OPE COURSE STUDENT LEARNING OUTCOMES

OPE 100 - Operating Engineers 1st Year Apprenticeship

Students will be able to apply industry safety standards including OSHA 10, first aid and CPR along with practicing safe work habits.

Students will be able to apply their understanding of classroom and job site responsibilities, including practicing tolerance and recognizing diversity in the work place.

Students will be able to apply math formulas for grade setting and the ability to stake a cut and fill area, including the terms, symbols, and stake markings of job sites.

Students will be able to utilize multiple modes of communication towards enhancing effectiveness in the work environment.

Students will be able to communicate accumulated technical data effectively with co-workers to apply that information toward completion of work assignments.

Students will be able to apply principals of moisture conditioning, compaction, soil mechanics, and testing to different materials.

Students will be able to solve equations with variables and determine length, dimensions, and formulas to calculate area, volume, circumference, weight of objects, and various materials. They will also be able to understand basic blue print reading.

OPE 150 - Operating Engineers 2nd Year Apprenticeship

Students will be able to operate a variety of equipment, including bulldozers, electric-powered dozers, scrapers, crawlers, dragline and other bucket-type equipment, shovels and backhoes, trenching equipment, compactors, loaders, etc. They will understand basic care and maintenance of variety of equipment.

Students will be able to accurately use survey equipment in establishing survey points and compute quantities of aggregate or asphalt.

Students will be able to apply mathematical formulas related to grade checking as well as the proper use of the calculator and handheld lasers and global positioning systems (GPS) unit.

Students will be able to apply principals of hydraulic power for propulsion and mechanical advantage for moving machines and materials.

Students will be able to use algebraic and trigonometric formulas and apply geometric concepts to solve material displacement and pipe diameters for situations they will find of the job site.

OPE 198 - Special Topics in Operating Engineers Apprenticeship

CSLOs are under review.

OPE 200 - Operating Engineers 3rd Year Apprenticeship

Students will be able to build on prior knowledge in the operation and proper care and maintenance of additional equipment, including bulldozers and electric-powered dozers, scrapers, crawlers, dragline and other bucket-type equipment, shovels and backhoes, trenching equipment, compactors, loaders, and basic maintenance of variety of equipment.

Students will be able to define soil types and utilize applicable excavation methods.

Students will be able to demonstrate mastery of advanced algebraic mathematical formulas related to grade checking and plan reading.

Students will be able to calculate load and stress factors when rigging various items to be lifted by various hoisting equipment and cranes.

Students will be able to lay out a job site on paper and then transfer the points into the field using trigonometry, weight levers, coordinate plane system and bearing and distance calculations.

OPE 250 - Operating Engineers 4th Year Apprenticeship

Students will be able to build on prior knowledge in the operation of equipment, including bulldozers and electric-powered dozers, scrapers, crawlers, dragline and other bucket-type equipment, shovels and backhoes, trenching equipment, compactors, loaders, etc.

Students will be able to demonstrate proficiency in the handling of hazardous material handling (Hazmat).

Students will be able to demonstrate the proper care and maintenance of a variety of this additional equipment.