Government College of Engineering, Salem - 11

Department of Electronics and Communication Engineering

M.E. - Communication Systems

COs - POs and PSO Mapping

Course Articulation Matrix – 22 Regulation

Semester - I																
22COC11 - Antennas and Radiating Systems																
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Compute the far field distance, radiation pattern and gain of an antenna for given current Distribution.	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-
2	Design antennas and antenna arrays for various desired radiation pattern characteristics.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
3	Understand the capability and assess the performance of various antennas.	2	-	-	-	-	-	-	-	-	-	-	-	3	3	-
4	Identify the antennas specific to the applications and understand antenna measurement techniques.	2	-	-	-	-	-	-	-	-	-	-	-	3	3	-
Average		2.0	-	-	-	-	-	-	-	-	-	-	-	2.7	2.5	-

Semester - I																
22COC12-Advanced Digital Communication Techniques																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Apply the knowledge of mathematical models of channels in the design of Digital Communication systems.	2	-	1	-	-	-	-	-	-	-	-	-	2	1	-
2	Classify the different receiver used in the digital communication systems.	2	-	1	-	-	-	-	-	-	-	-	-	2	1	-
3	Analyse the eye patterns and can select the algorithm for equalizer to reduce ISI.	2	-	1	-	-	-	-	-	-	-	-	-	2	1	-
4	Design a digital modulator and can generate codes for error free communication.	2	-	1	-	-	-	-	-	-	-	-	-	2	1	-
Average		2	-	1	-	-	-	-	-	-	-	-	-	2	1	-

Semester - I																
22COC13-Antennas and Radiating Systems Lab																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Use HFSS to simulate different types of antennas.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
2	Design and study the radiation pattern of antennas and arrays	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
3	Understand the impact of variation in antenna parameters in radiation pattern.	3	-	-	-	-	-	-	-	-	-	-	-	2	3	-
4	Differentiate antenna array and MIMO antenna	2	-	-	-	-	-	-	-	-	-	-	-	2	3	-
Average		2.4	-	-	-	-	-	-	-	-	-	-	-	2.2	2.4	-

Semester - I																
22COC14-Advanced Digital Communication Systems Laboratory																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Compute and analyse the distortion in the presence of noise and to design filters.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
2	Analyse the system using eye pattern and design equalizer to avoid ISI.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
3	Design an error free system using coding techniques.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
4	Select the modulation scheme and able to design system using SDR.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
Average		2	-	-	-	-	-	-	-	-	-	-	-	2	2	-

Semester - II																
22COC21-RF and Microwave Circuit Design																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand the behaviour of passive components at very high frequency.	2	-	1	-	-	-	-	-	-	-	-	-	1	1	-
2	Design High Frequency Mixer and Amplifiers.	1	2	-	-	-	-	-	-	-	-	-	-	2	-	-
3	Analyze the performance parameters of RF system design and power amplifiers.	1	-	2	-	-	-	-	-	-	-	-	-	-	2	-
4	Perform a variety of RF resonators and filters.	2	2	-	-	-	-	-	-	-	-	-	-	1	-	-
Average		1.4	2.0	1.5	-	-	-	-	-	-	-	-	-	1.3	1.5	-

Semester - II																
22COC22-Advanced Digital Signal Processing																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Analyze discrete time random processes.	2	-	1	-	-	-	-	-	-	-	-	-	2	-	-
2	Apply appropriate model for estimation and signal modeling for the given problem.	2	1	1	-	-	-	-	-	-	-	-	-	2	2	-
3	Design adaptive filters for different applications.	2	2	2	-	-	-	-	-	-	-	-	-	2	2	-
4	Design discrete time system for the given application using multirate signal processing.	3	2	2	-	-	-	-	-	-	-	-	-	3	2	-
Average		2.2	1.6	1.5	-	-	-	-	-	-	-	-	-	2.2	2.0	-

