Advanced Ag Mechanics
Holton Agriculture Education Department

Name: _____ SSN: _____/____/_____
Instructor: Jason M. Larison School Year: _____

Verification Signatures Hours Completed _____
Student: _____ Date: _____
Instructor: _____ Date: _____

Key to Integrated Competencies
(A) - Academic {AC – Communications/English, AM-Math, AS-Science}
(CD) – Career Development (E) – Experience-Based (L) – Leadership

Circle to indicate level of competency achieved:
3 Skilled-Works Independently 2 Limited skill-Needs assistance 1 Skill undeveloped-but received instruction 0 No exposure

I. The Ag Mechanics Industry and Careers
3 2 1 0 1. Describe 15 careers in the field of welding
3 2 1 0 2. Explain the importance of welding and construction in the local economy
3 2 1 0 3. Identify 15 local business that require welding skills
3 2 1 0 4. Write a 1 and 1/2 page paper over two agriculture careers of interest
3 2 1 0 5. Select an agriculture career and research and write a 1/2 page report over the education needed.

II. Supervised Agriculture Experience (SAE) &Record Keeping
3 2 1 0 1. Identify and maintain the SAE (CD)
3 2 1 0 2. Construct a personal budget (AM)
3 2 1 0 3. Utilize the Kansas FFA SAE Record book to monitor the SAE (CD)
3 2 1 0 4. Complete a local and district proficiency award application (L)
3 2 1 0 5. Complete chapter and/or State FFA Degree Applications (L)
3 2 1 0 6. Use Quicken to track income and expense in cash, checking, and savings (CD)
3 2 1 0 7. Track SAE skills developed, hours worked as well as FFA, School, and community activities using the Ag Ed record book. (CD)
3 2 1 0 8. Set appropriate long and short term goals for the SAE program.

A. Lab Activities (E)
3 2 1 0 1. Prepare income and expense records
3 2 1 0 2. Prepare monthly cash flow statements
3 2 1 0 3. Record personal and business inventories, assets, and liabilities

III. The National FFA Organization and Leadership
3 2 1 0 1. Participate in Student Development Activities as established by the POA (L)
3 2 1 0 2. Participate in Chapter Development Activities as established by the POA (L)
3 2 1 0 3. Participate in Community Development Activities as established by the POA (L)
3 2 1 0 4. Participate in the Welding and/or Ag Mechanics Career Development Events (E, L)
3 2 1 0 5. Construct a project to display at local and state Ag Mech project shows (E, L)

IV. Arc Welding
3 2 1 0 1. Explain the physical processes of arc welding (AS)
3 2 1 0 2. List the proper arc-welding safety guidelines (AS)
3 2 1 0 3. Identify arc-welding safety hazards (AS)
3 2 1 0 4. Differentiate between AC and DC welding processes (AS)

A. Lab Activities (E)
3 2 1 0 1. Demonstrate a arc-weld bead pad
3 2 1 0 2. Demonstrate a arc-weld butt weld in the flat position
3 2 1 0 3. Demonstrate a arc-weld lap weld in the flat position
3 2 1 0 4. Demonstrate a arc-weld T-weld in the flat position
3 2 1 0 5. Demonstrate a arc-weld butt weld in the horizontal position
3 2 1 0 6. Demonstrate a multi-pass butt weld in the horizontal position
3 2 1 0 7. Demonstrate a arc-weld butt weld in the vertical position
3 2 1 0 8. Demonstrate a multi-pass butt weld in the vertical position

V. MIG Welding
3 2 1 0 1. List the proper MIG welding safety guidelines (AS)
3 2 1 0 2. Identify MIG welding safety hazards (AS)
3 2 1 0 3. Identify pieces of MIG welding equipment (AS)
3 2 1 0 4. Explain the physical processes of MIG welding (AS)

A. Lab Activities
3 2 1 0 1. Demonstrate a MIG bead pad
3 2 1 0 2. Demonstrate a MIG butt weld in the flat position
3 2 1 0 3. Demonstrate a MIG lap weld in the flat position
3 2 1 0 4. Demonstrate a MIG T-weld in the flat position
3 2 1 0 5. Demonstrate a MIG butt weld in the horizontal position
3 2 1 0 6. Demonstrate a MIG lap weld in the horizontal position
3 2 1 0 7. Demonstrate a MIG T-weld in the horizontal position
3 2 1 0 8. Demonstrate a MIG T-weld in the vertical position

