HS VALI	HUMA 104 JE S	CO 2	envisage the roadmap to fulfill the basic aspiration of human beings.	2		,		2								
		CO 3	Annalyze the profession and his role in this existence.						2				2			
		CO 4	Develops holistic perception by understanding harmony in nature						2				2			
13 BS 101 V	LINEAR ALGEB RA AND MULTI /ARIA TE CALCU	CO 1	Perform clementary operations on matrices including determination of rank and inverse, demonstrate mastery in using matrix algebra to find the solution to a linear system equations, iterative methods: Jacobi's method and Gauss - Seidal method .Determine the eigen values and eigen vactors, Cayley-Hamilton theorem and its applications, nature of the quadratic forms	2	2			2							Modified	The objective of this course is to understand the basic operations of linear algebra and calculus
	LUS	CO 2	Interpret and apply differential calculus on problems involving rate of change. Explain the geometrical interpretation and applications of Rolle's theorem and mean value theorems. Analyze the maximization and minimization problems.	2	and the second s			2								

		CO 3	Illustrate the applications of integral calculus in solving problems on area, volume, displacement, work, etc. Computing improper integrals, Beta, Gamma functions and their properties. Compute multiple integrals by changing the order of integration and change of variables such as polar, spherical and cylindrical coordinates.	2	2	The state of the s	2					
	_	CO 4	Determine gradient, divergence and curl of vector point functions with their properties. Calculate the line, surface and volume integrals, Green's, Gauss divergence and Stoke's theorems and their applications.	2	2		2	***************************************				
		CO I	Describe different situations required to model differential equations. Classify the differential equations and identify suitable solution techniques	2	2						Modified	The objective of this course is to understand the basic operations of Differential Equations
102	DIFFER BS ENTIAL EQUATI ONS	CO 2	Illustrate modeling an engineering problem as a first order ordinary differential equation (ODE) and solving it using numerical methods available viz. Taylor, Euler, modified Euler and Runge-Kutta method	2	1							
		CO 3	Analyze engineering problem solutions in particular electric circuits, deflection of beams, free oscillations, forced oscillations and resonance through differential equations	2	2							

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		CO 3	Illustrate to model an engineering problem second order PDEs namely one dimensional wave and heat equations, two dimensional Laplace equation into PDEs and find their general solutions using C.F and P.I.	2	2	A MARKATAN TO THE THEFT IS NOT THE TAXABLE TO THE TAXABLE THE TAXABLE THE TAXABLE TAXABLE THE TAXABLE		and the same of th		 ALL THE STATE OF T			
		co 1	Explain how ultrasonic waves are produced and detected,	1			And the state of t	TO THE PARTY OF TH				Modified	The objective of this course is to Understand the fundamental concepts of engineering physics
			Determine flaws present inside a material using NDT techniques.										
13 BS 103	ENGINE ERING PHYSIC S	CO 2	Compute the magnetic induction produced by current carrying conductors by using Biot-Savart law & Ampere's law, Compute the Lorentz force experienced by a charged particle.	weet				- Annual Advantage and					
		CO 3	Understand different aberrations in lenses and their corrections, phenomenon of interference in thin films of uniform thickness	-									
		CO 4	Explain the working of optoclectronic devices like LED, photodiode, photo transistor and solar cells, Explain the phenomenon of superconductivity and its applications	Ī									
11 BS 104	ENGINE ERING CHEMI STRY	CO 1	Examine water quality and select appropriate purification technique for intended problem		2	2						Modified	The objective of this course is to Understand the

												fundamental concepts of engineering chemistry
	-		Predict potential complications from combining various chemicals or metals in an engineering setting		2	2						
	-	CO 3	Discuss fundamental aspects of electrochemistry and materials science relevant to corrosion phenomena		2	2						
		CO 4	Apply phase rule, polymers, conducting polymers and nano chemistry to engineering processes			2						
		CO 5	An ability to analyze & generate experimental skills		2	2				,		
		CO	Identify different mathematical problems and reformulate them to facilitate numerical treatment using an appropriate technique.	2							Modified	The objective of this course is to Understand the fundamental concepts of mathematical methods
13 BS 201	MATHE MATIC AL METHO	CO 2	Apply Fourier series, Fourier transforms and Z-transforms to analyze various signals.	2							·	
	DS	CO 3	Construct the probability distribution of a random variable, based on a real-world situation, and use it to compute expectation and variance and to estimate unknown parameters of populations and apply the tests of hypotheses.	2		The state of the s					Modified	
13 ES	ENGINE ERING	CO 1	Understands structure of crystalline solids,	1				<u> </u>			Modified	The objective of this course

