FUNCTIONAL ENGLISH

B. Tech I Year I Semester								
Course code	Category	Hours/week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	TOTAL
17CA52101	Foundation	3	-	-	3	30	70	100
Contact Classes:51	Tutorial Classes: - Nil	Practical Classes: Nil				Total Classes:51		

COURSE OUTCOMES	
CO1	Demonstrate to overcome the barriers in communication process using non-verbal language suitable to different situations in professional life to become effective technical communicator.
CO2	Apply the knowledge on social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information.
CO3	Exhibit the knowledge on cohesive devices for better conversation in informal discussions and speak clearly on a specific topic using suitable discourse markers.
CO4	Apply the concepts of Entrepreneurship Skills and Analyze discourse markers to speak clearly on a specific topic in informal discussions and create coherent paragraph writing.
CO5	Apply the Knowledge to recognize the need of ability to engage in independent and life-long learning communication effectively in English over speech.

MATHEMATICS – I

B. Tech I Year I Semester								
Course code	category	Hours/week			credits	Maximum Marks		
		L	T	P	C	CIA	SEE	TOTAL
17CA54101	Foundation	2	2	-	3	30	70	100
Contact Classes:34	Tutorial Classes:34	Practical Classes: NIL				Total Classes:68		

COURSE OUTCOMES	
CO1	Analyze the system of Linear equations and matrices.
CO2	Analyze the Eigen values, Eigen vectors of a matrix and the nature of the Quadratic forms.
CO3	Apply Mean value theorem, Jacobian, maxima & minima for functions of single, two and three variables
CO4	Solve ODE of First order and First degree.
CO5	Demonstrate the basic knowledge and solve first and second order ODE in the field of engineering course.

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ENGINEERING DRAWING

B. Tech I Year II Semester								
Course Code	Category	Hours/Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA03101	Foundation	1	-	4	3	30	70	100
Contact Classes:-17	Tutorial Classes: Nil	Practical Classes: 68			Total Classes: 85			

COURSE OUTCOMES	
CO1	Understand the concepts of Conic Sections, Cycloidal curves and the application of industry standards.
CO2	Understand the Orthographic Projections of Points and Lines and are able to improve their visualization skills so that they can apply these skills in developing the new products.
CO3	Understand and apply Orthographic Projections of Planes wherever necessary.
CO4	Understand and analyze the Orthographic Projections of Solids.
CO5	Employ freehand 3D pictorial sketching to aid in the visualization process and efficiently communicate ideas graphically.

NETWORK ANANLYSIS

B. Tech I Year II Semester								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA02203	Foundation	2	2	-	3	30	70	100
Contact Classes: 34	Tutorial Classes: 34	Practical Classes: Nil			Total Classes: 68			

COURSE OUTCOMES	
CO1	Demonstrate knowledge in electrical circuits and Analyze network reduction techniques.
CO2	Investigate and Analyze network theroms.
CO3	Investigate and Analyze the study state response of R, L, C, R-L, R-C, R-L-C series and parallel circuits.
CO4	Analyze resonance and Magnetic circuits.
CO5	Analyze and Design the passive and active filters and two port network parameters.

COMPLEX ANALYSIS AND PARTIAL DIFFERENTIAL EQUATIONS

B. Tech II Year I Semester								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA54303	Foundation	2	2	-	3	30	70	100
Contact Classes: 34	Tutorial Classes: 34	Practical Classes: Nil			Total Classes: 68			

COURSE OUTCOMES	
CO1	Demonstrate the basic knowledge on special Functions and analyze the functions
CO2	Analyze the complex variable function with reference to their analyticity, integration using Cauchy's integral theorem and power series.
CO3	Demonstrate the basic knowledge on Conformal mapping and Bilinear transformation and analyze the functions
CO4	Evaluate the residue by formula and integrals of the types.
CO5	Solve the first and higher order Partial differential equations and Heat & Wave equations.

ELECTRONIC DEVICES AND CIRCUITS

B. Tech II Year I Semester								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04301	Foundation	3	-	-	3	30	70	100
Contact Classes: 51	Tutorial Classes: Nil	Practical Classes: Nil			Total Classes: 51			

COURSE OUTCOMES	
CO1	Demonstrate the knowledge on PN junction operation and analyze the PN junction Diode circuits.
CO2	Analyze various special purpose devices and their applications.
CO3	Demonstrate the knowledge on BJT, FET & UJT operations and analyze basic circuits with these transistors.
CO4	Exhibit the knowledge on basic concepts of biasing and analyze the biasing circuits using BJT & FET.
CO5	Investigate and analyze the small signal analysis of different transistor configurations and design the basic amplifiers.