VI. Oxy-Acetylene Cutting
3 2 1 0 1. List the oxy-acetylene cutting safety guidelines (AS)
3 2 1 0 2. Identify oxy-acetylene cutting safety hazards (AS)
3 2 1 0 3. Explain the physical processes of oxy-acetylene cutting (AS)

A. Lab Activities (E)
3 2 1 0 1. Demonstrate oxy-acetylene cutting techniques

VII. TIG Welding
3 2 1 0 1. List the proper TIG welding safety guidelines (AS)
3 2 1 0 2. Identify TIG welding safety hazards (AS)

3 2 1 0 3. Identify pieces of TIG welding equipment (AS)
3 2 1 0 4. Explain the physical processes of TIG welding (AS)

A. Lab Activities (E)

3 2 1 0 1. Demonstrate a TIG welding bead

VIII. Machine Tool Use

A. Lab Activities (E)

3 2 1 0 1. Demonstrate proper use of the bench grinder
3 2 1 0 2. Demonstrate proper use of the hand grinder
3 2 1 0 3. Demonstrate proper use of the chop saw
3 2 1 0 4. Demonstrate proper use of the drill press
3 2 1 0 5. Demonstrate proper use of the plasma cutter
3 2 1 0 6. Demonstrate proper use of various hand tools

IX. Lay Out and Setup of Projects

3 2 1 0 1. Read blueprints and follow detail plans for project construction
3 2 1 0 2. Make and read a working drawing using computer(AS)
3 2 1 0 3. Estimate materials needed for a project
3 2 1 0 4. Calculate project costs
3 2 1 0 5. Prepare a bill of materials using computer and metal price lists (AM, E, CD)
3 2 1 0 6. Select and evaluate various projects to build
3 2 1 0 7. Identify types of metal (AS)
3 2 1 0 8. Construct group projects (E)
3 2 1 0 9. Construct individual projects

X. Communications Career Development Skills (CD)

3 2 1 0 1. Follow oral instructions (AC)
3 2 1 0 2. Participate in group communication activities (AC)
3 2 1 0 3. Give oral directions (AC)
3 2 1 0 4. Use language and format appropriate to the subject matter, purpose, and audience (AC)
3 2 1 0 5. Prepare a Powerpoint Presentation over a agriculture related topic researched in class.

XI. Other Career Development Skills (CD)

3 2 1 0 1. Identify and explain the use of common supplies for a given occupational area. (CD)
3 2 1 0 2. Set priorities in which several tasks will be accomplished (CD)
3 2 1 0 3. Utilize time management to reduce conflicts
3 2 1 0 4. Apply rules including punctuality, attendance, and work ethic (CD)

XII. Computer Literacy (CD)

3 2 1 0 1. Define, understand, and use common computer technology terms (CD)
3 2 1 0 2. Compose, organize, and edit information using a computer (CD)
3 2 1 0 3. Use presentation software to design and create a presentation (CD)
3 2 1 0 4. Use ag related software/websites (CD)
3 2 1 0 5. Access, navigate, & use on-line services (CD)
3 2 1 0 6. Send and receive email messages with enclosures (CD)
3 2 1 0 7. Use Quicken to manage personal finances (CD)
3 2 1 0 8. Use Microsoft Office (Word, Excel, Powerpoint, and Internet Explorer) to complete projects (CD)

XIII. Painting and Finishes

A. Lab Activities (E)

3 2 1 0 1. Explain difference between lacquer and enamel paint (AM)
3 2 1 0 2. Demonstrate proper mixing of paints and primers
3 2 1 0 3. Properly prepare metal for paint
3 2 1 0 4. Use a HVLP cup paint gun to apply paint and primers
3 2 1 0 5. Properly store and clean paint guns and equipment

XIV. List of MAJOR PROJECTS CONSTRUCTED (E)

3 2 1 0 1. _____

3 2 1 0 2. _____

3 2 1 0 3. _____

3 2 1 0 4. _____

3 2 1 0 5. _____