

POWER, STRUCTURAL AND TECHNICAL SYSTEMS

01.0100.60

Program Description, Coherent Sequence, and Certification Information

PROGRAM DESCRIPTION

Individuals entering the **Power, Structural and Technical Systems** career pathway usually enjoy working with equipment and all things technical. Career professionals in this field apply knowledge of engineering, hydraulics, pneumatics, electronics, power, structures, and controls to the field of agriculture. They design agricultural structures as well as machinery and equipment. They develop ways to conserve soil and water and improve the processing of agricultural products.

Employment of individuals in the **Power, Structural and Technical Systems** pathway is expected to grow about the same as the average for all occupations; however, opportunities for agricultural engineers are expected to increase. Increasing demand for agricultural products, continued efforts for more efficient agricultural production, and increasing emphasis on the conserving of resources should result in good job opportunities in the coming years.

Jobs in the **Power, Structural and Technical Systems** pathway can include: Agricultural engineer, Diesel technician, GIS specialist, Land surveyor, Farm equipment technician, Contractor/builder, and Welder.

High school career and technical education courses have proven to help many students determine if this pathway is their chosen career. Many career professionals credit their high school agricultural education or shop classes as the start to their **Power, Structural and Technical Systems** career. Enroll in these courses to gain hands-on experience and knowledge of the industry.

The FFA agricultural mechanics career development event can also provide hands-on experience. Other career preparation experience can come through job shadowing current career professionals or by pursuing an FFA supervised agricultural experience program that may include working for an auto mechanic, construction company, farmer, or engineering company.

The Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards provide Arizona agricultural education leaders and educators with a high-quality, rigorous set of standards to guide what students should know and be able to do

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after completing a program of study in each of the AFNR career pathways.

The **Power, Structural and Technical Systems** Career Pathway encompasses the study of agricultural equipment, power systems, alternative fuel sources, and precision technology as well as woodworking, metalworking, welding, and project planning for agricultural structures. Students completing a program of study in this pathway will demonstrate competence in the application of principles and techniques for the development, application, and management of power, structural and technical systems in AFNR settings. In addition to the required technical skills, students will also develop leadership, advanced employability, critical thinking, applied academic, and life management skills. The program utilizes a delivery system made up of three essential and required components: formal instruction, experiential education through Supervised Agricultural Experiences (SAE), leadership and personal development through the Career and Technical Student Organization, FFA. A model for this delivery system appears in the approved Curriculum Framework booklet.

COHERENT SEQUENCE

01.0100.10 Power, Structural and Technical Systems I

and

01.0100.12 Power, Structural and Technical Systems II

and

01.0100.60 Power, Structural and Technical Systems III

and program may elect to add:

01.0100.65 Power, Structural and Technical Systems IV

or

01.0100.70 Power, Structural and Technical Systems – DCE (Diversified Cooperative Education)

or

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01.0100.75 Power, Structural and Technical Systems - Internship

or

01.0100.80 Power, Structural and Technical Systems – Cooperative Education

TEACHER CERTIFICATION REQUIREMENTS FOR THE POWER, STRUCTURAL AND TECHNICAL SYSTEMS PROGRAM	
CAREER PREPARATION: The instructor must be CTE certified according to the following table	
Power, Structural, and Technical Systems	CERTIFICATES
	Types: PCTA, SCTA, SSCTEA
Note:	
<ul style="list-style-type: none"> ▪ Power, Structural, and Technical Systems 01.0100.70 may be a part of the sequence and the teacher must hold a Cooperative Education Endorsement (CEN). ▪ Teacher/Coordinator 01.0100.75 is not required to have a Cooperative Education Endorsement (CEN). ▪ Teacher/Coordinator 01.0100.80 is required to have a Cooperative Education Endorsement (CEN). 	

TEACHER CERTIFICATION REQUIREMENTS FOR THE POWER, STRUCTURAL AND TECHNICAL SYSTEMS PROGRAM	
Certificate Types	
PCTA	Provisional Career and Technical Education Agriculture
SCTA	Standard Career and Technical Education Agriculture
SSCTEA	Standard Specialized Career and Technical Education Agriculture