



## Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 21001:2018 Certified

Campus: Green Fields, Vaddeswaram - 522-302, Guntur District, Andhra Pradesh, INDIA.

Phone No. +91 8645 - 350 200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

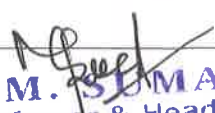
Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520-002. Ph: +91 - 866 - 3500122, 2576129

Department of Electronics and Communication Engineering

Program: M.Tech.- Radar & Communications

Academic Year: 2020-21

COURSE CODE	COURSE NAME	CO No	COURSE OUTCOME DESCRIPTION
20EC5101	Modern Digital Communication Techniques	1	Understand different modern digital modulation techniques and probability of error statistics.
		2	Analyze the performance of baseband and pass band data transmission in terms of signaling schemes.
		3	Understand the concepts of block and convolution codes with respect to transfer functions and decoding operations.
		4	Analyze the spread spectrum signals and signal analysis for different digital communication technologies.
		5	Interpret different digital communication modules with respect to signal analysis in application orientation.
20EC5102	Microwave Antennas	1	Understand the basic antenna parameters and radiation mechanism for different types.
		2	Identify the significance of aperture of antenna models and their feeding mechanism.
		3	Design microstrip radiators with different shapes, slots and feeding techniques for communication applications.
		4	Analyze the concepts of beam formation with respect to gain, directivity, impedance and polarization.
		5	Estimate the performance characteristics of microwave antennas with the help of electromagnetic tools.
20EC5103	EMI/EMC	1	Describe the concept of electromagnetic interference, compatibility and sources of EMI.
		2	Understand the electromagnetic interference in circuits and measurement techniques with open area test sites.
		3	Interpret the conducted and radiated interference and measurements.
		4	Utilize the techniques like grounding, shielding, bonding and EMI filters in the usage of cables , connectors and components.

  
**Dr. M. SUMAN**  
Professor & Head  
Department of ECE  
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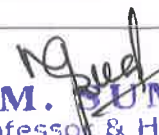
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20EC5104	Radar Engineering	1	Understand the concept of radar communication and its ground environment.
		2	Analyze the transmitter characteristics like output power, spectrum analysis and harmonics from transmitter.
		3	Identify the factors outside the radar and analyze the propagation mechanism with scattering and clutter.
		4	Classify different steps in receiver design and its parameters for determination of position.
20EC51A2	Microwave Semiconductor Devices and Applications	1	Understand the behavior of high frequency equivalent circuits and operation of varactor, schottky diodes with applications.
		2	Outline the functionality of tunnel and IMPATT diodes with performance characteristics.
		3	Estimate the applications of Gunn and PIN diodes in microwave integrated circuits.
		4	Categorize different microwave transistors and their applications.
20EC51B2	Global Navigation Satellite System	1	Understand GPS and UTC Time, Signal Structure and Get an idea about Receiver Components and Specifications.
		2	Perform Mathematical Analysis to estimate Clock Errors, Total Electron Content and Dual Frequency.
		3	Discussion on GPS Data Processing and Position Fixing.
		4	Understand GNSS Principle of Operation and Architecture.
		5	Understand Different Satellite Navigation Systems like Galileo, GLONASS, IRNSS Space, Control and Ground Segments.
20EC5205	Microwave and Millimetric wave circuits	1	Classify different microwave circuits based on applications.
		2	Estimate the importance of transformers and resonators in microwave circuit design.
		3	Design of microwave filters and periodic structures.

  
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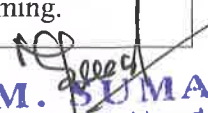
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		4	Understand the feeding principles and excitation techniques in waveguide design.
		5	Construct millimeter wave circuits using electromagnetic tools.
20EC5206	Antenna Measurements	1	Understand the concepts of antenna pattern measurements and modeling techniques.
		2	Estimate antenna testing in different environments like elevated, ground, near and radar cross section.
		3	Examine the far field testing of antenna for gain, directivity and patterns.
		4	Analysis of compact ranges and near field testing with cylindrical and spherical scanning.
		5	Determine antenna parameters using measurement instruments like VNA and SR in real time environment.
20EC5207	Wireless Cellular Communications	1	Understand the basic elements of cellular mobile radio system design.
		2	Identify different applications of speech coding in wireless systems.
		3	Understand the radio propagation and cellular engineering concepts
		4	Identify digital modulation and demodulation principles and architectures, interference in wireless communication systems.
20EC5208	Modern RADAR Systems	1	Summarize the advanced techniques in modern radar system.
		2	Categorize advanced pulse compression waveform modulations and techniques.
		3	Understand the concept of MIMO radar system and applications.
		4	Realize the radar applications related to sparse reconstruction and compressed sensing and digital beam forming.

  
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20EC52C1	Estimation and Detection Theory	1	Classify different criteria associated to detection theory at receiver.
		2	Understand the concepts of integration of optimum receiver and matched filter receiver.
		3	Analyze the maximum likelihood estimation methods.
		4	Understand the concepts of estimation in the presence of Gaussian noise and prediction with Kalman filters.
20EC52D1	RF and Microwave System Design	1	Understand the importance of RF & Microwave System design with passive components.
		2	Understand Smith chart concept for analyzing S, Y, Z parameters.
		3	Analyze S-parameters with conversions and modeling.
		4	Design of RF- filters, amplifiers and oscillators.

  
Academic Professor I/C

  
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