

HEAVY EQUIPMENT OPERATIONS (HEO)

HEO 101. Introduction to Construction Theory

Credits: 2

Typically Offered: FALL

This class introduces students to engineering and construction definitions and concepts. Students will be exposed to an overview of concrete and asphalt, soils, and grades, as well as construction concepts, especially how communities work with engineering and construction companies to design and build infrastructure. This course will give the student a brief overview of correct machine application and use based on current industry standards. Topics addressed include but are not limited to: machine application and use, construction best practices, site preparation and road building, and construction site effective communications.

HEO 102. Operations and Construction Practicum

Credits: 5

Typically Offered: SUMMER

The core objectives are to familiarize students with the basic operating procedures of various pieces of equipment. Gain hands on instruction, such as controls, systems, and functions. It introduces students to the major manufacturers. Use of manuals, attachments, and test equipment are covered. This class consists of 20% Lecture and 80% hands on operation. Pass or Fail class, by the end of the course, be able to explain the basic operations of each equipment, and safely demonstrate digging a trench, backfilling, and grading techniques, as well as load a dump truck and spread dump.

HEO 104. Work Site Safety and First Aid

Credits: 1

Typically Offered: FALL

This comprehensive course is taught in a dynamic, hands-on way with industry-leading content to meet OSHA First Aid Standard 29 CFR 1910.151. Provides vital knowledge to recognize and respond to emergencies. Proper use of standard safety practices and personal protection equipment (PPE) effectively.

HEO 110. Shop Practices

Credits: 3

Typically Offered: FALL

Maintenance and repairs are often on a job site, but a maintenance shop provides a central area housing all the resources needed to perform minor maintenance and safety checks. Students will become familiar with basic shop procedures.

HEO 122. Preventative Maintenance

Credits: 4

Typically Offered: SPRING

This course is designed to help students develop common practices that will assist in making them better heavy equipment operators and employees. Students will learn maintenance techniques that minimize unscheduled repairs by investigating how and what to look for. This course helps students learn to identify how to maintain operating costs within a budget.

HEO 123. Excavation and Trenching Operations

Credits: 4

Typically Offered: SPRING

The purpose of this class is to teach students the basic operations and backfilling operations of an excavator. There are a number of different types and sizes of excavators. Understanding that digging a trench at a specific grade is a complex process and takes several lessons to meet the objectives. Dump truck can be used by trained students during this course.

HEO 172. Basic Equipment Theory

Credits: 3

Typically Offered: FALL

During this class, students will learn how to operate light equipment, such as skid steers, forklifts, and utility tractors. The skills learned in this course will translate to larger pieces of equipment. Introduction to Dump Truck operations. Corequisite: HEO 172L.

HEO 172L. Basic Equipment Theory Lab

Credits: 3

Corequisite: HEO 172.

Typically Offered: FALL

During this class, students will learn how to operate light equipment, such as skid steers, forklifts, and utility tractors. The skills learned in this course will translate to larger pieces of equipment. Introduction to Dump Truck operations.

HEO 178. Survey/Blueprints Practicum

Credits: 3

Typically Offered: FALL

Gain an understanding of regulations and standards of civil engineering and surveying. Topics include planning, zoning, site development, and storm water management. Additionally, students will learn to read and interpret project plans and blueprints. Students will also develop a basic understanding and how to use survey equipment.

HEO 208. Soils and Compaction

Credits: 4

Typically Offered: SPRING

Most work conducted by heavy equipment is earth work. Working with the dirt. In this course, students will learn what soil is and how it reacts to compaction and moisture. This gives students an additional level of knowledge not normally held by new employees entering the workforce.

HEO 220. Loader and Backhoe Operations

Credits: 4

Typically Offered: SPRING

Front End Loader and Backhoe are two of the first pieces of equipment Heavy Equipment Operators start out on. These two pieces of machines are scaled up versions of the utility tractors and skid steers, which will also be discussed in this class. The class will also cover dump truck operations.

HEO 238. Grading and Dozer Operations

Credits: 4

Typically Offered: SPRING

When it comes to pushing dirt, creating a level surface, or conducting road work, the more complex machines are that of the motor grader and bulldozer. Because their functions and capabilities are drastically different than the other pieces of equipment, these two pieces of equipment should be the final pieces of equipment covered. The techniques and controls of these pieces of equipment require additional time reviewing course material and working with an instructor.

HEO 252. Project Management

Credits: 3

Typically Offered: SUMMER

This course provides study in construction project management. Students will study, develop and apply workplace interpersonal skills, construction documentation, trades and resource scheduling and control and construction planning.

HEO 289. Construction Solutions and Communication

Credits: 2

Prerequisite: HEO 101.

Typically Offered: FALL

A person cannot communicate what they do not understand. This course covers the civil engineering industry, what is required of heavy equipment operators and students will begin to develop the skills needed to work as part of a team.