Elective																
22COC23-Advanced Digital Signal Processing Lab																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Compute and analyse the distortion in the presence of noise and to design filters.	2	1	2	-	-	-	-	-	-	-	-	-	1	2	-
2	Analyse the system using eye pattern and design equalizer to avoid ISI.	2	1	2	-	-	-	-	-	-	-	-	-	1	2	-
3	Design an error free system using coding techniques.	2	1	2	-	-	-	-	-	-	-	-	-	1	2	-
4	Select the modulation scheme and able to design system using SDR.	2	1	2	-	-	-	-	-	-	-	-	-	1	2	-
Average		2	1	2	-	-	-	-	-	-	-	-	-	1	2	-

Elective																
22COE62-Internet Of Things																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand the concepts and design of cognitive radios.	1	2	2	-	-	-	-	-	-	-	-	-	-	2	-
2	Study about the SDR architecture and analysis.	1	2	1	-	-	-	-	-	-	-	-	-	1	2	-
3	Analyse the various cognitive radio network architectures and network security.	2	2	2	-	-	-	-	-	-	-	-	-	1	1	-
4	To analyse the performance of MAC and network layer design for cognitive radio.	2	2	2	-	-	-	-	-	-	-	-	-	2	1	-
Average		1.5	2	1.8	-	-	-	-	-	-	-	-	-	1.3	1.5	-

Elective																
22COE63-VLSI for Wireless Communication																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand the fading concepts	1	1	2	-	-	-	-	-	-	-	-	-	1	2	-
2	Design Low Noise amplifier and Mixers.	1	1	2	-	-	-	-	-	-	-	-	-	1	2	-
3	Evaluate the performance of Frequency synthesizers.	1	1	2	-	-	-	-	-	-	-	-	-	1	2	-
4	Design and analyze Power amplifiers.	1	1	2	-	-	-	-	-	-	-	-	-	1	2	-
Average		1	1	2	-	-	-	-	-	-	-	-	-	1	2	-

Elective																
22COE64-Cryptography and Network Security																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Demonstrate an understanding of the ways in which communication network security may get compromised and the basic principles of security algorithm design.	1	-	1	-	-	-	-	-	-	-	-	-	1	1	-
2	Familiar with the different types of security attacks, approaches to handling security and the algorithms in use for maintaining data integrity and authenticity.	2	-	2	-	-	-	-	-	-	-	-	-	2	2	-
3	Implement and analyse the different algorithms and compare their performances.	3	1	2	-	-	-	-	-	-	-	-	-	3	2	-
4	Appreciate the practical aspects of security features design and their implementation in wired and wireless internetworking domains.	2	1	2	-	-	-	-	-	-	-	-	-	2	2	-
Average		1.8	1.0	1.8	-	-	-	-	-	-	-	-	-	2	1.8	-

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Elective																
22COE71-Remote Sensing																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand the basics of remote sensing systems.	1	-	1	-	-	-	-	-	-	-	-	-	1	1	-
2	Apply image processing techniques in the area of remote sensing.	2	-	2	-	-	-	-	-	-	-	-	-	1	1	-
3	Extract and analyse thematic information using image analysis techniques	2	1	2	-	-	-	-	-	-	-	-	-	2	2	-
4	Implement various remote sensing applications using the learnt technique.	2	1	2	-	-	-	-	-	-	-	-	-	2	2	-
Average		1.8	1.0	1.8	-	-	-	-	-	-	-	-	-	1.5	1.5	-

Elective																
22COE72-Wavelet Signal Processing																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand about windowed Fourier transform and difference between windowed Fourier transform and wavelet transform.	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-
2	Understand wavelet basis and characterize continuous and discrete wavelet transforms	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-
3	Understand multi resolution analysis and identify various wavelets and evaluate their time-frequency resolution properties	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
4	Design certain classes of wavelets to specification and justify the basis of the application of wavelet transforms to different fields.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
Average		1.5	-	-	-	-	-	-	-	-	-	-	-	1.5	1.5	-