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103	MATER IALS		kinds of crystal imperfections and appreciates structure-property relationship in crystals.	Addition to the state of the st		T. CASTOLINA, CASTOLIN	A. C. C. C. C. C. C. C. C. C. C. C. C. C.		And the state of t	a de la companya de l			is to Understand the fundamental concepts of engineering materials and their characteristic
		CO 2	Understands the role of electronic energy band structures of solids in governing various electrical and optical properties of materials.	ı									
		CO 3	Understands role of molecular vibrations in determining thermal properties of materials and deformation of materials in response to action of load, for identification of materials having specific engineering applications.	THE REAL PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE P				The state of the s					
		CO 4	Understands spin and orbital motion of electrons in determining magnetic properties of materials and identifies their role in classification soft & hard magnetic materials having specific engineering applications.	į.					Addition that the state of the				
13 ES 102	MEASU RMENT S	CO 1	Understand and apply the fundamentals of a measurement system, characteristics, transducers and metrology using simulation and experimentation tools.	2	2	,						Modified	The objective of this course is to Understand and apply the fundamentals of a measurement system using simulation and experimentation tools
		CO 2	Understand various electrical & computer parameters, and apply different measuring	2	2								

į i		1	techniques on	ı	ı	ı	ı	1		ı	1	1		١	1	I	1
			various electrical parameters using simulation and experimentation tools.														
	-	CO 3	Understand electronic & electro- physiological parameters, and apply measuring techniques on electronic parameters using simulation and experimentation tools.	2	2												
	-	CO 4	Understand and apply different measuring techniques on civil and mechanical parameters using simulation and experimentation tools.	2	2												
	ENGINE ERING	CO 1	Draft Orthographic views, projections of planes and , solidsmanually and by using CAD software Tool (AutoCAD)					2								Retained without changes	The objective of this course is to Use the CAD software Tool (AutoCAD) for Drafting various views
ES 104	GRAPHI CS WITH CAD	CO 2	Drafting Sectional views, Isometric views manually and by using AutoCAD					2									
		CO 3	Development of surfaces and perspectives views manually and by using AutoCAD					2								N. 6. 4155 3	The all address
		CO 1	Project based workshop to prepare different models with the aid of workshop trades i.e., Carpentry and Tin smithy												2	Modified	The objective of this course is to prepare different models with the aid of workshop trades
13 ES 105	WORKS HOP PRACTI CE	CO 2	Project based workshop to prepare different models with the aid of workshop trades i.e., House wiring and Fitting												2		
		CO 3	Project based workshop to prepare different models with the aid of workshop trades i.e.,Fitting												2		
13	PROBL	СО	Illustrate how problems are	2	2				2				_		<u>.</u>	Modified	The objective

ES 101		1	solved using computers and programming.				manufacture and the state of th					of this course is to Apply C programming concepts to solve real world problems
		CO 2	Illustrate user defined C functions and different operations on list of data.	2			2					
		CO 3	Implement Linear Data Structures and compare them.		1							
		CO 4	Implement Binary Trees.		2							
13 ES	ENGINE ERING MECHA	CO I	Understand the concept of forces and apply the static equilibrium equations. Analyze co-planar and non co-planar	1			2				Modified	The objective of this course is to Understand the basic concepts of engineering mechanics
106	NICS	2 CO 3	system of forces. Apply the concept of centroid & centre of gravity to determine moment of inertia.	2			2					
		CO 4	Analyze the rigid bodies under translation and rotation with and without considering forces.	2			2					
13 ES 201	THERM ODYNA MICS	CO 1	Apply first law of thermodynamics to non flow systems	2			2				Added	The objective of this course is to Understand the fundamental concepts of thermodynam ics
		CO 2	Apply steady flow energy equation and second law of thermodynamics to various processes and engineering	2			2					ICS

			devices		1		Ì		1			
	-	CO 3	apply principle of entropy and thermodynamic relations to thermodynamic system and process	2		2						
		CO 4	Evaluate the performance of Otto, Diesel, Dual cycles and Refrigeration cycles	2		2						
		co 1	Explain how ultrasonic waves are produced and detected, Determine flaws present inside a material using	1							Modified	The objective of this course is to Understand the fundamental concepts of engineering physics
13 BS 103	ENGINE ERING PHYSIC S	CO2	NDT techniques. Compute the magnetic induction produced by current carrying conductors by using Biot-Savart law & Ampere's law, Compute the Lorentz force experienced by a charged particle.	-								
		CO3	Understand different aberrations in lenses and their corrections, phenomenon of interference in thin films of uniform thickness	1								
		CO4	Explain the working of optoelectronic devices like LED, photodiode, photo transistor and solar cells, Explain the phenomenon of superconductivity and its applications	1								

