# Ag Systems Technology

| | |
|---|---|
| Career Cluster | AFNR |
| Course Code | 18402 |
| Prerequisite(s) | Fundamental Ag Mechanical Technologies, Recommended: Introduction to AFNR |
| Credit | .5 or 1.0 |
| Program of Study and Sequence | Fundamental Ag Mechanical Technologies – **Ag Systems Technology** – Capstone Experience |
| Student Organization | National FFA Organization |
| Coordinating Work-Based Learning | Job shadowing, mentoring, internships, entrepreneurships, service learning, workplace tours, apprenticeship, school-based enterprises, Supervised Agricultural Experience (SAE) |
| Industry Certifications | OSHA 10 Hour Safety Certification (Agricultural, Construction Industry, or General Industry), National Career Readiness Certificate (NCRC) |
| Dual Credit or Dual Enrollment | None |
| Teacher Certification | Agriculture Food and Natural Resources Cluster Endorsement; Power Structural & Technical Systems Pathway Endorsement; *Agriculture Education |
| Resources | |

**Course Description:**

Technically trained employees are needed in many aspects of the agriculture power industry. This course addresses the technical and industrial skills and techniques related to Power, Structural, & Technical Systems within South Dakota, as well as address soft skills needed for careers in this area. Technology in agriculture is ever-changing and this course will address emerging technologies in our industry. Classroom and laboratory content may be enhanced by utilizing appropriate equipment and technology. Mathematics, science, English and human relations skills will be reinforced throughout the course. Work-based learning strategies appropriate for this course are school-based enterprises and field trips. Opportunities for application of clinical and leadership skills are provided by participation in FFA activities, conference and skills competition such as the Ag Mechanics Career Development Event or related proficiency award areas. Each student will be expected to maintain a Supervised Agricultural Experience (SAE) program.

**Program of Study Application**

Ag Systems Technology is a second pathway course in the Agriculture, Food and Natural Resources Program of Study, Power Systems pathway. Ag Systems Technology is preceded by Fundamental Ag Mechanical Technologies and would be followed by a capstone experience.

Career Cluster: Agriculture, Food & Natural Resources

Course: Ag Systems Technology

**Course Standards**

**AST 1 Apply engineering principles to mechanical equipment, power utilization and technology.**

| *Webb Level* | *Sub-indicator* | *Integrated Content* |
|---|---|---|
| Two Skill/Concept | AST 1.1 Compare power generation from various energy sources. | |
| Two Skill/Concept | AST 1.2 Investigate various properties of lubricants needed in ag mechanics. | |

**Notes**

**AST 2 Apply principles of operation and maintenance to mechanical equipment, power utilization, and technology.**

| *Webb Level* | *Sub-indicator* | *Integrated Content* |
|---|---|---|
| Two Skill/Concept | AST 2.1 Explain the importance of scheduled service routines to maintain machinery and equipment. | |
| Two Skill/Concept | AST 2.2 Demonstrate suggested inspections on machinery and/or equipment | Investigate regulations of operating machinery and equipment on public roads. |

**Notes**

**AST 3 Examine principles of service and repair to mechanical and electrical equipment, power utilizations and technology.**

| *Webb Level* | *Sub-indicator* | *Integrated Content* |
|---|---|---|
| Three Strategic Thinking | AST 3.1 Evaluate internal combustion engines to assess needed service and repair. | |
| Three Strategic Thinking | AST 3.2 Investigate service and repair specifications for operating systems. | (e.g. hydraulic systems, electrical systems, heating and cooling systems, steering, suspension, etc.) |
| Four Extended Thinking | AST 3.3 Diagnose problems associated with operating systems. | (e.g. hydraulic systems, electrical systems, heating and cooling systems, steering, suspension, etc.) |
| Two Skill/Concept | AST 3.4 Explore electric motor types, operation and maintenance. | |

**Notes**

**AST 4 Analyze emerging agriculture technologies.**

| *Webb Level* | *Sub-indicator* | *Integrated Content* |
|---|---|---|
| Two Skill/Concept | AST 4.1 Analyze how emerging agriculture technologies have affected AFNR industries. | (e.g. Global Positioning System (GPS), Geographic Information System (GIS), robotics, drones, etc.) |

**Notes**

Career Cluster: Agriculture, Food & Natural Resources

Course: Ag Systems Technology

**AST 5 Develop employability skills related to the Power, Structural, and Technical Systems Pathway.**

| *Webb Level* | *Sub-indicator* | *Integrated Content* |
|---|---|---|
| Two Skill/Concept | AST 5.1 Develop soft skills to enhance employability. | |

**Notes**