ENVIRONMENTAL CONTROL SYSTEMS (ECS)

All ECS courses numbered 100 and above may be applied to the major field and elective requirement for the Associate in Arts and Associate in Science degrees.

ECS 103 Commercial/Industrial Boilers (3) 2,2
Provides a comprehensive study of all aspects of high pressure boilers. Contents include steam boiler operations, accessories, boiler operation safety, computer and programmable controls, water treatment, and testing. Course is repeatable to six credits. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $431 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in HAC 106.
Semester(s) Offered: Fall and Spring

ECS 108 Commercial Electronic Control System (3) 2,2
This course is geared towards students and those individuals with some background in HVACR electronic controls. Emphasis is placed on function and application of HVACR electronic control systems. The subject material is structured for maximum participation in the interpretation of control sequences and selection of equipment. Course is repeatable to six credits. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $431 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in HAC 104
Semester(s) Offered: Varies

ECS 110 Codes and Standards (3) 3,0
Familiarization with and identification of sources of current federal, state, local codes and standards (ASHRAE) applied to building, plumbing, electrical, heating, ventilation, refrigeration and air conditioning systems. Course is repeatable to six credits. (1.2) Proficiency Credit Available (2LT) Pass/No Credit Not Available.
In-District Tuition/Fees: $396 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in HAC 101, HAC 103, HAC 109, HAC 114, and HAC 119 or consent of instructor
Semester(s) Offered: Fall and Spring

ECS 111 Introduction to Photovoltaic Systems (3) 2,2
ECS 111 covers the fundamental operating principles, function, location and application of photovoltaic electric systems. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $436 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: None
Semester(s) Offered: Fall and Spring

ECS 112 Survey of Renewable Energy Systems (2) 1,2
An overview course in The Business of Renewable Energy. The course will explore Regulatory Frameworks, emerging and established technologies, practical examples of startup companies, and challenges and opportunities in reducing our reliance on carbon based energy sources. Anyone looking for a broad perspective from current professionals in the energy sector today, or just trying to make sense of all The GreenWash out there, this is for you. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $264 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: None
Semester(s) Offered: Fall and Spring

ECS 113 Energy Auditing (3) 2,2
This course studies energy auditing for residential and light commercial structures including the purposes and limitations of three types of energy audits. Students will apply the theories learned in the classroom by performing a comprehensive energy audit on an existing structure. This course will provide hands on experience with the instrumentation necessary to perform an energy audit including: blower door testing, thermal imaging, and duct pressurization tests. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $436 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: ECS 112 or consent of instructor
Semester(s) Offered: Fall and Spring

ECS 114 IAQ for Commercial Buildings (3) 3,0
This course covers IAQ problems that face building occupants and problems confronting building managers in buildings today. IAQ guidelines, EPA, OSHA, and other federal regulations will be covered as well as solving indoor air quality problems. Course is repeatable to six credits. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $396 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in HAC 205
Semester(s) Offered: Varies

ECS 116 Introduction to Wind Energy (3) 2,2
Students will examine, operate, and evaluate a small wind powered electrical generation system. The course of study will include: installation and cost benefit analysis. The installation will include the use of standard hand tools and materials. The evaluation will include efficiency analysis calculations and the use of air flow and power measurement instruments. (1.2) Proficiency Credit Available (3 FMEST) Pass/No Credit Not Available.
In-District Tuition/Fees: $436 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: None
Semester(s) Offered: Fall and Spring

ECS 117 Intro to Sustainable Heating Systems (3) 2,2
Introduction to solar air heating using a combination of lecture, and fabrication lab sessions. Students will design, build and evaluate a solar air heating system. The design will include; material selection, heat transfer, and cost benefit analysis. The fabrication will include the use of standard hand tools and materials. The evaluation will include fundamental heat gain calculations and the use of air flow and temperature monitoring instruments. (1.2) Proficiency Credit Available (3 FMEST) Pass/No Credit Not Available.
In-District Tuition/Fees: $436 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: None
Semester(s) Offered: Fall and Spring

ECS 118 Photovoltaic System Application (3) 2,2
This course examines the skills and knowledge necessary to work as a technician in the photovoltaic electricity industry. Subjects addressed include safety training, the function and interrelation of the systems located in a photovoltaic system. As well as a systems view of the equipment needed to provide usable electricity from sunlight. The course will focus primarily on the selection and application of photovoltaic equipment needed to provide both grid tied and off grid power. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $436 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in ECS 111
Semester(s) Offered: Fall and Spring

ECS 119 Wind Turbine Service (3) 2,2
This course examines the skills and knowledge necessary to work as a technician in the wind industry. Subjects addressed include safety training, the function and interrelation of the systems located in a wind power system. As well as a systems view of the propulsion and generation equipment typically located in a nacelle. The course will focus primarily on the production of electrical power following it from the wind turbine to the grid and finally to the end user. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $436 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in ECS 116
Semester(s) Offered: Spring

ECS 202 Commercial Load Calculations (3) 2,2
Provides a comprehensive study for heating and cooling load calculations for commercial buildings. Provides a wide range of procedures-both manual calculations procedures and computer-assisted. Emphasizes the Transfer Function Method (TFM) as a baseline procedure. CLTD/SCL/CLF are discussed. Course is repeatable to six credits. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $431 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in HAC 101 and HAC 205
Semester(s) Offered: Fall and Spring

ECS 206 Commercial Duct Design (3) 2,2
A study in commercial duct design to provide the student a primer on the theory and on the factors that relate to designing low pressure, low velocity air distribution systems. Duct sizing methods will include equal friction method, static regain, constant velocity, velocity reduction, and modified equal friction. This course will also cover specific applications found in commercial and industrial buildings. Course is repeatable to six credits. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $431 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in ECS 202 or concurrent enrollment in ECS 202
Semester(s) Offered: Varies

ECS 215 Commercial Applications Systems (3) 3,0
Students will use design procedure in selecting HVAC systems and performing the calculations and procedures that are required to size and locate the HVAC equipment and associated component for commercial buildings. Specifications of control and control cycles, layout, and designing of energy-efficient combination systems (heating and cooling) found in commercial and industrial buildings will also be covered. State-of-the-art equipment and control systems will be studied for maximum energy efficiency. This course bridges the gap between actual design and the theoretical knowledge. Course is repeatable to six credits. (1.2) Proficiency Credit Available Pass/No Credit Not Available.
In-District Tuition/Fees: $416 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Grade of C or better in ECS 110 and ECS 114
Recommended: MTH 112
Semester(s) Offered: Varies

ECS 290 Energy Management Internship (2) 0,0
This course will provide the student with the acquisition of practical experience through the application of classroom theories and concepts in actual industry settings under the supervision of faculty and organizational staff. This off-campus, field based course will provide broad exposure to the operating components of organizations employing energy management philosophies and strategies. Students will be required to work 160 hours in the field, communicate regularly with faculty, submit reports/journals, and keep a task log. (1.2) Proficiency Credit Not Available Pass/No Credit Not Available.
In-District Tuition/Fees: $264 (effective 2019/20 academic year)
In-district tuition is subject to change based on Board approval (https://elgin.edu/pay-for-college/tuition-fees/).
Prerequisite: Consent of instructor/coordinator
Semester(s) Offered: Varies