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Annexure-2

COURSE VS POS & PSO'S MAPPING

Со			CD.			Pr	61.00×			S.A.			
urs e	Course Title	L-T- P	CR EDI		CO	P	P	P	P	PO P	Р	Course	Course
Co de	THE		TS			0	0 2		0 4	O 5	0	Type	Objective
				CO1	Understanding the fundamentals of Embedded Systems and its hardware and software architecture.							Retained without Changes	The objective of this course is to understand fundamenta ls of micro controllers
11- EM 50	Microc o ntroller s for Embed d	3-0-	4	CO2	Demonstrate the working principle of 8051 microcontrollers and Processor Architecture &	-	1				The second secon		
1	ed System Design.	•••		CO3	Analyze PIC Microcontroller Hardware with its Architecture & Interfacing	2				2			
				CO4	Analyze the Device Drivers , Interrupt service Mechanism and Devices & Communication Buses for Devices Network.		2				2		
12- EM 50	Real Time Concept s for Embed d ed System s	3-2- 0	4	CO1	Undeerstand the current trends for Embedded Systems Design. Hard versus soft Real- Time Systems,A Reference							Retained without Changes	The objective of this course is to understand

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<u>Annexure-2</u>

COURSE VS POS & PSO'S MAPPING

					Pro				DΩ			
Course Title	L-T- P	EDI TS		CO	P O	P 0	Р 0	P O	Р О		Course Type	Course Objective
			CO1	Understanding the fundamentals of Embedded Systems and its hardware and software architecture.	1						Retained without Changes	The objective of this course is to understand fundamenta Is of micro controllers
Microc o ntroller s for Embed d	3-0-	4	CO2	Demonstrate the working principle of 8051 microcontrollers and Processor Architecture &		1						
ed System Design.			CO3	Analyze PIC Microcontroller Hardware with its Architecture	2				2			
			. CO4	Analyze the Device Drivers, Interrupt service Mechanism and Devices & Communication Buses for Devices Network.			2			2		
Real Time Concept s for Embed d ed System s	3-2-	4	CO1	Undeerstand the current trends for Embedded Systems Design. Hard versus soft Real- Time Systems,A		,					Retained without Changes	The objective of this course is to understand
	Microc ontroller s for Embed d ed System Design. Real Time Concept s for Embed d ed	Microc o ntroller s for Embed d ed System Design. Real Time Concept s for Embed d ed ed	Microc o ntroller s for Embed d ed System Design. Real Time Concept s for Embed d ed	Course Title Title P EDI TS CO1 CO1 Microc ontroller s for Embed d ed System Design. Real Time Concept s for Embed d ed CO2 A CO3	Title P EDI TS CO TS Title P EDI TS CO TS Understanding the fundamentals of Embedded Systems and its hardware and software architecture. Demonstrate the working principle of 8051 CO2 microcontrollers and Processor Architecture & Interfacing Analyze PIC Microcontroller CO3 Hardware with its Architecture & Interfacing Analyze the Device Drivers, Interrupt service Mechanism and Devices & Communication Buses for Devices Network. Real Time Concept s for Embedd d ed Systems CO4 CO1 Systems Design. Hard CO5 CO2 Microcontroller CO3 Hardware with its Architecture & Interfacing Analyze the Device Drivers, Interrupt service Mechanism and Devices & Communication Buses for Devices Network. Undeerstand the current trends for Embedded Systems Design. Hard versus soft Real- Time	Title P EDI TS	Title P TS CO Title P TS CO TS C	Title P Title P Title P Title P Title Title P Title Title P Title Title P Title Title P Title	Title Title	Title Title P EDI TS CO P Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q	Title Title	Title P EDI TS CO TS CO TS P P P P P P P P P P P P P P P P P P

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				CO2	Discuss Global System for Mobile Communication s (GSM) and Medium Access Control (MAC)		1					
				CO3	Describe Mobile IP and Mobile Ad hoc Networks (MANETs)				1			
				CO4	Understand Mobile Transport Layer: Traditional TCP, Indirect TCP, Snooping TCP and Mobile TCP.	•				1		
	Advanc			CO1	Understand 3 and 5 stage pipelines of ARM	1					Retained without Changes	The objective of this course is to understand the basics of ARM Processor archtecture
11- EM 60 1	ed Embedd ed Process or Architec	3-2- 0	4	CO2	Apply instructions set of ARM 7 processor using assembly language		2					
	tures			соз	Understand the AMBA bus architecture	1			_1			
				CO4	Understand different advanced ARM cores and analyze their use in SOC applications					1		

