**1. Course Number:** CTCT 4140:

 **Course Title:** Agricultural Structures and Metal Fabrication Technology

 **Credit Hours:** 3 semester hours

 **Prerequisites:** Major or Departmental Approval

 **Corequisites:** None

**2. Term:** Fall 2020 (Syllabus Prepared August 2020)

 **Day/Time:** see schedule for specific section

 **Meeting Place:** Bottoms STEAM Lab, 32.629318- 85.50024

 **Instructor:** Jason McKibben, Mike Riley, or Clint Burgess

 **Office Address:**  Main Faculty Office: Haley Center 5060

 **Faculty** **Contact Information:** Email: jdm0184@auburn.edu- Jason McKibben

 mkr0012@auburn.edu - Mike Riley

 Cdb0034@auburn.edu- Clint Burgess

 **Office Hours:** By appointment

1. **Text and Major Resources:**

Resources will be provided as needed, no required textbook.

1. **Course Description:**

Materials selection and construction procedures for carpentry, masonry, electrical wiring, plumbing, and metal fabrication.

5. **Course Objectives:**

 Upon completion of this experience, students will be able to:

Calculate a bill of materials for structures and metal fabrication projects.

Determine concrete volume yield and ingredients.

Design and build agricultural structures and models according to specifications and codes.

Demonstrate the use of measuring instruments in structures & metal fabrication situations.

Demonstrate the use of carpentry tools for agricultural construction

Demonstrate the use of power carpentry equipment.

Demonstrate the assembly of flooring, wall, and roofing systems in agricultural structures technology.

Demonstrate the ability to design and wire basic electrical circuits.

Demonstrate the ability to perform basic plumbing procedures.

Demonstrate the use of oxy-fuel gas welding equipment.

Demonstrate the use of shielded-metal arc welding equipment.

Demonstrate the use of metal inert gas (MIG) welding equipment.

**Required Supplies**:

*Costs to Students*

 Students are responsible for providing the following items:

1. Safety glasses/goggles
2. Face mask
3. Tape measure (under 25’) (10’-12’ is best)

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| **Course Topic** | **References**  | **Assignment** |
| Shop Safety and Orientation | General shop safety information  | Tool ID ppt  |
| Hand and Power Tool Safety | Safety videos | Safety Test |
| Stationary Power Tool Operation | Assigned videos | Safety Test |
| Woodworking Project one |  | Complete the designated project |
| Wood working design project (project 2) |  | Complete the designated project |
| Metal working Lab | Assigned videos | Demonstrate the use of hot metal tools |
| Metal working project one |  | Complete the designated project |
| Metal working design project (project 2) |  | Complete the designated project |
| Wood working Project notebook |  | Complete the project notebook |
| Metal working project notebook  |  | Complete the project notebook |

To ensure physical distancing, this class will be structured differently than in years past. The class will be split into two groups. Each group will spend half of the semester on woodworking and half the semester on metal working. The groups will switch at midterm (likely during the week of October 13). Each section of the course will contain one small project to help develop skills and one small project to help apply those skills. This course will follow the Project Based Learning Model (gold standard PBL).

**Assignment descriptions:**

**Safety tests:**  Several safety tests will be given to ensure student understanding of the basic rules of safety in the lab space, with tools, and power equipment. These exams will be pass/fail. Anything other than 100% will be considered fail. Students will not be allowed to use the associated tools until they have completed and passed the safety exam. These exams and the videos will be on canvas.

**Projects:**

Students will complete four in class/lab projects. These projects are designed to help students become comfortable with working in the two main modalities of the lab space (woodworking and metalworking). The first project in each section will be repetitive in nature and given to the student to complete from a set of plans/drawings with a rigorous set of guidelines. The second project will be of the students design and will be completed in the allotted time. Students will not become proficient with any of the processes that are introduced in the course. The time limits and constraints of the course are such that mastery is improbable. However, it is the intent of the instructors to provide students with enough comfort in the processes that the students would be able to facilitate their own mastery in a safe and methodical way when time is more available.