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SWITCHING THEORY & LOGIC DESIGN

B. Tech II Year I Semester

ANALOG COMMUNICATIONS

B. Tech II Year II Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04402	Core	3	-	-	3	30	70	100
Contact Classes: 51	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 51		

COURSE OUTCOMES	
CO1	**Demonstrate** the basic concepts, need of modulation and fundamental elements to introduce analog communication systems and **Formulate** the power relations of various modulation and demodulation techniques.
CO2	**Analyze** the generation and detection techniques and **Formulate** the power relations of AM used in broadcasting systems.
CO3	**Analyze** the generation and detection techniques of FM and **formulate** the bandwidth, modulation index and power requirements.
CO4	**Analyze** the generation and detection of PM for analog communication systems and **formulate** their required parameters.
CO5	**Demonstrate** the different characteristics of transmitter and receivers and **Analyze** the different types of noise and **formulate** the SNR and figure of merit for different AM, FM and PM.

LINEAR IC APPLICATIONS

B. Tech II Year II Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04403	Core	3	-	-	3	30	70	100
Contact Classes: 51	Tutorial Classes:Nil	Practical Classes: Nil				Total Classes: 51		

COURSE OUTCOMES	
CO1	**Demonstrate** the concept of operational amplifiers and **formulate** its DC and AC characteristics.
CO2	**Analyze and Design** various linear and non-linear application circuits using op-amp operating with negative feedback in closed loop configuration.
CO3	**Analyze and Design** frequency selective circuits and wave shaping circuits using op-amp.
CO4	**Apply the knowledge** on Timers and PLLs using IC555 and **Analyze** the timers by measuring their frequency of oscillation and **Design** the multivibrators using IC555 timer.
CO5	**Investigate** the working principles of data converters for data processing applications.

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DIGITAL SYSTEM DESIGN

B. Tech III Year I Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04502	Elective	3	0	-	3	30	70	100
Contact Classes: 45	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 45		

COURSE OUTCOMES

CO1	Apply the knowledge on Various digital logic families and Analyze the structural description and electrical characteristics.
CO2	Demonstrate the fundamental concepts of HDL and Programming models of VHDL.
CO3	Analyze the Combinational logic circuits and **design** using IC's. Develop the programs for Combinational logic circuits using VHDL code.
CO4	Analyze the Sequential logic circuits and **design** using IC's. Develop the programs for Sequential logic circuits using VHDL code.
CO5	Analyze and Design different types of memory elements.

ANTENNAS & WAVE PROPAGATION

B. Tech III Year I Semester

Course Code	Category	Hours /			Credit	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04503	Core	3	1	-	3	30	70	100
Contact Classes: 45	Tutorial Classes: 15	Practical Classes: Nil				Total Classes: 60		

COURSE OUTCOMES

CO1	Apply the concept of mechanism of radiation, analyze various types of antennas with field components and configure their current distributions.
CO2	Demonstrate the concepts on the loop antennas and antenna arrays, analyze their characteristic parameters and design yagi-uda and helical antenna for real time applications.
CO3	Exhibit the knowledge on High frequency Antennas, Analyze their characteristics and design with relevant parameters.
CO4	Demonstrate the concepts on reflector antennas, identify the requirements and carry out the design with suitable precautions and familiarize with the procedure to enable antenna measurements.
CO5	Apply the concept of wave propagation theory and Analyze critical frequency, MUF, Skip distance in various applications.

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ENTREPRENEURSHIP (OPEN ELECTIVE)

B. Tech III Year II Semester								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA53601	Elective	3	-	-	-	30	70	100
Contact Classes: 51	Tutorial Classes: Nil	Practical Classes: Nil			Total Classes: 51			

COURSE OUTCOMES	
CO1	Demonstrate and develop Entrepreneurial mindset among Higher Secondary School children.
CO2	Demonstrate the school children to opt for self-employment as a viable option for earning dignified means of living.
CO3	Demonstrate the students to appreciate the dynamic changes happening in the economy.
CO4	Demonstrate the students about the role of Entrepreneurship in the growth and economic development of the nation.
CO5	Demonstrate the Entrepreneurship as life-skills to improve quality of life, skills of creation and management of entrepreneurial pursuits.