Visus

At the end of the course the student will get familiarised with various DSP based Embedded System CO1 Applications. Understands the implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
student will get familiarised with various DSP based Embedded System CO1 Applications. Understands the implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
familiarised with various DSP based Embedded System CO1 Applications. Understands the implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
various DSP based Embedded System CO1 Applications. Understands the implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
based Embedded System CO1 Applications. Understands the implementation aspects of Computational accuracy of DSP based algorithms Understand the architectural features of programmable DSP devices. Student will be
Embedded System CO1 Applications. Understands the implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
System CO1 Applications. Understands the implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
CO1 Applications. Understands the implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
Understands the implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
implementation aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
aspects of Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
Computational accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
accuracy of DSP based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
based algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
algorithms 1 Understand the architectural features of programmable DSP devices. Student will be
Understand the architectural features of programmable DSP devices. Student will be
architectural features of programmable DSP devices. Student will be
features of programmable DSP devices. Student will be
programmable DSP devices. Student will be
DSP devices. Student will be
Student will be
Digital familiarised with
13- Signal development
EM Process 3-2- 4 CO2 process
60 ors and 0 4 applications
2 Architec based on
tures DSK5416
development
various
development
tools used.
To familiarize
with Texas
Instruments'
TMS320C54XX
family of fixed-
point DSP
Processors their
architectures in-
CO3 terms of
addressing
modes,
Programming
On-Chip
Peripherals',
Interrupts and
Pipeline
operations. 1

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				Student will be getting familiarised with applications development process based on DSK5416 development board and various software development			***************************************	- All the second second second second second second second second second second second second second second se	The state of the s			
			CO4	tools used. Student will demonstrate the ability to implement various DSP algorithms used in different Embedded Systems based on TI's TMS320C54XX family of fixed- point DSP Processors	,	The state of the s	The state of the s					
			CO5	Student will demonstrate the ability to implement various DSP based Embedded Systems by interfacing DSPs with Memory, I/O with the help of integration concepts like INTERRUPTS, DMA and CODECs with DSP to use A/D and D/A converters for serial I/O.				- All Andrews -		1		
EM	Hardwa re Softwar		CO1	To remember and understand the basic	1						Retained without Changes	The objective of this course

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3	e Co				concepts of								is to
	Design				model,								understand
					Architecture		#5-						the basic
					and			- 1					concepts of
					programming								model,
					Language		Ιİ						Architecture
							Ιİ						and
							ll						programmin
													g of
													hardware
					,								software co
					,								b :
						-							design
					To remember	İ							
					and understand								
					the Hardware		٠. ا						
					software					ı			
					synthesis								
				CO2	algorithms and								
					software								
]					partitioning								
					distributed								
					system co-		l				1		
					synthesis		1		1				
					To understand	Π				\dashv			
					Architecture						- 1		
					Specialization								
					techniques,				ı				
1				CO3	Architecture for								
				003	control								
					dominated			1			1		
										1			
					systems	 -			-	4	\dashv		
					Analyze and								
					apply the			-			ı		
					techniques of			-					
					Modern								
				CO4	embedded								
				1	architectures								
					and compilation								
					technologies	2	Ш			2			
					Analyze			T					
					concurrency						Ì		
					coordinating,					1			
				CO5	concurrent								
					computations								
					and verification						ļ		
					tools.		2				2		
13-	Linux				Apply various		H	+	+	\dashv	1	Modified	The
EM	System	3-0-			various GNU							itiodifica	objective of
60	Concept	2	4	CO1	development								this course
4	s		7	331	tools for	2					2		is to
	J		L	L	(00)3 101	1 -	Ш				4		12 fO

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				The second secon	compiling, debugging and creating libraries.	,						understand the concepts related to Linux kernel Configuratio n
		A PART AND A PART AND		CO2	Understand the concepts related to Linux kernel Configuration and kernel modules		1					
				CO3	Understand various concepts related to User and Kernel Space communication, Interrupt Handling and Kernel Debugging.				1			
				CO4	Analyze various types of device drivers that can be build into the kernel.	,	2					
				C05	Create Networking communication between client and server using SOCKET API	3				з		
13- EM	CPLD & FPGA Architec tures	3-0- 0	3	CO1	Understand the architecture and features of ROM,PLA,PAL and CPLD	1					Modified	The objective of this course is to understand the architecture and features of CPLD
E3 0	and Applicat ions			CO2	Understand the architecture and features of FPGA.	,	1					
				CO3	Understand XILINX FPGAs and Design				1			

