Course Descriptions for all ELECTRONICS TECHNOLOGY courses
(in order by semester)

ELEC 101 DC/AC Circuit Analysis I (Cr4) (3:3)
This course provides an introduction to the fundamentals of direct and alternating circuit theory
including definitions of voltage, current, resistance, and power; Ohm's and Kirchoff's laws; and series-
parallel circuit analysis. Concepts of magnetism and sine waves as they related to electronic are
covered. Lab work emphasizes related hands-on skills such as circuit wiring, use of test equipment, and
data taking and reporting. Prereq. - Appropriate competencies as outlined in the Mathematics
Placement Policy or MATH 026 or MATH 028. Offered fall semester only.

ELEC 121 Technical Computer Applications (Cr2) (2:0)
This course addresses the computer literacy of students in technology programs. Aspects of reporting
technical information are covered including audience, procedure, spreadsheets, graphs, schematics, as
well as format and organization. Students are introduced to software applications relevant to the
discipline including MS Office, schematic capture and simulation, virtual test equipment, and wikis.
Navigational and file management in the Windows environment is important for course success.

ELEC 177 Electronics Manufacturing I (Cr2) (1:2)
Process, assembly and soldering of electronic circuits; introduction to applied chemistry and safety;
materials; soldering and cleaning processes; application of workmanship standards and best practices;
lab experiences in hand soldering through-hole and surface mount assemblies, inspection and
component replacement. Offered fall semester only.

ENGL 101 English I (Cr3) (3:0)
A writing-intensive course giving close attention to the process of writing through networked workshops
and conferences involved in preparation and revision of drafts. The course develops skills in logical and
focused writing, through development of a main point by means of supporting ideas and evidence. In
addition, students learn to integrate information from secondary sources through the use of summary,
paraphrase, and direct quotation in various forms of thesis-based writing. Prereq. - Competence in
reading and writing as determined by English Department through testing and/or course work.
Approved for the Honors Program.

MATH 140 College Algebra (Cr3) (3:0)
Concepts of algebra, graphs and functions, exponential and log functions, systems of inequalities and
equalities, complex numbers. Prereq. - Appropriate competence as outlined in the Mathematics
Placement policy or MATH026 or 028 either with a C or better.

CMTH 102 Speech Communication (Cr3) (3:0)
Basic principles of communication theory and practice, including speech preparation and delivery, and
the effective use of critical thinking and listening in relation to intrapersonal, interpersonal, intercultural,
and group communication.

ELEC 126 Digital Electronics I (Cr3) (2:2)
This introductory course in digital electronics covers topics such as number systems, combinational logic
circuits, Boolean theorems, flip-flops, counters, arithmetic circuits, display interface, and data storage
and transfer. Labs emphasize the use of specifications in prototyping and troubleshooting discrete
component digital circuits. Schematic capture software is used to simulate and simplify circuits. Prereq.- ELEC 101.

**ELEC 151 DC/AC Circuit Analysis II (Cr4) (3:3)**
The second in a two-course sequence, this course provides in-depth coverage of DC and AC concepts. Circuit analysis using network theorems and mathematical solutions in applied to DC circuits. The response of resistors, capacitors, and inductors in both DC and AC circuits is detailed, with an emphasis on application and frequency response. Lab work emphasizes related hands-on skills such as circuit wiring, use of test equipment, and data taking and reporting. Prereq.- ELEC 101; Pre- or coreq.- MATH 140. Offered spring semester only.

**ELEC 155 Introduction to Solid State Devices (Cr2) (1:2)**
This is an introductory project course in circuit prototyping. Solid state devices such as diodes, transistors, and voltage regulators are introduced. Emphasis is on basic component characteristics and analysis in the context of a power supply circuit. Lab emphasizes component specifications and typical circuit configurations. The project introduces circuit board layout and wiring, chassis wiring and harnessing, and other fabrication techniques. Prereq.- ELEC 101; Pre- or coreq.- EMEC 115. Offered spring semester only.

**EMEC 115 Mechanical Skills for Technicians (Cr1) (0:2)**
Covers types of components and fasteners; hand tool usage; basic operation of hand power tools, measurement and layout applied to basic electromechanical projects. Only one of EMEC 110 or EMEC 115 may be applied to graduation in Electromechanical Technology. Offered spring semester only.

