Wireless Engineering

The wireless engineering curriculum is a joint offering of the Department of Electrical and Computer Engineering and the Department of Computer Science and Software Engineering, leading to the bachelor of wireless engineering (BWE). To meet the need for engineers that can improve life and business in these times of a mobile society, the program has the following educational objectives. Within a few years of graduation, alumni of the wireless engineering program are expected to have (1) contributed positively to the development and application of new wireless technologies and systems as an individual contributor, a member of one or more project teams, and/or as a leader of one or more project teams, (2) achieved success in their chosen profession as evidenced by career satisfaction, promotions/raises, and leadership at levels appropriate to their experience, and/or (3) achieved success in post-undergraduate studies as evidenced by satisfaction with the decision to further their education, advanced degrees earned, professional registration, and professional visibility (e.g. publications, presentations, awards, etc.) The program is designed to develop within its graduates a basic foundation in wireless engineering and either electrical engineering, software engineering, or communication networks that will provide the technical proficiency needed for the professional practice of engineering in the wireless industry; the ability to communicate their ideas effectively within the technical community and to the general public; the basis for, and an appreciation of and enthusiasm for lifelong scientific inquiry, learning and creativity; and preparation to take their places in society as responsible citizens, with an appreciation of and understanding for the need to maintain the highest ethical standards in their personal and professional lives. Graduates of this program will be able to analyze, develop, design, test, administer and support wireless network systems, communication devices, and other components used in wireless computer and telecommunication networks.

The BWE curriculum has two formal options - wireless engineering-hardware (WIRE), emphasizing a hardware design-oriented approach to wireless engineering, and wireless engineering-software (WIRS), emphasizing a software-oriented approach. There is a network specialization within each option. Students interested in designing wireless hardware, such as integrated circuit chips, wireless communication devices, and wireless network switching equipment, should choose the WIRE hardware specialization option. Students interested in application software development, including server-side, client-side, and embedded applications, should choose the WIRS software specialization option. Students interested in pursuing a career with wireless service providers and other companies that develop and maintain wireless networks and sell service, can choose the Network Specialization within either the WIRE option or the WIRS option.

Each curriculum builds upon a solid foundation in mathematics, science, and electrical or software engineering fundamentals to introduce wireless communications theories, devices, circuits, systems, networks, standards, management, and applications. Design experience is interwoven throughout the curriculum by introducing basic design concepts early, emphasizing hands-on design experiences in the laboratories, including effective use of computers and other modern engineering tools, and culminating with a capstone design project in the senior year. In addition to its technical aspects, the curriculum emphasizes oral and written communication skills, the importance of business, economic, social and global forces on engineering, appreciation of the need to maintain the highest ethical standards, and the maintenance of professional competence through continued self-improvement after graduation.

Major

- Wireless Engineering (Hardware Option) (http://bulletin.auburn.edu/undergraduate/samuelginncollegeofengineering/departmentelectricalandcomputerengineering/wirelessengineeringhardware_major/)
- Wireless Engineering (Software Option) (http://bulletin.auburn.edu/undergraduate/samuelginncollegeofengineering/departementelectricalandcomputerengineering/wirelessengineeringsoftware_major/)