**Unit notebooks:**

At the conclusion of each section of the course students will submit (either digitally or physically) a notebook that will contain photos of each project, photos of the students involvement with the project (you working on it), one page description of the project, a one page reflection of what you learned by completing the projects, ten teaching objectives for an introduction agriculture course at the MS/HS level that could be fulfilled by this project, a tool list used, a materials list, cut list, final plans, and a purchase order for the purchasing of enough materials and supplies to complete 12 of the projects. Each item will be completed for each project (two wood projects, two metal projects). All forms and templates will be available on Canvas.

**Tool & Materials ID:**

* You are to locate 150 examples of tools & materials from the assigned list. For each tool or material take a “selfie” photo of you and each tool (If you are in a public place, you will be wearing a mask), write the name of the tool and a brief description of how the tool is used. Include the size of the tool or material item, what is included with the tool or item, and/or the weight of the item. For instance, hammers are usually sized by weight (ounces), while nails are sized by the “penny”– using the symbol “d.” Record a retail price for each item and the vendor – the store or company where you could purchase the item. The item does not have to be found at a store for the photo. Many items are in our lab or at the shops you interact with. You will still be expected to find where that item could be purchased and how much it costs.
* You should turn in a presentation that includes the 50 required items and 100 optional items with at least one from each of the 22 represented general categories. Use the format provided to produce your presentation and turn in digitally using canvas.
* Slides should be organized in the same order as the materials list
* Each slide has four elements, any one of those missing elements will result in a zero score for the entire slide.
* PPT should be saved as a .pdf one slide per page

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| Assignment | Percent of final grade |
| Safety tests | 5% |
| Tool ID | 25% |
| Wood working project one | 5% |
| Wood working project two | 10% |
| Metal working project one | 5% |
| Metal working project two | 10% |
| Wood working notebook | 20% |
| Metal working notebook | 20% |
| Total: | 100% |

**Policies**

Policies on Class Attendance, Submission of Late Written Assignments, Missed In-Class Work and Missed Examinations:

**PERSONAL SAFETY:** AT ALL TIMES YOUR PERSONAL SAFETY SHOULD BE YOUR UTMOST CONCERN. MASKS ARE TO BE WORN IN PUBLIC SPACES, SAFETY GLASSES WILL BE WORN IN THE SHOP. FAILURE TO DO THESE TWO SIMPLE THINGS WILL RESULT IN REMOVAL FROM LAB SPACE. REMOVAL FROM WORK SPACE PRECLUDES YOU FROM BEING ABLE TO COMPLETE THE PROJECTS.

**Excused Absences:** Students are granted excused absences from class for the following reasons: Illness of the student or serious illness of a member of the student’s immediate family, death of a member of the student’s immediate family, trips for student organizations sponsored by an academic unit, trips for University classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance and religious holidays. Students who wish to have an excused absence from this class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required.

**Make-Up Policy:** Arrangements to make up missed major examination (e.g. hour exams, mid-term exams) due to properly authorized excused absences. Except in unusual circumstances, such as continued absence of the student or the advent of University holidays, a make-up exam will take place within two weeks from the time the student initiates arrangements for it. Except in extraordinary circumstance, no make-up exams will be arranged during the last three days before the final exam period begins. The format of the make-up exam will be (as specific by the instructor).

**Communication:** Students are responsible for checking class emails and Canvas

**ADA:** Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to make an individual appointment with the instructor during the first week of classes – or as soon as possible if accommodations are needed immediately. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

**Honesty:** All portions of the Auburn University Student Academic Honesty code (Title XII) found in the Student Policy eHandbook will apply to this class. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

**Behavior:** The Auburn University Classroom Behavior Policy is strictly followed in the course; please refer to the Student Policy eHandbook for details of this policy.

If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation (such as a pandemic, natural disaster, etc...), the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials.