AGRISCIENCE III

This course is an advanced study in Agriscience based upon the local agricultural workforce and economic needs of the community. The major areas of study should include personal development skills, animal systems, plant systems, environment issues, and mechanical skills. Mathematics, science, English, biology, and human relation skills will be reinforced in the course. Work-based learning strategies appropriate for this course are fieldtrips, school-based enterprises, and job shadowing. Supervised Agricultural Experience (SAE) programs and the FFA leadership activities are integral components of the course and provide many opportunities for practical application of instructional competencies.

Prerequisite: Agriscience II

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Content Guideline

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(The student will be able to...)

Unit 1

Leadership/Management Skills

1. **Apply leadership skills to accomplish general business activities.**
   - **a.** Identify leadership styles.
   - **b.** Conduct a business meeting using proper parliamentary procedures.
   - **c.** Work in teams to access a variety of expertise.
   - **d.** Congratulate workers for doing quality work.

2. **Develop a mission statement to guide business activities effectively.**
   - **a.** Identify approaches for preparing mission statement.
   - **b.** Write a mission statement.
   - **c.** Establish short and long-term goals.
   - **d.** Ask for feedback from stakeholders to test the impact of the mission statement.

3. **Demonstrate those qualities, attributes and skills necessary to succeed in, or further prepare for a chosen career while effectively contributing to society.**

Unit 2

Employability and Career Development

1. **Apply critical thinking skills and decision-making to exhibit qualifications for entering a career.**
2. **Explain written organizational policies, rules, and procedures to guide employees in workplace behavior.**
3. **Identify and demonstrate positive work behaviors and personal qualities required to uphold quality standards.**
4. **Relate critical thinking skills in work place situations to decision-making, creativity, and quality performance.**
5. **Complete a job application.**

Unit 3

Record Keeping Skills

1. **Prepare and maintain all files as needed to accomplish effective record keeping.**
2. **Identify information management systems.**
3. **Develop record keeping techniques and practices.**

Unit 4

Business Models

1. **Describe the five basic ways American business is organized.**
2. **Distinguish and identify the characteristics of each method of business.**
3. **Maintain and interpret agribusiness financial records including depreciation, inventory and budgets.**
4. **Evaluate the advantages and disadvantages of each method of business.**
5. **Evaluate how cooperative principles and practices differentiate co-ops from other business.**
6. **Explain the definition of a cooperative.**
7. **Understand the history of cooperative principles and practices.**
8. **Describe the five areas that classify cooperative structure.**
9. **Distinguish and identify between the five types of cooperative structures and their functions.**

Unit 5

Marketing

1. **Conduct market research.**
   - **a.** Evaluate methods of marketing products and services.
   - **b.** Apply economic principles to marketing (supply and demand).
   - **c.** Research products and services design(s).
   - **d.** Identify major sources of credit for agribusiness.
   - **e.** Complete a business loan application.
   - **f.** Compare how key organizational structures and processes affect organizational performance and the quality of products and services.

2. **Develop a marketing plan.**
   - **a.** Identify and develop value-added products.
   - **b.** Develop public relations campaigns.
   - **c.** Develop sales goals and incentive program.
   - **d.** Interpret market reports and identify market outlets for agricultural products.
   - **e.** Develop a marketing program for agriculture products.
   - **f.** Identify kinds and types of storage facilities.
   - **g.** Explain the purposes and structures of contracts, leases, deeds, and insurance policies.

3. **Merchandise product and services.**
   - **a.** Identify keep components to organize a sale.
   - **b.** Build and develop customer relationships.
   - **c.** Conduct sales presentation.
   - **d.** Provide post-sale services.
   - **e.** Handle customer complaints.
   - **f.** Locate prospective new customers.

4. **Use technology and information technology strategies in marketing.**
   - **a.** Research new and emerging technologies and their impact on the economy.
   - **b.** Create and use documents using work processing, spreadsheets, databases, and electronic mail.
   - **c.** Conduct research on regulatory laws, industry regulations, and legislation of agricultural business.
   - **d.** Identify and describe the primary government agencies involved with agriculture.

Unit 6

Metal Working Skills

1. **Cutting with oxyfuels.**
   - **a.** Appraise characteristics of common fuels used for cutting.
   - **b.** Select appropriate pressures for using oxygen and common fuel gases for cutting.
   - **c.** Apply recommended safety practices for using oxy fuels.
   - **d.** Cut steel with oxyfuels.
   - **e.** Pierce steel with oxyfuels.

