

ENVIRONMENT TECHNOLOGY (ENVR TC)

Environment Technology (ENVR TC) 104

Energy Systems Fundamentals

Course covers the basics of building envelopes, HVAC, lighting, insulation, glazing, plumbing and electrical systems, construction materials, and the surrounding environment. Incorporates blueprint/design fundamentals. Focus on construction engineering concepts. Introduces LEED and Energy Star programs, relevant environmental, health and safety principles, impacts, and regulatory implications. Provides a broad overview of energy use and efficiency in structures and why it matters. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 107

Environmental Geology

This course will examine human interactions with geologic processes and hazards, including earthquakes, volcanoes, landslides, subsidence, hydrology, and flooding; occurrence and availability of geologic resources, such as energy, water, and minerals; principals of land-use planning, pollution, and waste disposal, environmental impact, health, and law. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: KK, TR, WR

IAI: P1 908 **GE:** Physical Sciences

Environment Technology (ENVR TC) 114

Renewable Energy Systems

An introductory, work-skills course on principles, concepts, applications, and installation of renewable and alternative energy technologies. Distinguishes between technologies appropriate to industrial / commercial settings versus those intended for residential structures. Covers renewable energy sources (solar, wind, geothermal, etc.) as well as alternative technologies utilized for building operations (microturbines, fuel cells, combined heat and power). Designed to prepare tradesman for the installation of various technologies. Up to five (5) off-campus field trips to alternative energy installations will be scheduled as part of this course. Writing assignments, as appropriate to the discipline, are part of the course.

2 Laboratory hours. 3 Lecture hours. 4 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 121

Intro To Hazardous Materials Management

This course is an overview of the environmental impacts resulting from hazardous materials such as asbestos, and their mismanagement. Emphasis is placed on understanding the sources responsible for soil, water, land, and air pollution and the environmental laws governing our natural resources, including asbestos. Emphasis is placed on storage and treatment practices, monitoring, sampling and handling techniques, damaging effects on humans, ecology and environment, as well as governmental regulations concerning soil, water, and air. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 131

Environmental Health & Safety

Introduction to health and safety principles and skills needed to conduct field operations dealing with hazardous substances and meets initial training requirements of the Occupational Safety and Health Administration for workers engaged in hazardous waste operations. Course includes fundamentals of hazard recognition, toxicology, selection, use, and limitations of personal protective equipment, and safety procedures for conducting waste site use, and limitations of personal protective equipment. It consists of lectures and demonstrations, problem-solving exercises, discussions, and field exercises. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 141

Site Investigation & Sampling

Introduction to the techniques for monitoring and sampling of soil, water, and air. Emphasis is on site investigation procedures for contamination by hazardous materials; the use of specialized sampling equipment, its maintenance and repair, and record keeping for chain-of-custody and other documentation. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 144

Building Systems Maintenance

Course is comprised of seven energy efficiency topics in building operations and maintenance. Building Operators Certification is a professional development program in the energy and resource efficient operation of buildings to qualify operations and maintenance staff for certification. Writing assignments, as appropriate to the discipline, are part of the course.

2 Laboratory hours. 3 Lecture hours. 4 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 151

Intro to Environmental Laws & Policies

This course introduces the student to the United States legal system, and to the doctrines and statues which regulate the production, treatment, transportation, and disposal of hazardous materials. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in ENVR TC 121.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 175

Hazardous Material Handling & Transportation

This course is designed to explore the regulations involving the transportation of hazardous materials and waste. It includes manifesting, generator and transporter standards, Department of Transportation hazard classes, placards, labels, markings, spill response, and driver responsibilities. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 190

Introduction to Animal Sciences

This is a survey course that will provide a firm biological and natural sciences background to students for understanding the principles important to the raising and management of livestock and companion animals. Students will have the opportunity to learn from animal industry leaders. The course is team taught to incorporate Animal Sciences instructors who are specialists in their subject matter areas. Writing assignments, as appropriate to the discipline, are part of the course. *Placement Test, or Grade of C or better in ENGLISH 101 and MATH 118 or higher.*

4 Lecture hours. 4 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 191

Introduction to Crop Sciences

This course is designed to introduce students to the basic principles of plant growth, including human and environmental influences and the theoretical and practical application of agronomic principles to crop production. It also, serves as an introduction to basic agronomy revolving around crop production in the Midwest. The subject matter presented will provide an overview of major aspects of plant and soil management, pest control, and soil and water conservation issues and practices and how they affect growth and development. Writing assignments, as appropriate to the discipline, are part of the course.

