**PO 1.** **Engineering Knowledge** The courses expose students to a deep understanding of signal/ speech processing, semiconductor devices, VLSI, cognitive radio, optimization, advanced communication system and sensor networks.

**PO 2. Problem analysis:** Identify, formulate, review research literature, and analyze complex  
engineering problems related to the fields of devices, embedded system, and communication systems.

**PO 3. Design/development of solutions:** The course involves mathematical modelling of communication systems, architectural design of devices/ VLSI, algorithms related to optimizations, sensor networks, speech processing, IoT that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO 4. 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 in the field of Signal Processing, Communications and devices.

**PO 5. Usage of Modern Tools:**The student is exposed to Numerical and Algorithmic procedures in the theoretical courses with a strong lab component using MATLAB environment, HFSS , Mentorgraphics, ViVado, Python, LaTex etc.

**PO 6. 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

**PO 7. 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.

**PO 8.Ethics:** In the preparation of reports and in the process of accessing and understanding journal papers, the student gets to understand the importance of acknowledging the works of prior state of the art and peer reviews. This ethical practice is built at this stage.

**PO 9. Individual and team-work:**As a part of the mini project, major project or internship the student is exposed to interfacing for communications with real world sensors, transmission of speech and complex images from cameras, devices, VLSI all of which require individual contribution as well as team work.

**PO 10. Communication Skills** As a part of progress reports on mini and major projects the student is expected to develop his skills in written and oral presentation of the work that he has accomplished.

**PO 11.Project management and finance**   As a part mini and major project the student learns to draw up list of tasks and time lines for those tasks an essential ingredient in project management. Further in the projects the student learns the value of simulation and emulation, thereby understanding that a cost effective hardware realization is possible only through simulations.

**PO 12. Life Long Learning:**Exposure to prerequisite maths and a mathematically rigorous approach to communication theory, VLSI, devices will provide him with all the necessary background to pursue a career in any field of communications and devices going forward in his career.