				CO4	various combinational & sequential logicrealization using XILINX FPGAS Analyze the technologies of Actel FPGAS	2				2		
				CO5	Analyze different Design Applications		2		2			
				CO1	Understanding the concepts of Embedded Networking Communication Standard protocols: RS 232, RS 485, SPI, I2C bus protocols.	1					Retained without Changes	The objective of this course is to understand
11- EM - E3	Embedd ed Networ	3-0- 0	3	CO2	Analyze the US B& CAN based synchronization Techniques	2			2			
2	king			CO3	Applying Ethernet communication protocols for Embedded Systems	1				2		
				CO4	Apply different wireless sensor networks used in embedded systems.		2					
12- EM - E4 1	System On Chip Architec ture	3-0- 0	3	CO1	Understand SoB, SoC & SoP for electronic product in terms of size, cost, performance and reliability.	1					Modified	The objective of this course is to understand the techniques for designing SoCs
				CO2	Analyze design flow in SoC Environment		2			2		

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						and		ı						
						verification of			١			-		
						electronic	ĺ		- [
						circuits								
١						Understand		\dashv	\dashv	1	\dashv	一		
						embedded				١				
١					coa	memories used				-				
					CO3					-				
						for SoC				Ì				
						Enviormnment	. 1		_	_		_1		
						Analyze the								
						bus				ļ				
					CO4	architectures of								
						NOCs and			1	İ				
-						routing.	2				2			
						Understand the								
						techniques for								
						designing				i				
			:		CO5	MPSoCs and								
					000	its								
						performance.	1					1	,	
		:				Understanding		\dashv	1			_	Retained	The
						the concepts of							without	objective of
						Embedded							Changes	this course
	12-	Real				Networking		1					Changes	is to
	EM	Time	3-0-			Communication								understand
		Operati	3-0- 0	3	CO1	Standard								the basic
	- E4	ng	0			1								concepts of
	4	Systems				protocols: RS								RTOS
		, '				232, RS 485, SPI,								1,103
ļ						I2C bus	١,				l			
					1	protocols.	1	l	il		l	1		

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Annexure-3

COURSE VS POS & PSO'S MAPPING

С							ogr				G(2.055).		
o u r s c c C d	Course Title) .T., e	C EDITs	C O		O 1	P O 2	PO	e(PC	98) Pos	P O 6	Course Type	Course Objective.
1				C O 1	Analyse the errors in numerical calculations	2						Added	The objective of this course is to understand Basics of computational methods and error analysis
3 E M	Computat ional Methods	3	4	C O 2	Apply computational methods for curve fitting		2						
5 1	and Error Analysis	0		C O 3	Understand the Numerical differentiation and Numerical Integration				,	1	1		
				C O 4	Understand the Matrices and Linear system of equations and finite difference methods		1.						
1 3		3		C O 1	Remember and understand the mobile and wireless networks	1						Added	The objective of this course is to understand The concepts of wireless comm. & networks
E M 5	Wireless Communi cations &	1	5	C O 2	Understand the concepts of GSM and wireless MAC		1						
1 2	Networks	2		C O 3	Understand the concepts of MANETs and Mobile IP					1			
				C O 4	Remember the basics of broadcast systems						1		
1 3 E	Sensors and Sensing	3 - 1	4	C O 1	Remember and understand the sensor fundamentals	1						Added	The objective of this course is to understand the

M 5	Principles	0										sensor fundamentals
3				C O 2	Understand the physical and chemical sensors		1					
				C O 3	Illustrate and understand the optical sensors				1			
- Company				C O 4	Understand the bio sensors					1		
1 3	Data	3		C O 1	Analyse the various power supplies and filters used	2					Added	The objective of this course is to understand the basics of data acquisition
E M 5	Acquisitio n and Hardware	- 1 -	5	C O 2	Understand sensor signal conditioning circuits		1			1		
4	Networks	2		C O 3	Understand the wired communications				1			
				C O 4	Analyse the serial communication process		2				, 1994 h	
1				C O 1	Overview of MEMS and Micro Systems	1					Added	The objective of this course is to understand Basics of MEMS technology
1 3 E M	MEMS & NEMS	3	4	C O 2	Understand the Basics of MEMS technology and micro system design		1					
1 5		0		C O 3	Analyse the micro system design				2			
				C O 4	Remember and understand the fabrication methods involved					1		
1 3 E M 5	Communi cations Protocols and Standards	3 - 1 - 2	5	C O 1	Remember and understand the networks in process automation	1					Added	The objective of this course is to understand the various communication protocols
6				С	Illustrate the various		1					