The student should be capable of college entry level reading, writing, and mathematics.

4 Lecture hours. 4 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 192

Introduction to Soil Science

This course is designed to provide a comprehensive treatment of the basic principles of soils as they exist and interact in the environment. The course emphasizes soil as a natural body in nature, its formation, classification, chemical and physical properties. The course is designed to be equally useful to the non-agricultural production students, including those studying plant science, ecology and environmental science, and to students in curricula such as agronomy, crop science, soil science, horticulture and forestry. Writing assignments, as appropriate to the discipline, are part of the course.

Successful completion of high school Chemistry is required.

4 Lecture hours. 4 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 193

Introduction to Horticulture

This course is designed to offer the student a general introduction to the principles of plant growth and development as they apply to the wide range of horticultural crops and the industries related to production, marketing and utilization of horticultural crops. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 204

Residential Energy Systems

Course addresses energy systems and energy efficiency technologies utilized in single- and multi-family residential building forms. Covers systems design and installation in both new construction and retrofit projects. Introduces field auditing techniques, environmental impacts (indoor air quality, asbestos, lead, voc's, radon, waste disposal issues, etc.), worker health & safety considerations, Energy Star certification, building commissioning procedures, and local regulatory requirements. An off-campus field trip to a residential "green" building/construction site will be scheduled as part of this course. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 209

ADVANCED URBAN AGROECOLOGY

This course explores ways to apply the knowledge and skills acquired through the full sequence of classes. The student will be expected to identify a practicum location and spend 64 hours working (either with or without compensation) on projects associated with the organization and relevant to the course material. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in ENVR TC 109 and 3 ADDITIONAL LAB COURSES (ENVR TC 190, 191, 192, 193, CHEM 121, BIOLOGY 119, or BOTANY 201) or Consent of Department Chairperson.

4 Laboratory hours. 1 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 211

Recycling & Waste Minimizing

This course presents information on reuse and recycling of non-hazardous materials that dominate the municipal waste system. Waste reduction techniques for industrial processes that generate hazardous waste constitute the second half of the course. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 214

Institutional Energy Systems

Course covers the types of energy systems and energy efficiency technologies in use in commercial, industrial, and high-rise buildings. Includes design, installation, testing, assessment, and operation of technologies in these structures, and details the integration of system control components. Also encompasses a synopsis of environmental, health & safety for construction and post-construction activities, Energy Star, LEED certification, other pertinent programs and regulatory aspects. An off-campus field trip to an institutional "green" building/construction site will be scheduled as part of this course. Writing assignments, as appropriate to the discipline, are part of the course.

3 Lecture hours. 3 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 241

Environmental Sampling

This course is an in-depth study of the procedures and concepts used by EPA to investigate sites. Emphasis is on hazardous waste at both controlled and uncontrolled sites. The course will include the investigation of ground water, surface water, air, and soil contamination including health and risk assessments. This course is designed for students interested in the fields of environmental engineering and environmental science. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in ENVR TC 121 and ENVR TC 131.

4 Laboratory hours. 2 Lecture hours. 4 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 243

Environmental Analysis

This course will introduce the student to the foundations of environmental chemistry. Man-made and natural systems will be examined. Students will be encouraged to qualify and quantify the relationships between chemistry and the environment. United States Environmental Protection Agency analytical requirements will be surveyed using inductively coupled argon plasma, gas chromatography, mass spectrometry, ion chromatography and UV-Vis spectrometry, among other state-of-the-art analytical technologies. Writing assignments, as appropriate to the discipline, are part of the course.

Grade of C or better in CHEM 121 and BIOLOGY 106.

4 Laboratory hours. 2 Lecture hours. 4 Credit Hours.

Offered At: WR

Environment Technology (ENVR TC) 244

Energy Equipment Troubleshooting

A second tier course comprised of four (4) core classes in maintenance, operation, and diagnostics of electrical and HVAC systems, and two of four (2 of 4) possible electives in system specialty topics. Buildings Operator Certification is a professional development program in the energy and resource efficient operation of buildings to qualify operations and maintenance staff for certification. Writing assignments, as appropriate to the discipline, are part of the course.

2 Laboratory hours. 3 Lecture hours. 4 Credit Hours.

Offered At: WR