Code # AG25 (2015)

**New Course Proposal Form**

☒ **Undergraduate Curriculum Council** - Print 1 copy for signatures and save 1 electronic copy.

☐ **Graduate Council** - Print 1 copy for signatures and send 1 electronic copy to [pheath@astate.edu](mailto:pheath@astate.edu)

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| ☒**New Course or** ☐ **Experimental Course (1-time offering) (Check one box)**  *Please complete the following and attach a copy of the bulletin page(s) showing what changes are necessary.* |

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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Chair:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **General Education Committee Chair (If applicable)** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Vice Chancellor for Academic Affairs** |

1. Contact Person (Name, Email Address, Phone Number)

Peter Ako Larbi, [plarbi@astate.edu](mailto:plarbi@astate.edu), 870-972-2263

2. Proposed Starting Term and Bulletin Year

Fall 2016

3. Proposed Course Prefix and Number (Confirm that number chosen has not been used before. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

AGST 2003

4. Course Title – if title is more than 30 characters (including spaces), provide short title to be used on transcripts. Title cannot have any symbols (e.g. slash, colon, semi-colon, apostrophe, dash, and parenthesis). Please indicate if this course will have variable titles (e.g. independent study, thesis, special topics).

Intro to Ag Systems Technology

5. Brief course description (40 words or fewer) as it should appear in the bulletin.

Introduction to physical concepts relevant to different agricultural systems: applied mechanics, agricultural equipment technology, agricultural power trains and machinery management, efficiency and precision

6. Prerequisites and major restrictions. (Indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

1. Are there any prerequisites? No
   1. If yes, which ones?

* 1. Why or why not?

This course will introduce materials for which prerequisites are not necessary.

1. Is this course restricted to a specific major? No
   1. If yes, which major? Enter text...

7. Course frequency(e.g. Fall, Spring, Summer). *Not applicable to Graduate courses.*

Fall

8. Will this course be lecture only, lab only, lecture and lab, activity, dissertation, experiential learning, independent study, internship, performance, practicum, recitation, seminar, special problems, special topics, studio, student exchange, occupational learning credit, or course for fee purpose only (e.g. an exam)? Please choose one.

Lecture Only

9. What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental)?

Standard Letter

10. Is this course dual listed (undergraduate/graduate)?

No

11. Is this course cross listed? (If it is, all course entries must be identical including course descriptions. It is important to check the course description of an existing course when adding a new cross listed course.)

No

1. If yes, please list the prefix and course number of cross listed course.

Enter text...

1. Are these courses offered for equivalent credit? Choose an item.

Please explain. Enter text...

12. Is this course in support of a new program? No

a. If yes, what program?

Enter text...

13. Does this course replace a course being deleted? No

a. If yes, what course?

Enter text...

14. Will this course be equivalent to a deleted course? No

a. If yes, which course?

Enter text...

15. Has it been confirmed that this course number is available for use? Yes

*If no: Contact Registrar’s Office for assistance.*

16. Does this course affect another program? No

If yes, provide contact information from the Dean, Department Head, and/or Program Director whose area this affects.

Enter text...

**Course Details**

17. Outline (The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

1. Definitions: Agricultural systems and technology, and related terminology

2. Energy forms and their sources

3. General Physics

4. Statics

5. Hydraulics

6. Mechanical Energy

7. Electrical Energy; Mid-semester exams

8. Tractor Technology

9. Power Trains

10. Tractor Applications

11. Efficiency and Precision

12. Machinery Management

13. Safety

14. Problems to Solutions

15. Final Examination

18. Special features (e.g. labs, exhibits, site visitations, etc.)

Virtual Site Visitations (Multimedia)

19. Department staffing and classroom/lab resources

Enter text...