				O 2 C O 3 C O	communication protocols Understand wired communication and fieldbus Understand the basics of wireless personal				1			
				4	area networks					1		
1 3		3		C O 4	Understand different types wireless network their protocols and security issues	1		,		, proposition of the control of the	Added	The objective of this course is to understand different types wireless network their protocols and security issues
E M 5 1	Wireless Sensor Networks	- 1 - 2	5	C O 4	analysis of difference between wireless networks , hardware devices and disigning issues		2					
				C O 4	understand the WSN Gateway and their designing principle				1			
***************************************				C O 4	understanding of Quality of sensor, Target detection tracking					1		
1 3	Design	3		C O 1	Understanding basics of design and Analysis of Algorithm	1					Added	The objective of this course is to understand basics of design and Analysis of Algorithm
E M 5	and Analysis of Algorith	- 1 -	4	C O 2	Analyse the search and sorting methods and greedy methods		2					
1 8	ms	0		C O 3	Design algorithm for shortest path problem and reliable design	2						
•				C O 4	Analyse NP- Hard and NP- Complete problem				2			
1 3 E M 5 3	Advance d Data Commun ications	3 - 0 - 0	3	C O 1	Understanding Digital Modulation Techniques						Added	The objective of this course is to understand Advanced protocols in data communication

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			1		,						_	_	
3				С	study and Analyse								
				0	Different protocols of				ĺ				
				2	data communication		2						
				С	understanding								
		İ		0	different erroe								1
				3	correcting and error			l					
]	detecting techniues	l					2		
				С	Analysis of multiple								
				0	techniques TDMA,								
				4	CDMA,SDMA					2			
				С								Added	The objective of
				0	Understand Basic								this course is to
		ļ		1	Concepts of DBMS								Understand Basic
1				1		1							Concepts of DBMS
3	Databas	3		С	Understanding								
E	e	-		0	database Designing								
M	manage	0	3		models		1						
5	ment	-	ŀ	С	study the States of					100			
3 5	systems	0		0	transaction and locking								
5				3	techniques								
				С	analyse Database file								
				0	storage, recovery and								
		ļ.,,	ĺ	4	failure issues	2							
												Added	The objective of
				c	Remember and								this course is to
				0	Understand the								understand
				1	Evalution of wireless								advanced wireless
1				1 4	network								network
3	Advance	3				1							architectures
E	d	-		ļ	understanding the								
M	Wireless	0	3	С	wireless network								
5 4	Networks	0		О	architecture and								
1		-		2	application level								
					signaling		1						
				С									
				0	Analyse basic Issues of								
				3	mobility management			ll		2			

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Annexure-3

COURSE VS POS & PSO'S MAPPING

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0		L	C			O	utco	mes	(PO	s)		Сонгзе Туре	Course Objective
T S e C O d	Course Title	- T - A	E D I T S	C 0		PO	P O 2	P O 3	P 0 4	P O 5	P O 6		
1				C O 1	Analyse the errors in numerical calculations	2						Added	The objective of this course is to understand Basics of computational methods and error analysis
3 E M	Computat ional Methods	3 - 1	4	C O 2	Apply computational methods for curve fitting		2.						
5 1 1	and Error Analysis	0		C O 3	Understand the Numerical differentiation and Numerical Integration					1	1		
				C O 4	Understand the Matrices and Linear system of equations and finite difference methods		1						
1 3		3		C O 1	Remember and understand the mobile and wireless networks	1						Added	The objective of this course is to understand The concepts of wireless comm. & networks
E M	Wireless Communi cations &	- 1	5				1						
5 1 2	Networks	2		2 C O 3	wireless MAC Understand the concepts of MANETs and Mobile IP		1		,	1			
				C O 4	Remember the basics of broadcast systems						1		
1 3 E	Sensors and Sensing	3 - 1	4	C 0			1					Added	The objective of this course is to understand the

N	1 Principles	ı	ı	ı	1		ı	1	ı	1	1		ı
5	1 Principles												sensor fundamentals
3				C 0	Understand the physical and chemical								
				2 C O 3	Illustrate and understand the optical sensors		1			1			
				C O 4	Understand the bio sensors						1		
1 3	Data	3		C O 1	Analyse the various power supplies and filters used	2						Added	The objective of this course is to understand the basics of data acquisition
E M 5	Hardware	- 1	5	2	Understand sensor signal conditioning circuits		1				1		
1 4	Networks	2		C O 3	Understand the wired communications					1			
				C O 4	Analyse the serial communication process		2						
1				C O 1	Overview of MEMS and Micro Systems	1						Added	The objective of this course is to understand Basics of MEMS technology
3 E M	MEMS & NEMS	3 - 1	4	C O 2	Understand the Basics of MEMS technology and micro system design		1						0,
1 5		0		C O 3	Analyse the micro system design					2			
				C O 4	Remember and understand the fabrication methods involved						1		
1 3 E M 5	Communi cations Protocols and Standards	3 - 1 - 2	5	C O 1	Remember and understand the networks in process automation	1						Added	The objective of this course is to understand the various communication protocols
6				С	Illustrate the various		1						

