

Core Introduction and Safety Alignment

Module Number	Title	Module Description	AFNR-PST Common Career Technical Core (CCTC) (CCTC) Academic Standard/Indicator	Teaching Hours	NCCERconnect	Pearson Print and eBook
93101	Build Your Future	This module will help you understand the state of the industry, the job opportunities that currently exist, and the training options that will lead you on a path to your new construction career.	FPS.05.02. Examine and choose career opportunities that are matched to personal skills, talents, and career goals in an AFNR pathway of interest. FPS.05.01. Evaluate and implement the steps and requirements to pursue a career opportunity in each of the AFNR career pathways (e.g., goals, degrees, certifications, resumes, cover letter, portfolios, interviews, etc.). FPS.05.01.02.a Classify the educational, training, and experiential requirements to pursue a career in an AFNR pathway (e.g., degrees, certifications, training, internships, etc.).	2.5	Yes	Yes
93102	Basic Safety	Work at construction agricultural jobsites can be hazardous. To reduce jobsite hazards, safety must be incorporated into all phases of the job and involve employees at every level.	PST.01.02.03.a Identify the types of safety hazards associated with different mechanical systems used in AFNR using appropriate sources (e.g., owner's manuals, Safety Data Sheet (SDS), chemical labels, pesticide labels, safety color codes, etc.). PST.01.02.03.c Develop a safety plan for different AFNR related mechanical systems ensuring compliance with industry standards. PST.02.01.01.c Design a plan to communicate processes and procedures (e.g., lockout/tagout (LOTO), safety harnesses, etc.) for , preventative maintenance and service schedule for equipment, machinery, and power units used in AFNR power, structural and technical systems. FPS.03.04.01.a Identify the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.). FPS.03.04.02.a Identify standard tools, equipment, and safety procedures related to AFNR tasks.	12.5	Yes	Yes
93103	Introduction to Construction Math	This module reviews the math needed for a variety of trades, including agriculture, carpentry, plumbing, and other crafts.	PST.01.02.01.b Perform mathematical calculations to determine the mechanical advantage of simple machines in AFNR related mechanical systems.	10	Yes	Yes
93104	Introduction to Hand Tools	The construction and agricultural crafts require a broad array of hand tools. This module is designed to help craftworkers select, maintain, and use a variety of hand tools.	PST.01.02.02.a Identify the tools, machines, and equipment needed to construct, fabricate, and/or repair projects in AFNR.	12.5	Yes	Yes
93105	Introduction to Power Tools	The construction and agricultural crafts require a broad array of power tools. This module is designed to help craftworkers select, maintain, and use a variety of battery-powered tools.	PST.01.02.03.b Demonstrate the proper selection, maintenance, and use of tools (including measuring tape), machines, and equipment. PST.01.02.02.c Design a process to implement the safe use of AFNR related tools, machinery, and equipment.	10	Yes	Yes
93106	Introduction to Construction Drawings	Covers the techniques for reading and using construction drawings and specifications, with an emphasis on drawings and information relevant to carpentry. Introduces quantity takeoffs and calculations.	PST.04.04. Follow architectural and mechanical plans to construct, maintain and/or repair AFNR structures (e.g., material selection, site preparation and/or layout, surveying, electrical, plumbing, concrete/masonry, etc.). PST.04.01.01.a Explain the meaning of symbols used in plans and designs of agricultural structures. PST.04.01.01.b Apply scale measurement and dimension to develop plans of agricultural structures. PST.04.01.02.a Interpret the parts and/or views of plans for agricultural structures.	10	Yes	Yes
93107	Introduction to Basic Rigging	In this module, you'll learn about the fundamentals of rigging, including how to find a load's weight and center of gravity, what components make up a rigging assembly, and the importance of never exceeding the equipment's working load limit.	PST.02.02. Operate machinery and equipment while observing all safety precautions in AFNR settings.	7.5	Yes	Yes
93108	Basic Communication Skills	This module provides guidance in listening to understand, and speaking with clarity. It explains how to use and understand written materials, and it also provides techniques and guidelines that will help you to improve your writing skills.	ECL.03.01. Identify the methods and characteristics of effective verbal, nonverbal, written, and visual communication. ECL.03.01.01.a Research the primary methods of communication including written, verbal, nonverbal, and visual (including digital and multimedia) communication.	7.5	Yes	Yes
93109	Basic Employability Skills	Trade skills are extremely important, but employers are also looking for those who are eager to advance and demonstrate positive personal characteristics. This module discusses the skills needed to pursue employment successfully.	ECL.05.01. Identify characteristics and behaviors that constitute ethical, efficient, and effective leadership (e.g., time management, planning, prioritizing, etc.). ECL.05.01.01.a Identify the characteristics of ethical, efficient, and effective leaders (e.g., relates to others, is inclusive, exhibits integrity, etc.) in workplace and community settings.	7.5	Yes	Yes
93110	Introduction to Material Handling	Lifting, stacking, transporting, and unloading materials such as brick, pipe, lumber, and various supplies are routine tasks on a jobsite. This module provides guidelines for using the appropriate PPE for the material being handled and using proper procedures and techniques to carry out the job.	FPS.03.04. Use appropriate protective equipment and demonstrate safe and proper use of AFNR tools and equipment. FPS.03.04.03.a Outline operating instructions related to operation, storage, and maintenance of tools and equipment-related AFNR tasks.	5	Yes	Yes
93111	Introduction to Leadership	Covers basic leadership skills and explains different leadership styles, communication, delegating, and problem solving. Jobsite safety and the crew leader's role in safety are also discussed.	ECL.02.03. Demonstrate impactful leadership as a credible resource for AFNR. ECL.02.03.01.a Understand personal leadership traits (such as organizational and personal management skills) that contribute to meeting the needs of learners, school, community, the AFNR industry, etc. ECL.02.03.01.b Apply personal leadership traits to enhance professional education and leadership practice in the workplace (e.g., time management, planning, prioritizing, etc.). CRP.09.01. Model characteristics of ethical and effective leaders in the workplace and community (e.g. integrity, self-awareness, self-regulation, etc.).	22.5	Yes	Yes

