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

CISC 101 Introduction to Computers (Cr3) (3:0)
This course introduces computer concepts including hardware and software, an overview of application
software, networking and the Internet, and current issues with respect to computers and society.
Hands-on instruction in the productivity tools of word-processing, spreadsheets and presentation
software.

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.

EMEC 101 Electrical Fundamentals (Cr3) (2:2)
Provides a foundation of knowledge in electricity. Covers fundamental electrical concepts, EMF, current,
resistance, power, AC and DC series and parallel circuit operation and analysis, inductance, capacitance,
meter usage, schematics, and circuit component operation. Industrial safety stressed and math
applications are reviewed. Practical lab application of concepts.

EMEC 118 Hand and Power Tools (Cr1) (1:0)
This course covers proper selection, safe use, care and maintenance of both hand and power tools.

ENGG 117 Technical Drawings and Specifications (Cr3) (3:0)
Interpreting and sketching engineering drawings and specifications; multiview projection, dimensioning,
sectioning, geometric dimensioning and tolerancing; working drawings, pictorials; introduction to
electrical, electronics, tooling, weld, and plastics drawing.

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.

ELTC 107 Electrical Wiring I (Cr3) (3:1)
This course provides an introduction to the practices of electrical wiring with a focus on residential
single and multi-family dwellings. Covers project planning, materials calculation, and National Electrical

EMEC 135 Electrical Motors and Controls (Cr4) (3:2)
Concepts of electricity, electronics and controls related to industrial applications; industrial control
devices and sensors; relays and electromechanical control; electrical diagrams; transformers and power
distribution; solid state power devices; motors, starters and drives; AC/DC motor control; process
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.

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.

ELTC 265 Electrical Cabling Systems I (Cr3) (2:2)
Covers operating principles, installation and maintenance of home automation controls, communication systems, entertainment systems, security, and lighting systems; installation of fiber optics and basic networking.

ELTC 109 Electrical Wiring II (Cr3) (3:1)
Practices of electrical wiring with a focus on commercial buildings; project planning, materials calculation, and NEC-based installation and wiring practices. Formerly ELTC 809. Coreq. - ELTC 107.

EMEC 117 Industrial Rigging (Cr1) (1:1)
The course provides basic rigging skills required for installation, setting or moving of industrial equipment and the use of ladders and scaffolding. This introduction stresses safe application of rigging techniques, the use of various devices in equipment installation, alignment, lifting and the calculation of load, center of gravity and proper material handling.

EMEC 240 Industrial Control Systems I (Cr4) (3:3)
This is a first course in industrial control systems that covers programmable logic controllers (PLCs) and programmable automation controllers (PACs) operation, application, programming and troubleshooting. PLC/PAC hardware identification, input/output (I/O), network communications and I/O wiring is presented. I/O and internal addressing, tags, alias tags and data types are presented and practiced. The basic software instruction set is covered including contacts, coils, timers, counters, data manipulation, comparison and arithmetic. Program control using subroutines and controller organization is also incorporated. Prereq. - EMEC 135; Pre - or Coreq. ELEC 121 or CISC 101.

HVAC 101 Fundamentals of HVAC/R I (Cr4) (3:2)
This is an introductory course in heating, ventilation, air conditioning and refrigeration (HVAC/R) technology. Topics will include heat transfer, refrigerant properties, the vapor-compression refrigeration cycle, service and piping techniques, EPA refrigerant handling regulations, dehydration and charging of systems, control components, basic residential control wiring, domestic refrigerator/freezers, and room air conditioners. Formerly HVAC 801. Pre or coreq.- EMEC 101 or instructor permission.

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.
ELTC 222 Solar Photovoltaic Systems I (Cr3) (2:2)
This is an ISPQ/IREC accredited course in the study of Solar Photovoltaic (PV) systems based on the North American Board of Certified Energy Practitioners (NABCEP) Installer Task Analysis, covering system design, sizing, safety and installation for single residences, multifamily residences and light commercial applications. Also covered in the course are energy conversion from sunlight to electricity, the operation of solar conversion equipment, solar electric products and applications. After completing the course, students are eligible to take the NABCEP PV Entry Level exam. Prereq.- EMEC 101.

ELTC 211 National Electrical Code (Cr4) (4:0)
Preparation for the Masters License Examination including interpretation and application of the current release of the National Electrical Code. Covers calculations; branch and feeder circuits; service entrances; switches, switch boards and panel boards; general equipment; motor circuits, transformers, and welders. Prereq.- ELTC 109 or permission of instructor.

ELTC 260G Electrical Construction Practicum (Cr2) (2:0)
Work experience at an approved electrical contracting firm providing exposure to low and mid-level positions. Writing and presenting research, and analysis of a complete electrical installation project. The tasks will be consistent with the course work of the preceding semester. Prereq.- completion of the first three semester technical courses in the Electrical Construction Technology degree program and ENGL 101.

OSAH 100 Industry Outreach Safety Education (Cr1) (1:0)
This course is based upon the 10-hour Occupational Safety and Health Administration's General Industry and Construction Industry Outreach Training Program. The intention is to provide entry level general industry and construction industry workers a broad awareness as it relates to recognizing and preventing hazards within their respective workplaces. The discussion and information cover a variety of safety and health hazards which an employee may encounter in either workplace. This course is intended to be an orientation to the general safety practices along with introductory concepts of occupational safety and health.