				O 2 C O 3 C O	communication protocols Understand wired communication and fieldbus Understand the basics of wireless personal					1		·	
1		3		C O 4	Understand different types wireless network their protocols and security issues	7-1						Added	The objective of this course is to understand different types wireless network their protocols and security issues
3 E M 5 1	Wireless Sensor Networks	1 2	5	C O 4	analysis of difference between wireless networks , hardware devices and disigning issues understand the WSN Gateway and their		4	2		1			
				C O 4	designing principle understanding of Quality of sensor, Target detection tracking						1	Added	The objective of
1 3	Design	3		C C 1	of design and Analysis		1					Added	this course is to understand basics of design and Analysis of Algorithm
E M 5	1 819611611	1	4	1 0	sorting methods and greedy methods			2					
1 8	me	C			shortest path problem and reliable design		2						
•					Analyse NP- Hard and NP- Complete problem					2			The objective of
11 33 E M	Advance d Data Commu	i d	3	3	C Understanding Digital O Modulation 1 Techniques		1		,			Added	this course is to understand Advanced protocols in data communication

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3				C O 3 C O 4	Different protocols of data communication understanding			2		2	2	
1				C O 1	Understand Basic Concepts of DBMS	1					Added	The objective of this course is to Understand Basic Concepts of DBMS
3 E M 5 3 5	Databas e manage ment systems	3 - 0 - 0	3	C O 2 C O 3 C O 4	Understanding database Designing models study the States of transaction and locking techniques analyse Database file storage, recovery and failure issues	2						
1 3 E	Advance d	3 -		C O 1	Remember and Understand the Evalution of wireless network understanding the	_1					Added	The objective of this course is to understand advanced wireless network architectures
M 5 4	Wireless Networks	0 0	3	C O 2 C O 3	wireless network architecture and application level signaling Analyse basic Issues of mobility management		1		,,,			

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Annexure-3

COURSE VS POS & PSO'S MAPPING

Cours		L,	CR ED	C		Pro Ou	gra tcon	m nes	(PC)s) =			
e Code	Course Title	T- P	IT S	Õ		P 0	P O 2	P O 3	P O 4	PO 5	PO 6	Course Type	Course Objective
				CO 1	Analyse the errors in numerical calculations	2						Added	The objective of this course is to understand Basics of computational methods and error analysis
				CO 2	Apply computatio nal methods for curve fitting		2						
13EM 511	Computational Methods and Error Analysis	3- 1-0	4	CO 3	Understand the Numerical differentiati on and Numerical Integration					1	1		
				CO 4	Understand the Matrices and Linear system of equations and finite difference methods		1						
				co 1	Remember and understand the mobile and wireless networks	1						Added	The objective of this course is to understand The concepts of wireless comm. & networks
13EM 512	Wireless Communications & Networks	3- 1-2	5	CO 2	Understand the concepts of GSM and wireless MAC		1						
				CO 3	Understand the concepts of MANETs						1		

					and Mobile							
				CO 4	Remember the basics of broadcast systems					1		
				co 1	Remember and understand the sensor fundamenta	1					Added	The objective of this course is to understand the sensor fundamentals
13EM 513	Sensors and Sensing Principles	3- 1-0	4	CO 2	Understand the physical and chemical sensors		1					
				CO 3	Illustrate and understand the optical sensors				1			
				CO 4	Understand the bio sensors					1		
				CO 1	Analyse the various power supplies and filters used	2					Added	The objective of this course is to understand the basics of data acquisition
13EM 514	Data Acquisition and Hardware Networks	3- 1-2	5	CO 2	Understand sensor signal conditioning circuits		1			1		
				CO 3	Understand the wired communicat ions				1			
				CO 4	Analyse the serial communicat ion process		2					
13EM 515	MEMS & NEMS	3- 1-0	4	CO 1	Overview of MEMS and Micro Systems	1				-	Added	The objective of this course is to understand Basics of MEMS technology
				со	Understand		1					

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				CO 3	the Basics of MEMS technology and micro system design Analyse the micro system design Remember	. ,			2	-		
			# P P P P P P P P P P P P P P P P P P P	CO 4	and understand the fabrication methods involved					1		
				CO 1	Remember and understand the networks in process automation	1					Added	The objective of this course is to understand the various communication protocols
13EM 516	Communications Protocols and Standards	3- 1-2	5	CO 2	Illustrate the various communicat ion protocols Understand		_ 1					
	Statiualus			CO 3	wired communicat ion and fieldbus				1			
				CO 4	Understand the basics of wireless personal area networks					1		
13EM 517	Wireless Sensor Networks	3- 1-2	5	CO 4	Understand different types wireless network their protocols and security issues	,					Added	The objective of this course is to understand different types wireless network their protocols and security issues
				CO 4	analysis of difference		2	?				

