AGT 1010 Introduction to Engineering Design for Digital Agriculture

Main

Effective Date
Summer 2023

Calendar Activation Date
2023/07/03

Status
Active

School
Werklund School of Agriculture Technology

Program Curriculum Committee
Bachelor of Digital Agriculture

Course Code
AGT

Course Number
1010

Course Title
Introduction to Engineering Design for Digital Agriculture

Calendar Description
Students will be introduced to foundations of engineering design in a project-based team environment. Students will create a 3D printable design using 2D & 3D parametric modeling software, rapid prototyping theory, national or international documentation standards, and technical drawing.

Credits / Hours

Credit Type
Credit

Credits
3

Hours

Lecture Hour	Lab Hour	Tutorial Hour
2	2	1

Total Hours

Lecture Hour(s)	Lab Hour(s)	Tutorial Hour(s)
30	30	15

Competency Profile

General Areas of Competency

Apply 2D design principles to an object.

Apply 3D design principles to an object.

Evaluate different Design Thinking principles.

Apply the Design Thinking principles to solve an agriculture design problem.

Competency Statements

A. Apply 2D design principles to an object.
    1. Apply Geometric Dimensioning and Tolerances (GD&T) to drawings.
    2. Apply different drawings & schematic representations.
    3. Create a 2D technical drawing using a CAD software (Autocad) to demonstrate the knowledge of GD&T.
B. Apply 3D design principles to an object.
    1. Use weld, surface finish, and other treatment annotations in 3D drawings.
    2. Use different views (ISO, exploded, assembly) to 3D models.
    3. Create a 3D model using a CAD software to demonstrate the use of 3D design principles.
C. Evaluate different Design Thinking principles.
    1. Apply the design thinking principles to solve challenges related to (but not limited to): ergonomics, functional design, modular design, and product design.
    2. Design a “design project” to develop a human machine interface device.
    3. Develop a prototype using Makerspace. *(e.g. Remote control for equipment).*
D. Apply the Design Thinking principles to solve an agriculture design problem.
    1. Explain how design plays a role in agricultural machines.
    2. Design a prototype to solve an agricultural challenge.
    3. Create a prototype or proof of concept(POC) to solve an agriculture design problem.

E. Student Evaluation

F. Evaluation

Assignment(s)	30
Test(s)	20
Project(s)	50

G. Conditions Related to Evaluation

H. Please review the Olds College Assessment Policy (D33) for additional information.