

WATER ENVIRONMENTAL TECHNOLOGY (WAT)

WAT-210 Wastewater Treatment: Industrial (4)

Describes common methods and systems used to treat wastes generated by industrial processes. Learning activities include a review of applicable federal and state regulations and pretreatment requirements.

Arts & Sciences Elective Code: B

Hours per week: 4.0 lecture

Prerequisite: Take WAT-307.

WAT-300 Water Analysis (3)

Introduces basic laboratory safety and gravimetric, spectrophotometric electrochemical, titrimetric and microbiological methods. Students learn the procedures for regulatory sampling and safety, and specific analytical procedures for total residue, fluoride, pH, ammonia, acidity, alkalinity, calcium, chloride, hardness and coliform analysis. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, interactive exercises and online links.

Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

WAT-301 Basic Mechanical Maintenance and Pumps (3)

Covers maintenance and repair procedures for pumps typically found in water/wastewater treatment facilities. Students learn basic concepts of hydraulics, pump curves and energy consumption. General safety concerns are also emphasized.

Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture

WAT-304 Water Treatment I (4)

Explores the rudiments of water treatment. Students learn regulatory monitoring, iron manganese removal, filtration, coagulation, flocculation, fluoridation and disinfection. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises and online links.

Arts & Sciences Elective Code: B

Hours per week: 4.0 lecture

WAT-305 Water Distribution Systems (4)

Provides a working knowledge of potable water distribution systems. Students learn about water storage facilities, operation and maintenance of water mains, water quality issues, disinfection and safety. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises and online links.

Arts & Sciences Elective Code: B

Hours per week: 4.0 lecture

WAT-306 Wastewater Collection Systems (4)

Provides a working knowledge of wastewater collection systems. Students learn wastewater collection systems safety procedures, sewer inspection and testing, pipeline and maintenance, underground repair, lift stations, equipment maintenance and sewer rehabilitation. Along with reading assignments, the course is enhanced with up-to-date photographs, audio, interactive exercises and links.

Arts & Sciences Elective Code: B

Hours per week: 4.0 lecture

WAT-307 Wastewater Treatment I (4)

Explores the rudiments of wastewater treatment. Students learn water pollution control, preliminary and primary treatment, fixed film processes and suspended growth systems. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, audio, interactive exercises and online links.

Arts & Sciences Elective Code: B

Hours per week: 4.0 lecture

WAT-308 Wastewater Analysis (3)

Using the Internet, students obtain the skills and knowledge to properly monitor the treatment process to conform to compliance regulations. Topics include BOD, COD, ammonia, grease and oil, chlorine and solids analysis. The academic portion of the course, self-study exercises and quizzes are all done over the Internet. The course includes hands-on labs at Kirkwood or proficiencies that an operator can complete on the job.

Students are able to enroll at any time, set their own schedule for online studies and interact with the instructor outside of the classroom.

Arts & Sciences Elective Code: B

Hours per week: 2.0 lecture, 2.0 lab

WAT-311 Wastewater Treatment II (4)

Describes wastewater treatment methods and concepts that are found in more advanced wastewater treatment facilities such as activated sludge, anaerobic digestion, effluent disposal and reclamation, and nitrogen and phosphorous removal methods.

Arts & Sciences Elective Code: B

Hours per week: 4.0 lecture

Prerequisite: Take WAT-307.

WAT-312 Water Treatment II (4)

Describes treatment methods and concepts that are found at advanced water treatment facilities such as softening, demineralization, trihalo methanes, taste and odor control, corrosion control and disposal of process wastes.

Arts & Sciences Elective Code: B

Hours per week: 4.0 lecture

Prerequisite: Take WAT-304.

WAT-400 Permits and Administration (1)

Examines many of the supervisory and managerial issues faced by a water/wastewater professional. Students focus on operations management and permit procedures, as well as people skills.

Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture

WAT-401 Water and Wastewater Management (2)

Uses the ABC Water Treatment, Water Distribution, Wastewater Treatment, and Wastewater Collection Need-to-Know Criteria. Includes the core competencies used by the Iowa DNR Operator Certification Program for their Water Treatment, Water Distribution, and Wastewater Treatment certification exams and by the Iowa Water Environment Association Certification Program for their Wastewater Collection certification exams. Covers performance, security, safety, and administrative procedures.

Arts & Sciences Elective Code: B

Hours per week: 2.0 lecture

WAT-924 Honors Project (1)

Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean

Hours per week: 1.0 lecture

WAT-932 Internship (3)

Offers a supervised training period in a water or wastewater treatment plant. The student participates in the routine daily operation and maintenance of the host water or wastewater treatment facility. Arts & Sciences Elective Code: B

Hours per week: 6.0 lab