Heavy Equipment Operations and Safety Alignment

Module Number	Title	Module Description	AFNR-PST Common Career Technical Core (CCTC) (CCTC) Academic Standard/Indicator	Teaching Hours	NCCERconnect	Pearson Print and eBook
93201	Introduction to Heavy Equipment	Provides an overview of heavy equipment terminology, operations, operator responsibilities, career opportunities, and basic principles of safety.	PST.01.02 Apply physical science and engineering principles to design, implement and improve safe and efficient mechanical systems in AFNR situations. PST.01.02.01.a Compare and contrast applications of simple machines in AFNR related mechanical systems. PST.02.02.01.b Perform pre-operation inspections, start-up, and shut-down procedures on equipment, machinery and power units as specified in manufacturer's manuals. PST.02.02.02.a Identify safety hazards associated with equipment, machinery and power units used in AFNR power, structural, and technical systems (e.g., caution, warning, danger, etc.). PST.02.02.02.b Operate equipment, machinery, and power units using safety principles and practices. PST.03.03.02.a Compare and contrast operation principles and features of mechanical transmission systems (e.g., belts, chains, gears, bearings, seals, universals, drive shafts, etc.).	5	Yes	Yes
93202	Heavy Equipment Operation Safety	Provides comprehensive overview of safety requirements on jobsites with an emphasis on OSHA, MSHA, and NIOSH requirements. Presents basic requirements for personal protection, safe equipment operations and maintenance, and hazardous communication programs (HAZCOM).		15	Yes	Yes
93203	Classification of Heavy Equipment	This module introduces trainees to the many different types of heavy equipment. Along with providing a list of functions and applications for each machine, this module helps them understand the capabilities, limitations, and hazards associated with each type of machinery.		5	Yes	Yes
93204	Utility Tractors	Covers operation of general utility tractors in the construction industry. Describes duties and responsibilities of the operator, safety rules for operation, the attachment of implements, and basic maintenance practices.		17.5	Yes	Yes
93205	Backhoes	Describes common backhoe uses, types, components, instruments, controls, and attachments. Presents safety guidelines, prestart inspection procedures, preventive maintenance requirements, and common work activities associated with backhoes.		30	Yes	Yes
93206	Skid Steers	Describes the many uses of skid steers and the attachments available for these machines. Covers safety practices, as well as inspection, startup, shutdown, and operation of skid steers.		22.5	Yes	Yes
93207	Introduction to Earthmoving	Provides a broad introduction to the process of planning and executing earthmoving activities on various types of construction projects. The use of heavy equipment such as bulldozers, scrapers, excavators, and loaders is explained.	PST.04.03.01.a Identify tools and equipment necessary for site preparation, surveying, and site layout. PST.04.03.01.b Select appropriate tools and equipment necessary for site preparation, surveying, and site layout. PST.04.03.01.c Utilize tools and equipment necessary for site preparation, surveying, and site layout. PST.04.04.02.a Summarize the characteristics needed for an appropriate building site.	12.5	Yes	Yes
93208	Grades and Grading	Introduces the concept of preparing graded surfaces using heavy equipment. Covers identification of construction stakes and interpretation of marks on each type of stake. Describes the process for grading slopes.		15	Yes	Yes
93209	Introduction to GPS/GNSS	This module describes how Global Positioning Systems (GPS) are used on heavy equipment to create site layouts that perfectly match the designs shown on ground-contouring plans.	PST.05.03.01.a Identify the various geospatial technologies (i.e., GPS, GIS, remote sensing, telematics, etc.) used in AFNR systems. PST.05.03.01.b Assess geospatial technology (i.e., GPS, GIS, remote sensing, telematics, etc.) use and applications in AFNR systems.	5	Yes	Yes
93210	Equipment Operation, Inspection, and Readiness	This module covers hazards and dangers that can occur when a piece of heavy equipment is not checked or inspected prior to operating on a jobsite. It also provides information about pre operational checks and information related to evaluating the condition of heavy equipment, components, and controls.	PST.02.01.01.b Perform preventative maintenance for equipment, machinery, and power units used in AFNR power, structural and technical systems. PST.02.01.02.a Identify procedures for servicing mechanical systems and maintaining fluid levels on equipment, machinery and power units. PST.05.03.02.a Describe the components of precision technologies used in AFNR systems.NR systems.	25	Yes	Yes