Elective																
22COE73-Bio MEMS																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand the MEMS fabrication processes and characteristics of various materials.	2	1	3	-	-	-	-	-	-	-	-	-	3	2	-
2	Specify the design issues related to different types of sensors and actuators at micro scale level.	1	1	3	-	-	-	-	-	-	-	-	-	3	2	-
3	Understand the methods of actuation of fluids at micro level.	1	1	2	-	-	-	-	-	-	-	-	-	3	2	-
4	Learn the principles of Micro Actuators and Drug Delivery system and applications of Micro Total Analysis and Apply various procedures for the design of MEMS devices for healthcare applications	2	1	2	-	-	-	-	-	-	-	-	-	3	2	-
Average		1.5	1	2.2	-	-	-	-	-	-	-	-	-	3.0	2	-

Elective																
22COE74-Big Data Technologies																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Describe Big Data Analytics	2	-	2	-	-	-	-	-	-	-	-	-	-	2	-
2	Practically implement Hadoop on suitable real time applications with MONGODB	2	-	2	-	-	-	-	-	-	-	-	-	1	2	-
3	Perform Map Reduce and solve a real time problem using Cassandra, Hive or Pig	2	-	2	-	-	-	-	-	-	-	-	-	-	2	-
4	Understand how Big Data is used in real world to solve problems	2	2	2	-	-	-	-	-	-	-	-	-	1	2	-
Average		2	2.0	2	-	-	-	-	-	-	-	-	-	1.0	2	-

III																
18COC205 - Mini Project																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Practice acquired knowledge within the chosen area of technology for project development.	2	2	-	-	-	-	-	-	-	-	-	-	-	1	-
2	Identify, discuss, and improve the technical aspects of the chosen project with an ethical responsibility.	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-
3	Acquire knowledge on contemporary issues and apply modern engineering tools for projects.	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-
4	Work as an individual or in a team in development of technical projects in multidisciplinary environments.	1	1	-	-	-	-	-	-	-	-	-	-	2	1	-
5	Communicate and report effectively project related activities and findings.	-	1	1	-	-	-	-	-	-	-	-	-	-	2	-
Average		1.6	1.5	1.3	-	-	-	-	-	-	-	-	-	2.0	1.3	-

IV																
18CO301 - Dissertation Phase – I																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand existing technologies, theories and methodologies through comprehensive literature review, identifying gaps and formulating research questions or project objectives.	2	2	-	-	-	-	-	-	-	-	-	-	-	1	-
2	Develop a project proposal that outlines objectives, methodology, expected outcomes and a timeline.	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
3	Engage in collaborative learning activities, such as group projects or peer mentoring, to enhance foundational technical skills in communication technologies, fostering teamwork and knowledge sharing.	2		2	-	-	-	-	-	-	-	-	-	-	-	-
4	Understand ethical considerations and regulatory requirements relevant to the project.	1	1		-	-	-	-	-	-	-	-	-	2	1	-
5	Develop the capability to design novel methodologies tailored for real-time applications in communication systems, ensuring scalability to accommodate varying demands and complexities inherent in dynamic environments.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average		1.6	1.5	2.0	-	-	-	-	-	-	-	-	-	2.0	1.0	-

IV																
18CO401 - Dissertation Phase – II																
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Collaborate with team members to implement the project, dividing tasks effectively, sharing expertise and to collect and analyse project data, pooling resources to ensure thoroughness and accuracy in data analysis.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Critically evaluate project results, soliciting feedback from team members to identify areas for improvement and collectively adapt project strategies as needed.	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
3	Apply ethical principles and professional responsibility in the execution of project work, ensuring integrity in data collection, analysis, and reporting. Recognize and address ethical dilemmas and societal impacts of the project, adhering to professional standards and regulatory requirements.	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-
4	Demonstrate a commitment to lifelong learning by engaging with new technologies, methodologies, and innovations in the field. Show an openness to self-evaluation and continuous improvement based on project outcomes and feedback.	1	-	-	-	-	-	-	-	-	-	-	-	2	1	-
5	Develop professional presentation skills to convey project findings, insights, and implications effectively through various formats, including formal presentations, posters, and digital media. Tailor communication strategies to engage diverse audiences and maximize impact.	2	-	-	-	-	-	-	-	-	-	-	-	1	2	-
Average		1.3	1.0	2.0	-	-	-	-	-	-	-	-	-	1.6	1.5	-