				CO 4	between wireless networks, hardware devices and disigning issues understand the WSN Gateway and their designing principle understandi		,		1			
				CO 4	ng of Quality of sensor, Target detection tracking					1		•
			Annual de Arraya de La Carlo de La Carlo de La Carlo de La Carlo de La Carlo de La Carlo de La Carlo de La Car	CO 1	Understandi ng basics of design and Analysis of Algorithm	1					Added	The objective of this course is to understand basics of design and Analysis of Algorithm
13EM	Design and Analysis of	3- 1-	4	CO 2	Analyse the search and sorting methods and greedy methods		2					
518	Algorithms	O		CO 3	Design algorithm for shortest path problem and reliable design	2						
				CO 4	Analyse NP- Hard and NP- Complete problem				2			
13EM 533	Advanced Data Communication s	3- 0- 0	3	CO 1	Understandi ng Digital Modulation Techniques	1					Added	The objective of this course is to understand Advanced protocols in data communication

				CO 2	study and Analyse Different protocols of data communicat ion understandi ng different erroe correcting and error detecting techniues	,	2			2		
				CO 4	Analysis of multiple techniques TDMA, CDMA,SDM				2			
				CO 1	Understand Basic Concepts of DBMS	1					Added	The objective of this course is to Understand Basic Concepts of DBMS
	Database	3-		CO 2	Understandi ng database Designing models	,	_1					
13EM 535	management systems	0-	3	CO 3	study the States of transaction and locking techniques							
				CO 4	analyse Database file storage, recovery and failure issues	2						
13EM 541	Advanced Wireless Networks	3- 0- 0	3	CO 1	Remember and Understand the Evalution of wireless network	1					Added	The objective of this course is to understand advanced wireless network architectures
				CO 2	understandi ng the wireless network		1	L				

		distant in the second s			architecture and application level signaling						
				CO 3	Analyse basic Issues of mobility managemen t			2			
				CO 4	Challenges in wireless network Quality of Service				1		
13EM 546	Advanced Microcontroller and its Applications	3- 0- 0	3	CO 1	Overview of Microproces sor and microcontro ller functioning, RISC and CISC processor	1				Added	The objective of this course is to understand the concepts of Advanced Microcontroller s and Applications

K L UNIVERSITY DEPARTMENT OF ELECTRONICS AND COMPUTER ENGINEERING MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

On 10th May 2013 the DAC in its meeting made the following recommendations to ECM-BOS.

Agenda:

- 1. To discuss the feedbacks received from stake holders on curriculum
- 2. To propose the curriculum for B. Tech 2013-14 admitting batch
- 3. Any other points with the permission of the DAC chairman

The following Members were present

S.No.	Name of the Member	Designation	Signature
1.	Prof. N. Venkatram	Chairman	Non
2.	Dr K.Raghava Rao	Member	ne
3.	Dr K Srinivasa Ravi	Member	KS FAM!
4.	Dr Md.Ali Hussain	Member	1918
5.	Dr K Kiran Kumar	Member	W
6.	Mr. N V K Ramesh	Member	W

The following points were discussed and resolved:

- 1. The DAC discussed and resolved to recommend adding the Courses in B. Tech (ECM) 2013-14 Batch Curriculum(Annexure-1)
- 2. Upon discussing the feedbacks from stake holders and surveying through the policy documents in relevance to APIIC, Human Resource Development Policy, Govt. of India, National Skill Development Corporation, Govt. of India, Confederation of Indian Industries, ABET, NBA norms and AICTE statutory norms, It is resolved to propose enclosed Program development documents and curriculum for B.Tech (Electronics and Computer Engineering), M.Tech (Embedded Systems) and M.Tech (Wireless Communications & Sensor Networks) programs (Annexure-I) recommended to BOS.
- 3. The DAC discussed and resolved to recommend modifying the Existing Syllabus of the Courses of B. Tech(ECM) 2012-13 curriculum(Annexure-1)

DAC-CHAIRMAN