

**DEPARTMENT OF ECE**

**Program Specific Outcomes**

The graduates of Electronics and Communication engineering program of Sapthagiri College of Engineering should be able to attain the following at the time of graduation.

**PSO1:** Specify, design, build and test analog ,digital and embedded systems for signal processing

**PSO2:**Understand and architecture of wired and wireless analog and digital communication systems as per specifications and determine their performance

**Program Outcomes**

**PO1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**PO3 Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

  
**Principal**

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**PO6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**PO12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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## Courses Integrating Human values, Professional Ethics and Environment Sustainability

Sl.No	Course	Curriculum	PO's	PSO's	CO's	Cross cutting issues relevant to Gender, Environment Sustainability, human values and professional Ethics
1.	Constitutional India & Professional Ethics		1,2,3,4,6,8, 11, 12	-	CO1-CO5	Human values & Professional Ethics
2.	Environmental studies	To educate the students about environmental features, pollution control, atmosphere and natural resources	1,7,8,9, 10, 12	-	CO1-CO5	Environmental Sustainability
3.	Management & Entrepreneurship	Students are empowered through the concepts of Management and Entrepreneurship By inculcating business ethics and social responsibilities towards different groups during a business	6,8,9,10,11,12	-	CO1 – CO5	Professional Ethics
4.	Engineering Electromanetics	Educating the Students	1, 2, 3, 7			Environmental Sustainability



		the importance of static electric and magnetic fields in engineering and the implication of time varying fields in the generation and propagation of electro Magnetic waves				This course mainly applicable in the field of space and radar Communication. An awareness about frequency spectrum related to environment sustainability created among students
5.	Optical Fiber Communication	Students are able to understand different modes of optical signal propagation and the components used for fiber communication	1,2,3,7	PSO1, PSO2	CO1-CO5	Environment Sustainability Optical fibre is one of the preferred wired medium preferred by various telecommunication companies in the transmission of voice, data and video communication through this course the students are educated with how the use fibre optic cables for data communication safeguards the environment.
6.	Digital Switching System	Students are able to understand types of switching in telecommunication and Digital	1,2,3,5,7,12	PSO1, PSO2	CO1-CO4	Environment sustainability This course creates an awareness to the students that how the introduction of switching system reduces



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		switching system				the complexity of wiring and made the telephony hassle free in maintaining the environment sustainability
7.	Microwave and Antennas	Educate the students to analyse various parameters related to microwave transmission lines and waveguides	1,2,3,4,6,7,12	PSO1,PSO2	CO1-CO5	Environmental sustainability. The advantage in using microwave transmission in limited spectrum of frequency in maintaining environment sustainability has been educated to Students through this course
8.	Networking and cyber security	Students to understand the basic concepts of cyber security and its problem	1,2,3,4,8,12	PSO1,PSO2	CO1-CO5	Professional Ethics The requirement to follow ethics in cyber security practices to secure and shield the ability of human individuals and groups to live well has been educated to students through this course.
9.	Digital Image processing	To understand about the image formation and the role of human visual system in perception of gray and color image data	1, 2, 3, 7, 12	PSO2	CO1- CO5	Environmental Sustainability This course Creates an awareness among the students about the safety precautions to be followed in handling the digital imaging devices for

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						maintaining a sustainable Environment.
10.	Satellite Communication	To Educate the students to describe the satellite orbits and its trajectories and the various applications of satellite with the focus on national satellite system	1,2, 3, 7	-	CO1-CO5	Environment sustainability
11.	Cellular & Mobile Communication	To test and validate voice and data call handling for various scenarios in GSM and CDMA systems for national and international situations	1,2,3,4,7	PSO1, PSO2	CO1-CO5	Environment Sustainability
12.	Wireless Cellular and LTE 4G Broadband	To demonstrate the UTRAN and EPS handling process from setup to release including the mobility management for variety of data call scenarios	1,2,3,4, 7, 8	PSO2	CO1- CO5	Professional Ethics & Environmental Sustainability
13.	Internship	Students to Identify	1,2,3,7,8,9,10,	PSO1, PSO2	CO1-CO3	Professional Ethics

*(Signature)*  
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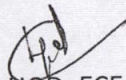
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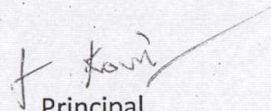
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		and explore recent trends in Electronics and communication engineering. and Prepare effective report on the selected topic, present and communicate and answer the queries on the topic.	12			&Environmental sustainability
14.	Project Work	To Identify, formulate and analyze engineering problems for the need of society and Apply engineering, management and ethical principles for Project management and finance.	1,2,3,4,5,7,8, 9,10,11,12	PSO1, PSO2	CO1-CO5	Professional Ethics & Environmental sustainability

  
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