1. Will this require additional faculty, supplies, etc.?

No

20. Does this course require course fees? No

*If yes: please attach the New Program Tuition and Fees form, which is available from the UCC website.*

**Course Justification**

21. Justification for course being included in program. Must include:

a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

This course will expose students to the application of physical, mechanical and electrical concepts towards problem solving in agriculture. Rather than approaching it from an agricultural engineering perspective, the course will focus more on the application of these concepts at the level of typical agriculture students. As such, calculation-type problems will dwell on the application of formulae rather than derivation of formulae.

b. How does the course fit with the mission established by the department for the curriculum? If course is mandated by an accrediting or certifying agency, include the directive.

One of the college’s mission is “to prepare young men and women for entry and career advancement in the food, fiber and natural resources industry, which involves production (farming), agribusiness and value-added processing, public service and rural leadership”. In line with this mission, the course will equip students in conceptual and applied knowledge of technologies being used in modern agricultural production systems. The course is not being mandated by an accrediting or certifying agency.

c. Student population served.

Students in the College of Agriculture and Technology

d. Rationale for the level of the course (lower, upper, or graduate).

The course is intended for students who have completed at least one semester of college-level courses related to agriculture. In addition, this course will prepare students for upper level AGST courses.

**Assessment**

**University Outcomes**

22. Please indicate the university-level student learning outcomes for which this new course will contribute. Check all that apply.

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| * 1. ☐Global Awareness | * 1. ☒Thinking Critically | * 1. ☒Information Literacy |

**Relationship with Current Program-Level Assessment Process**

23. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

Select and design appropriate precision application technology to meet specific agricultural needs.

24. Considering the indicated program-level learning outcome/s (from question #23), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

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| --- | --- |
| **Program-Level Outcome 1 (from question #23)** | Select and design appropriate precision application technology to meet specific agricultural needs. |
| Assessment Measure | Percentage of students scoring A and B grades on mid-semester and final exams |
| Assessment  Timetable | Fall semester in a four-year rotation |
| Who is responsible for assessing and reporting on the results? | Dr. Peter Ako Larbi, Assistant Professor of Agricultural Systems Technology |

*(Repeat if this new course will support additional program-level outcomes)*

**Course-Level Outcomes**

25. What are the course-level outcomes for students enrolled in this course and the assessment measures and benchmarks for student-learning success?

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| **Outcome 1** | Students will understand the application of physics, statics, hydraulics, and energy in agricultural machinery systems. |
| Which learning activities are responsible for this outcome? | Students will receive regular lectures and additional assigned reading and video viewing assignments. |
| Assessment Measure and Benchmark | Students will demonstrate their grasp through 3 to 5 take-home assignments/quizzes, a mid-semester exam, and a final exam that will require assimilation of the knowledge acquired. |
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| **Outcome 2** | Students will grasp the concepts of tractor technology and be able to solve applied problems related to power trains, power and precision. |
| Which learning activities are responsible for this outcome? | Students will have hands-on tutorial sessions and take-home assignments to solve applied problems relevant to agricultural production in the Mid-South. |
| Assessment Measure and Benchmark | Students will demonstrate their proficiencies through 3 to 5 take-home assignments/quizzes, a mid-semester exam, and a final exam that will require application of the knowledge acquired. |
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| **Outcome 3** | Students will become familiar with steps needed to maintain the proper function and safety of agricultural equipment. |
| Which learning activities are responsible for this outcome? | Students will receive regular lectures and additional assigned reading and video viewing assignments. |
| Assessment Measure and Benchmark | Students will demonstrate their comprehension through 1 to 2 quizzes and a final exam that will require the recollection of the knowledge gained. |
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*(Repeat if needed for additional outcomes)*

**Bulletin Changes**

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| **Instructions** |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Follow the following guidelines for indicating necessary changes.**  **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  - Deleted courses/credit hours should be marked with a red strike-through (~~red strikethrough~~)  - New credit hours and text changes should be listed in blue using enlarged font (blue using enlarged font).  - Any new courses should be listed in blue bold italics using enlarged font (***blue bold italics using enlarged font***)  *You can easily apply any of these changes by selecting the example text in the instructions above, double-clicking the ‘format painter’ icon 🡪 , and selecting the text you would like to apply the change to.*  *Please visit* [*https://youtu.be/yjdL2n4lZm4*](https://youtu.be/yjdL2n4lZm4) *for more detailed instructions.* |

