

The Electronics & Communication Engineering Department was started in the year 1972 and now conducts one undergraduate program, with academic autonomy which is affiliated to VTU Belagavi. The department has always strived to inculcate the very best in students so that they can face the challenges offered to them by the industry. The preeminence of the department can be understood by the ever increasing demand of its fresh graduates. Close interaction with the industry has led to evolution of a teaching system, which produces diligent and erudite engineers. The young engineers have excelled both in higher education and in industry.

UG students are encouraged to take up interdisciplinary research in various domains and students are placed in reputed companies like Intel, NXP Semiconductors, SanDisk, Cisco IT, Qualcomm, Robert Bosch, Deloitte. The department has MOU with various leading industries like Texas Instruments, NXP Semiconductors, Intel, Keysight technologies TE connectivity, ESSEN, Semiconductor Laboratory, Idea unlimited, Indian institute of HAMS, GK Machineries and Robotics, Infineon research establishments like Department of Sericulture, Govt. of Karnataka, DRDO.

The UG programme in Electronics and Communication is designed with latest and state-of-the-art curriculum focusing on inter-disciplinary research areas. The core courses and elective courses are on par with industry requirements. The programme curriculum is designed based on the valuable feedbacks from the all stake-holders by a well experienced, strong BOS team comprising of Faculty, Industry representatives, Alumni and graduating students. The all-round development of students leading to holistic development is ensured by providing them the opportunities to involve in co-curricular activities via seminars, workshops, paper presentations in journals/conferences, hackathons, competitions and extra-curricular activities via technological fests, sports, and other clubs.

Teaching learning process at Electronics & communication engineering department has been standardized in line with the guidelines for autonomy issued by VTU. Apart from usual black board teaching and power point presentations the teachers also make use of flipped classes, blended learning and also use software tools to demonstrate the concepts for better understanding. The curriculum includes at least two practice courses per semester. The theoretical understanding of concepts is experimented in lab. Hence both theory and lab sessions go hand- in-hand. Most of these labs are industry sponsored and hence our lab curriculum is at par with the industry standards. Self-Study component which is a part of Continuous Internal Evaluation and students are encouraged to choose topics of recent trends in the Electronics & Communication Engineering. Self-learning in students is more active through the PoP up courses, which enables the peer learning amongst the students. Technical lectures/talks are organized on regular basis by experts from industries and elite academic institutions like IIT's, IISc.

The UG programme in Electronics and Communication Engineering is spread over Eight semesters. The programme is designed as per Outcome Based Education (OBE) and in alignment to the Program Outcomes (POs). The employability, innovation and research in curriculum are ensured by the involvement of industry professionals at various stages in the curriculum design

process. The mandatory project components (industry or in-house), internship and industrial visits synergizes curriculum with industry practices and needs. The curriculum design and development is done to ensure continuous improvement, adequacy and effectiveness in satisfying the academic/industry requirements in accordance with Vision, Mission and quality policy of the department and in line with that of the Institute.

## **B.E in Electronics & Communication Engineering**

### **Program Educational Objectives (PEOs)**

After successful completion of the program, the graduates will be

**ECPEO 1:** Able to apply concepts of mathematics, science and computing to Electronics and Communication Engineering

**ECPEO 2:** Able to design and develop interdisciplinary and innovative systems.

**ECPEO 3:** Able to inculcate effective communication skills, team work, ethics, leadership in preparation for a successful career in industry and R&D organizations.

### **Program outcomes (POs)**

#### **Engineering Graduates will be able to:**

**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.

**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.

### **Program Specific Outcomes (PSOs)**

At the end of the program, the student:

**PSO1.** Should be able to clearly understand the concepts and applications in the field of Communication/networking, signal processing, embedded systems and semiconductor technology.

**PSO2.** Should be able to associate the learning from the courses related to Microelectronics, Signal processing, Microcomputers, Embedded and Communication Systems to arrive at solutions to real world problems.

**PSO3.** Should have the capability to comprehend the technological advancements in the usage of modern design tools to analyze and design subsystems/processes for a variety of applications.

**PSO4.** Should possess the skills to communicate in both oral and written forms, the work already done and the future plans with necessary road maps, demonstrating the practice of professional ethics and the concerns for societal and environmental wellbeing.

### **Outline of the Program:**

B.E in Electronics & Communication Engineering program covers: Humanities and social sciences (6%), Basic sciences (14%), Engineering Sciences (13%), Professional subjects (core) (45%), Professional subjects (Electives) (11.5%), Other electives (2%) & Project work (8.5%). Few electives are industry collaborative and taught by industry experts.