Welding and Fabrication Alignment

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93301	Welding Safety	Describes safety equipment, protective clothing, and procedures applicable to the cutting and welding of metals.	PST.01.03.02.c. Construct and/or repair structures and/or equipment safely using metal fabrication procedures.	5	Yes	Yes
93302	Welding Basics	Describes welding and cutting processes and related equipment. Includes filler metals, joint design, and the codes that govern welding practices.	PST.01.03.02.b Select the correct consumables (e.g., electrode, welding wire, gas, etc.) and settings (e.g., amperage, wire feed speed, flow rate, etc.) for use in various welding processes.	22.5	Yes	Yes
93303	Welding Symbols	Describes welding and cutting processes and related equipment. Includes filler metals, joint design, and the codes that govern welding practices.	PST.01.03.03.a Identify standard welding symbols, specifications, joint configurations, and dimensional callouts used in welding blueprints.	5	Yes	Yes
93304	Reading Welding Detail Drawings	Identifies and explains welding detail drawings. Describes lines, fills, object views, and dimensioning on drawings. Explains how to use notes on drawings and the bill of materials. Explains how to sketch and draw basic welding drawings.		10	Yes	Yes
93305	Oxyfuel Cutting	Explains the safety requirements for oxyfuel cutting. Identifies oxyfuel cutting equipment, setup, and operating requirements. Trainees will perform a variety of cutting techniques.	PST.01.03 Apply physical science and engineering principles to metal fabrication using a variety of welding and cutting processes and equipment (e.g., SMAW, GMAW, GTAW, Oxy-fuel, fuel-oxygen, CNC, and plasma arc torch, etc.). PST.01.03.01.a Compare and contrast the principles and procedures of different welding and cutting processes and equipment (e.g., SMAW, GMAW, GTAW, Oxy-fuel, CNC, and plasma arc torch, etc.).	17.5	Yes	Yes
93306	Plasma Arc Cutting	Introduces plasma arc cutting equipment and safe work area preparation. Identifies correct amperage, gas pressures, flow rates, and cutting methods.		7.5	Yes	Yes
93307	Air Carbon Arc Cutting and Gouging	Introduces air-carbon arc cutting equipment, processes, and step-by-step instruction. Identifies the electrodes and safe operation of the equipment.		10	Yes	Yes
93308	Physical Characteristics and Mechanical Properties of Metals	Explains physical characteristics, mechanical properties, composition, and classification of common ferrous and nonferrous metals. Identifies the various standard metal forms and structural shapes.	PST.01.03.02.a Compare and contrast the properties of different metals used in AFNR power, structural, and technical systems (e.g., malleability, conductivity, visual properties, chemical composition, etc.).	7.5	Yes	Yes
93309	Base Metal Preparation	Describes how to clean and prepare all types of base metals for cutting or welding. Identifies and explains joint design and base metal preparation for all welding tasks.	PST.01.03.01.b Determine the best welding and/or cutting process to be used in metal fabrication. PST.01.03.02.c Construct and/or repair structures and/or equipment safely using metal fabrication procedures.	12.5	Yes	Yes
93310	SMAW – Equipment and Setup	Describes SMAW welding and welding safety. Explains how to connect welding current and set up arc welding equipment. Also explains how to use tools for cleaning welds.	PST.01.03 Apply physical science and engineering principles to metal fabrication using a variety of welding and cutting processes and equipment (e.g., SMAW, GMAW, GTAW, Oxy-fuel, fuel-oxygen, CNC, and plasma arc torch, etc.). PST.01.03.01.a Compare and contrast the principles and procedures of different welding and cutting processes and equipment (e.g., SMAW, GMAW, GTAW, Oxy-fuel, CNC, and plasma arc torch, etc.). PST.01.03.02.b Select the correct consumables (e.g., electrode, welding wire, gas, etc.) and settings (e.g., amperage, wire feed speed, flow rate, etc.) for use in various welding processes. PST.01.03.03.b Evaluate and identify weld defects and discontinuities.	5	Yes	Yes
93311	SMAW Electrodes	Describes electrode characteristics and different types of filler metals. Reviews the role of the American Welding Society (AWS) and the American Society of Mechanical Engineers (ASME). Explains proper storage and control of filler metals and identifies the use of codes.		2.5	Yes	Yes
93312	GMAW and FCAW – Equipment and Filler Metals	Describes general safety procedures for GMAW and FCAW. Identifies GMAW and FCAW equipment and explains how to set up and use related equipment.		10	Yes	Yes
93313	GTAW – Equipment and Filler Metals	Explains GTAW safety and identifies and explains the use of GTAW equipment, filler metals, and shielding gases. Covers the setup of GTAW equipment.		10	Yes	Yes