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**Agricultural Systems Technology (AGST)**

**AGST 1003. Modern Agricultural Systems** Multidisciplinary introduction to various crop and animal production systems, system interactions, problems, and solutions that lead to a sustainable agricultural productivity. Fall, Spring.

***AGST 2003. Intro to Ag Systems Technology Introduction to physical concepts relevant to different agricultural systems: applied mechanics, agricultural equipment technology, agricultural power trains and machinery management, efficiency and precision. Fall.***

**AGST 3503. Agriculture Spatial Technologies I** Basic understanding and utilization of data collection and assessment using global position system receivers, direct and remote sensing, and geographic information system software related to crop production and nutrient management. Prerequisite, PSSC 2813. Fall.

**AGST 3513. Agriculture Spatial Technologies II** The course will concentrate on a study of the electromagnetic properties of earth objects, vegetation, soils, water, and, the principles and operations of different sensors used to measure this energy. Prerequisite, AGST 3503. Spring.

**AGST 3543. Fundamentals of GIS/GPS**Fundamentals of GPS-Global Positioning System and GIS-Geographical Information System concepts, equipment, and software used in agricultural, environmental, and natural resource applications. Prerequisite, MATH 1023. Fall, Spring.

**AGST 4003. Modern Irrigation Systems** Methods, equipment, current issues and future directions of irrigation, irrigation design and scheduling, drainage systems, irrigation measurements, performance evaluation, and impact on productive and sustainable agriculture. Two hours lecture and two hours lab weekly. Dual listed with AGST 5003. Spring.

**AGST 4013. Precision Application Technology** Techniques of soil and crop homogeneity detection and variable-rate precision application of crop inputs to increase productivity and enhance environmental sustainability. 2 hours lecture and 2 hours lab weekly. Dual listed with AGST 5013. Spring.

**AGST 4543. Advanced GIS for Agriculture and Natural Resources** Principles and advanced techniques of using Geographic Information System (GIS) concepts, equipment, and software used in agricultural, environmental, and natural resource applications. Prerequisite, AGST 3543 with a grade of B or better. Spring.

**AGST 4773. Remote Sensing** The course will cover the image acquisition and image processing methods using ERDAS Image software as the analytical assessment package. Fall, even.

**Animal Science (ANSC)**

**ANSC 1522 Beginning English Equitation** Introduction to English equitation and the care and management of riding horses. Fall. ANSC 1602. Equitation  Two hour laboratory course in the selection and care of tack, horsemanship, etiquette, grooming, and equitation. Fall, Spring.

**ANSC 1612. Intermediate Western Equitation** Refinement of experienced riders skill in the area of western riding. Includes retraining or conditioning older horses, and understanding equine behavior as it relates to riding and training. Four hours of lab per week. Prerequisite, ANSC 1602 or permission of instructor. Fall, Spring.

**ANSC 1613. Introduction to Animal Science** A study of animals that provide food, fiber, and companionship to mankind, including the history and scope of animal agriculture, products produced from animals, reproduction, breeding and genetics, nutrients and digestion, lactation, behavior, and an overview of production systems. Fall, Spring.

**ANSC 1621. Introduction to Animal Science Laboratory** Students will gain hands on work experience with managing livestock. Fall, Spring.

**ANSC 1622. Intermediate Huntseat Equitation and Jumping** Refinement of the experienced riders skills in the area of huntseat riding and jumping. Includes flat work and jumping exercises to build skills and condition the horses and riders for jumping. Four hours of lab per week. Prerequisite, ANSC 1602 or permission of instructor. Fall, Spring.