2. **Cutting with the plasma arc torch.**
   - **a.** Recognize plasma arc cutting equipment.
   - **b.** Follow recommended procedures for setting the equipment.
   - **c.** Apply appropriate safety practices in using the plasma arc cutting equipment.

3. **Select and use Shielded Metal Arc Welding (SMAW) equipment.**
   - **a.** Describe the shielded Metal Arc Welding process.
   - **b.** Distinguish types of electric welding machinery.
   - **c.** Select suitable supplies and equipment for shielded metal arc welding.
   - **d.** Apply safe practices in SMAW welding.

4. **Selecting and using Gas Metal Arc Welding (GMAW) equipment.**
   - **a.** Describe the GMAW process.
   - **b.** Distinguish between Metal Inert Gas (Mig) and Tungsten Inert Gas (Tig) welding.
   - **c.** Recognize MIG and TIG welding equipment.
   - **d.** Apply safe practices in MIG and TIG welding.

Unit 7

Designing and Fabricating

1. **Design machinery and equipment including vehicles, implements, and special projects.**
   - **a.** Analyze design requirements.
   - **b.** Develop drawings.
   - **c.** Estimate material needs and costs.
   - **d.** Operate computer aided drafting design (CADD) software.

2. **Fabricate a project.**

Unit 8

Constructing Buildings and Facilities

1. **Follow architectural and mechanical plans to construct buildings and facilities.**
2. **Identify and select appropriate building materials.**
3. **Install plumbing equipment and fixtures.**
4. **Construct with wood and metal.**
5. **Install electrical wiring components and fixtures.**
6. **Paint or protect with coatings.**
7. **Insulate facility.**
8. **Install fencing.**
9. **Install glass, rigid plastic panels, and/or film plastic.**
10. **Construct with concrete, stone, and brick.**
11. **Demonstrate basic facility maintenance, installation, and/or repair.**

Unit 9

Internal Combustion Engines

1. **Troubleshoot problems and evaluate performance to service and repair the components of the internal combustion engine.**
2. **Describe principles of operation.**
3. **Identify engine systems and components.**
4. **Analyze and troubleshoot engine.**
5. **Perform overhaul procedures.**
6. **Evaluate engine performance through post-rebuild testing.**

Unit 10

Greenhouse Production

1. **Propagate, transplant and grow plants.**
2. **Design a growing schedule.**
3. **Utilize proper cultural requirements.**
4. **Calculate planting rate and spacing**

Unit 11

Plant Production

1. **Exploring fruit/nut and/or vegetable production.**
   - **a.** Determine the benefits of producing fruit/nut and/or vegetables.
   - **b.** Identify methods of pruning plants to achieve desired growth and maintained health.
   - **c.** Identify recommended verities of local commercial plants and field crops.
   - **d.** Select and prepare a site and/or seed bed for planting.
   - **e.** Calculate planning rate and spacing.
   - **f.** Harvest and fruit/nut and/or vegetables.
   - **g.** Grade, treat, pack and/or store harvested products.
   - **h.** Explain the operation and adjustment of planting equipment.
   - **i.** Develop fertilization schedules and calculate fertilizer rates.
   - **j.** Explain the calibration of fertilizer equipment.
   - **k.** Select, mix, and apply a no restricted chemical according to the label and local, state, federal and EPA regulations.
   - **l.** Determine maturity, condition, and quality of product to be harvested.
   - **m.** Describe procedures for harvesting products.
   - **n.** Compare different plant production systems.

2. **Exploring grain, oil, and specialty field crop production.**
   - **a.** Evaluate the major grain, oil, and specialty field crops of the United States.
   - **b.** Classify field crops according to their use.
   - **c.** Identify appropriate cultural practices for field crops, including biotechnology advances.

3. **Irrigation**
   - **a.** Compare and select irrigation equipment and methods.
   - **b.** Install, operate, maintain, and repair irrigation equipment.

Unit 12

Animal Production

1. **Producing beef, swine, sheep/goats, horses, poultry, or dairy cattle.**
2. **Plan feeding programs.**
3. **Maintain and document herd/flock health, including new born animals.**
4. **Analyze housing and equipment/tack.**
5. **Select appropriate marketing strategies.**
6. **Compare and contrast animal welfare issues.**
7. **Describe methods of restraining, loading, handling, and transporting animals safely, including health certificates.**

Unit 13

Wildlife Management

1. **Evaluate characteristics of wildlife.**
2. **Illustrate relationships between types of wildlife.**
3. **Justify relationships between wildlife and humans.**
4. **Classify wildlife management.**
5. **Research appropriate practices in wildlife management.**