IT 127. Vehicle Design and Development (3; max total 6)
Design and mechanical development of vehicles for intercollegiate competition events. Students will select one or more vehicle research projects: innovative future fuels, supermileage, mini baja, formula, aero design, walking robot. (6 lab hours)

IT 129. Vehicle Diagnostic Procedures (3)
Prerequisites: IT 12, 52 or concurrently. Laboratory study and analysis of mechanical, electrical, and computer control problems. Technical reports. (6 lab hours) (Course fee, $5)

IT 131. Automated Systems I (3)
Prerequisite: IT 52. Number systems, Boolean logic, and fundamentals of digital devices; basic applications of logic devices in computers and control systems. (2 lecture, 2 lab hours; field trips) (Course fee, $5)

IT 133. Industrial Process Control Systems II (3)
Prerequisite: IT 52. Programmable logic controller principles and equipment; programming languages, procedures, and documentation; equipment and software selection and application. (2 lecture, 2 lab hours)

IT 134. Computer-Aided Manufacturing Systems I (3)
Prerequisite: IT 74. Study, analysis, and evaluation of robotics systems. APT programming language for numerical control and application languages for robots. Use of robot vision and the geometry of computer vision applications. (2 lecture, 2 lab hours)

IT 137. International Quality Standards (3)
Prerequisite: IT 117. ISO 9000 and related international quality systems. Implementation process. Conformance standards, quality system requirements, and the registration and audit processes.

IT 144. Tool Design Graphics (3)
Application of graphics to industrial work holding devices; their application, drawing, and design. Construction of working drawings aided by standards, company catalogs, and handbooks. Final designs subjected to student presentation and evaluation. (6 lab hours; field trips)

IT 146. Multimedia Development (3)
Integration of a variety of media types: graphics, animation, digital video, and sound. Emphasis placed on development and creation of multimedia as applied to various CAD/CAM projects, the process of bringing live interactivity to the Internet, Web page development, and desktop publishing.

IT 147. Advanced CAD Applications (3)
Prerequisites: IT 115. CAD as a tool to facilitate design activities. An overview of design processes and methods. Solid modeling techniques are introduced. A team approach in system design is emphasized. (2 lecture, 2 lab hours)

IT 148. Project Management and Control (3)
Project management process and tools, planning, scheduling, organizing, and controlling projects. Project planning and control using qualitative and quantitative methods. (2 lecture, 2 lab hours)

IT 156. Automated Systems II (3)
Prerequisite: IT 52. Study and analysis of the characteristics and industrial applications of electric motors. Major emphasis is placed on programmable, solid state, and electromechanical motor controllers. (2 lecture, 2 lab hours; field trips) (Course fee, $4)

IT 164. Routers and Internetworking I (4)
Prerequisite: IT 63. Implementation of appropriate technologies to build a scalable routed network. Building of campus networks using multilayer switching technologies. Improving traffic flow, reliability, redundancy, and performance for campus LANs, routed and switched WANs, and remote access networks. (2 lecture, 4 lab hours)

IT 165. Routers and Internetworking II (4)
Prerequisite: IT 164. Creation and deployment of a global internet. Troubleshooting an environment that uses routers and switches for multiprotocol client hosts and services. Addresses those tasks that network managers and administrators need to perform in managing access and controlling overhead traffic over LANs and WANs. Connecting corporate networks to an Internet Service Provider (ISP). (2 lecture, 4 lab hours)

IT 177. Computer-Aided Manufacturing Systems II (3)
Prerequisite: IT 74. Computer numerically controlled hardware including milling and turning centers and flexible manufacturing systems. Programming in languages common to computer numerically controlled machine tools. Computer-controlled machining of industrial materials including aluminum, brass, steel, plastic, expanded foam, and wax. (2 lecture, 2 lab hours)

IT 184. Advanced Manufacturing Technology (3)
Prerequisite: IT 74. Production processing, using metallic and nonmetallic materials, including product design, work cells, tooling, capacity planning, material handling, scheduling and flow chart. (2 lecture, 2 lab hours; field trips) (Course fee, $10)

IT 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

IT 191T. Technical Topics in Industrial Technology (1-3; max total 6)
Prerequisite: permission of instructor. Investigation and analysis of selected subjects in industrial technology. (2-6 lab hours)

IT 194. Cooperative Education in Industrial Technology (1-4; max total 12)
Prerequisites: courses appropriate to the work experience; permission of department cooperative education coordinator; junior standing. Integration of work experience with academic program, individually planned through program adviser. ***CR/NC*** grading only.

IT 196. Senior Seminar (1)
Prerequisite: senior standing. Exploration of technology systems management trends and preparation for employment or further study in technical fields. Technology forecasting, orientation to professional certifications, employment correspondence, and interview techniques. Letter grade only.

IT 198W. Technical Writing (3)
Prerequisites: satisfactory completion (***C*** or better) of the ENGL 5B or 10 graduation requirement; to be taken no sooner than the term in which 60 units are completed. Preparation of technical reports, research proposals, specifications, resumes, and correspondence using effective writing techniques, formats, and styles. Meets upper-division writing skills requirement for graduation.