RENEWABLE ENERGY SOURCES (OPEN ELECTIVE)

B. Tech III Year II Semester								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA02608	Elective	3	-	-	3	30	70	100
Contact Classes: 51	Tutorial Classes: Nil	Practical Classes: Nil			Total Classes: 51			

COURSE OUTCOMES	
CO1	Understand the Electric power generation from renewable energy sources as sun, wind and ocean.
CO2	Analyze the generation principles and operation of variety of sources of energy
CO3	Understand energy storage and economy
CO4	Understand the necessity and principles of Geo thermal energy conversions.
CO5	Understand the necessity and principles of direct energy conversions.

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CO5	Identify IoT technologies, analyze and evaluate the data received through sensors in IoT.

OPTICAL COMMUNICATION

B. Tech IV Year I Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04702	Core	3	1	0	3	30	70	100
Contact Classes: 45	Tutorial Classes: 15	Practical Classes: Nil				Total Classes: 60		

COURSE OUTCOMES	
CO1	Be familiar with Optical Fiber Communication System, recognize and classify the structures of Optical fiber and types.
CO2	Discuss the channel impairments like losses and dispersion and analyze various Coupling losses.
CO3	Demonstrate the characteristics of optical sources and detectors.
CO4	Measure the properties of optical sources, detectors and receivers.
CO5	Design and construct a basic optical fiber communication link/system and test its performance.

RADAR SYSTEMS & NAVIGATIONAL AIDS
(PROFESSIONAL ELECTIVE-III)

B. Tech IV Year I Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04703	ELECTIVE	3	-	-	3	30	70	100
Total Contact Hours: 45	Total Tutorials: Nil	Practical Classes: Nil				Total Hours: 45		

COURSE OUTCOMES	
CO1	Demonstrate the radar performance affected by the factor with radar range equation.
CO2	Analyze the principles used in the MTI, Doppler and tracking radars and their comparison.
CO3	Analyze the techniques employed for detection of signals in the presence of noise for radar receivers.
CO4	Analyze the statistical parameters of Noise and Radar cross section of targets.
CO5	Demonstrate the basic knowledge on Satellite Navigation System and Analyze the system components or process as per needs & specifications.

DIGITAL SYSTEM DESIGN THROUH VERILOG
(PROFESSIONAL ELECTIVE-III)

B. Tech IV Year I Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total

17CA04704	ELECTIVE	3	-	-	3	30	70	100
Total Contact Hours:45	**Total Tutorials: Nil**	**Practical Classes: Nil**				**Total Hours: 45**		

COURSE OUTCOMES

CO1	Demonstrate the combinational circuits, using discrete gates and programmable logic devices.
CO2	Demonstrate how arithmetic operations can be performed for each kind of code, and also combinational circuits that implement arithmetic operations.
CO3	Design a semiconductor memory for specific chip design.
CO4	Design embedded systems using small microcontrollers, larger CPUs/ DSPs, or hard or soft processor cores.
CO5	Demonstrate different types of I/O controllers that are used in embedded system.

ADAPTIVE SIGNAL PROCESSING (PROFESSIONAL ELECTIVE-III)

B. Tech IV Year I Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04705	Elective	3	-	-	3	30	70	100
Contact Classes: 45	**Tutorial Classes: Nil**	**Practical Classes: Nil**				**Total Classes: 45**		

WIRELESS COMMUNICATIONS AND NETWORKS
(PROFESSIONAL ELECTIVE-III)

B. Tech IV Year I Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04706	ELECTIVE	3	-	-	3	30	70	100
Contact Classes: 45	**Tutorial Classes: Nil**	**Practical Classes: Nil**				**Total Classes: 45**		

COURSE OUTCOMES

CO1	Demonstrate the functioning, evolution and standards of Wireless Communication Systems and express the concepts of cellular system design.
CO2	Analyze the multiple access techniques used in Wireless Communication systems.
CO3	Analyze the wireless signal propagation mechanisms and models.
CO4	Apply various equalization and diversity techniques to improve the performance of radio link in wireless communication systems.
CO5	Analyze the architecture, functioning, protocols, capabilities and application of various wireless communication networks.

PATTERN RECOGNITION & APPLICATIONS (MOOC COURSE-I)

B. Tech IV Year I Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
17CA04707	Elective							