

SUSTAINABLE ENERGY CAREER ACADEMY

SECA 1000 – Offshore Basic Training 3 credit hours

This course immerses students into safety in the offshore environment. Students will learn how to control and mitigate hazards encountered in the wind industry. First aid, personal safety, and responsibility in the offshore environment are emphasized. Students will learn how to work safely at heights with an emphasis on preventing musculoskeletal injury. In this offshore environment, students will learn how to prevent and extinguish fires and manage evacuations. Upon completion, students will earn the GWO Basic Safety Training certification.

Schedule type: Lecture

SECA 1010 – Intro to Rescue Operations 3 credit hours

This course introduces students to entry-level rescue operations of an injured person specifically from a wind turbine generator (WTG). Students will be exposed to rescue operations from the different portions of the WTG, including the hub, nacelle, tower, and basement section. Topics such as single rescuer rescue strategy, safe transportation of injured persons both vertically and horizontally, utilizing relevant equipment, and communication with emergency responders will be covered. Upon completion, students will earn the GWO Advanced Rescue Training and OSHA 10 certification.

Schedule type: Lecture

SECA 1020 – Adv. Rescue Ops & First Aid 2 credit hours

Students will learn how to assess a situation, administer lifesaving techniques in remote settings, and how to keep an injured person stable until emergency medical professionals can arrive. Students will become familiar with emergency equipment and how to effectively utilize medical communications. Upon completion, students will earn GWO Enhanced First Aid Training, CPR, and First Aid certification.

Schedule type: Lecture

SECA 1030 – Introduction to Wind Energy 3 credit hours

This course will explore the concept of harnessing naturally occurring winds to generate electricity. Wind powered mechanisms, wind farms, and the current status of wind energy utilization will be discussed. Horizontal Axis, Vertical Axis, and other Wind Turbine designs will be covered. The history of wind energy will be included.

Schedule type: Lecture, Web

SECA 1100 – Intro to Mechanical Systems 2 credit hours

This course introduces the students to basic mechanical systems, tools utilized, the metric system, and wind turbine drive systems. Focus will be given to the gearbox and associated mechanical systems such as the breaking and yaw systems, lubrication, and cooling system of modern turbines. Upon completion of this course and corequisite courses (SECA 1110, SECA 1120, and SECA 1130), students will earn GWO Basic Technical Training Mechanical Module certification.

Co-requisite(s): SECA 1110, SECA 1120, SECA 1130

Schedule type: Lecture

SECA 1110 – Basics of Electric Motors 2 credit hours

This course introduces students to the basics of electricity, giving focus to alternating current (AC) and direct current (DC), electrical components, and circuits. Students will read sensors and perform basic electrical measurements. Upon completion of this course and corequisite courses (SECA 1100, SECA 1120, and SECA 1130), students will earn GWO Basic Technical Training Electrical Module certification.

Co-requisite(s): SECA 1100, SECA 1120, SECA 1130

Schedule type: Lecture

SECA 1120 – Basics of Hydraulic Systems 2 credit hours

This course introduces students to the components of a hydraulic system, including pumps, actuators, valves, accumulators, sensor, connectors, oil and filters, and performing basic measurements. Upon completion of this course and corequisite courses (SECA 1100, SECA 1110, and SECA 1130), students will earn GWO Basic Technical Training Mechanical Module certification.

Co-requisite(s): SECA 1100, SECA 1110, SECA 1130

Schedule type: Lecture

SECA 1130 – Installation Lab 2 credit hours

Taken in conjunction with Introduction to Mechanical Systems, Basics of Electric Motors, and Basics of Hydraulic Systems, students will solve basic installation tasks in a wind turbine environment. Student will be introduced to the installation environment, learn how to evaluate risks, and perform simple mechanical, electrical, and hydraulic installations. Upon completion of this course and corequisite courses (SECA 1100, SECA 1110, and SECA 1120), students will earn GWO Basic Technical Training Installation Module certification.

Co-requisite(s): SECA 1100, SECA 1110, SECA 1120

Schedule type: Laboratory

SECA 2000 – Wind Turbine Blade Repair 6 credit hours

Blade repair introduces the students to how wind turbine blades are manufactured, what they are composed of, and how to perform blade inspections. Students will learn how to repair nonstructural elements of a wind turbine blade in accordance with material specifications. Upon completion, students will earn GWO Blade Repair certification.

Schedule type: Lecture

SECA 2010 – WTG Hazardous Energies 2 credit hours

This course introduces students to the basic control of hazardous energies in the wind turbine environment. Students will explore safe practices in the electrical environment and how to manage batteries and capacitors. Students will also learn safe work practices working with fluids under pressure. Upon completion, students will earn GWO Control of Hazardous Energies (CoHE) and Lockout Tagout certification.

Schedule type: Lecture

SECA 2011 – Managing Working at Heights 4 credit hours

Working at heights includes utilizing a crane correctly and safely. Students will be exposed to crane pre-and post-inspections, operation of the lift and maintaining the crane's components, and utilizing a crane for WTG repair. In the lab portion, students will manage lifting and decoupling various size loads from a crane, initiate safe crane movements, perform safety inspections, and comply with safety regulations. Upon completion, students will earn GWO Lift Training and GWO Slinger Signaller certification.