**ENGL 151 English II (Cr3) (3:0)**
Students continue to develop the academic writing and critical reading skills begun in English I. Students may elect to work on introduction to literature (L), report writing (R), or technical writing (T). Prereq.- ENGL 101. Also available through Online Learning. ENGL 151L (literature option) is approved for the Honors Program and has a designated as a Diversity (D) core course.

**ELEC 207 Solid State Circuits (Cr4) (3:3)**
This is the first of a two-course sequence in linear electronics. Topical coverage includes: physical concepts of semiconductors, diodes and power supply circuits, and bipolar-junction transistors (BJTs) used as switches and small- and large-signal amplifiers. Labs emphasize the analysis, prototyping, and troubleshooting of actual and simulated semiconductor circuits; interpreting manufacturer specifications; and documenting procedures and results. Prereq. - ELEC155. Offered fall semester only.

**ELEC 208 Digital Electronics II (Cr3) (2:2)**
Second course in digital electronics. Includes: simplification by Boolean Algebra and Karnaugh mapping, design of truncated sequence sequential counters, IC specifications and interfacing, tri-state devices and busing, A/D and D/A, memory devises, and an introduction to CPLDs. Labs emphasize the analysis, prototyping, and troubleshooting of digital circuits as well as interpretation of manufacturer specifications. Prereq.- ELEC 126 and 155. Offered fall semester only.

**ENGG 100 Engineering Graphics (Cr3) (2:2)**
Training and experience in drafting procedure, practice and principles; basic skills and techniques of drafting including freehand orthographic and pictorial sketching; use of drafting equipment; essentials
of lines, lettering, multiview projections, section views, dimensioning, tolerancing and notation in execution of detail and assembly drawings; introduction to computer-aided design basics for non-CAD majors.

**PHYS 101 Physics I (Cr4) (3:2)**
This is an introductory, algebra-based, problem-solving physics course with a lab component. Topics covered are one and two-dimensional motion, forces, Newton's laws, work, power, energy, momentum, rotation, equilibrium, fluids, temperature, and heat. Prereq. - MATH140 with C or better. Core: SCI.

**CHEM 120 General Chemistry I (Cr4) (3:3)**
Chemistry I is a qualitative and quantitative study, both in the classroom and the laboratory, of matter and energy as they relate to the chemical properties of solids, liquids, gases, and solutions. Topics include stoichiometry, atomic/molecular structure, bonding, states of matter, changes of state, and solutions. A quantitative study of each area is stressed; a strong background in chemistry and mathematics is required. This course is intended for science and engineering majors. Prereq. - Appropriate competence as outlined in the Mathematics Placement Policy or MATH 022; Chemistry (1 year of high school chemistry or CHEM 011); and Reading and writing competence as determined for ENGL 101. Core: SCI.

**ELEC 226 Microprocessors I (Cr3) (2:2)**
Eight-bit microprocessors, including digital computers, computer languages, microprocessor architecture, memory, input/output, 8080A/8085 based microprocessor systems, MPU, instructions and timings, instruction format, how to write and execute simple programs, programming the 8080/8085, 8080/8085 instructions, arithmetic logic; and branch operations, counter and timing delays, stack and subroutines, interfacing peripherals, and applications. Prereq. - ELEC 208. Offered spring semester only.

**ELEC 230 Team Project (Cr2) (1:3)**
Students from CAD and electronics programs work in interdisciplinary teams to design and prototype an electromechanical product under specified guidelines; emphasis on effective teamwork, prototyping, technical writing and reporting, and oral presentation skills. Only one of the following may be applied to graduation: ELEC 230, ENGG 230, or WELD 230. Prereq. - ELEC 208; Pre- or coreq.- ELEC 232, ENGL 151 and CMTH 102. Offered spring semester only.

**ELEC 232 Linear Integrated Circuits (Cr4) (3:3)**
This is the second in a two-course sequence in linear electronics covering field-effect transistors in switch and small-signal amplifier applications, a comparison of FETs to BJTs, thyristors, IC fabrication, op-amps in linear and non-linear applications, and voltage regulators. Labs emphasize prototyping, simulating, troubleshooting, and interpretation of procedure and manufacturer specifications. Prereq. - ELEC 207. Offered spring semester only.