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| CIP Code:  |  |
| Degree Code: |  |

**Bulletin / Banner Change Transmittal Form**

**[x] Undergraduate Curriculum Council**

**[ ] Graduate Council**

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

Email completed proposals to curriculum@astate.edu for inclusion in curriculum committee agenda.

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**Department Curriculum Committee Chair** |

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**COPE Chair (if applicable)** |
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| Donald Kennedy | 1/25/2019 |

**Department Chair:**  |

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**Head of Unit (If applicable)**   |
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| J. Kim Pittcock | 1/25/2019 |

**College Curriculum Committee Chair** |

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**Undergraduate Curriculum Council Chair** |
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| Timothy Burcham | 1/25/2019 |

**College Dean** |

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**Graduate Curriculum Committee Chair** |
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**General Education Committee Chair (If applicable)**   |

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**Vice Chancellor for Academic Affairs** |

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

John Nowlin, jnowlin@astate.edu, (870) 972-3468

**2.Proposed Change**

This revision of the bulletin is driven by a realignment of the Agricultural Systems Technology emphasis area, in the Agricultural Studies Major, submitted on another document. This realignment effects multiple courses which are on this minor.

AGST 3503 is being renamed and reconfigured to better prepare entrants into AGST 3543. AGST 3513 is being modified to a capstone and moved out of the Minor. AGST 4013 is being deleted, and replaced by four courses: AGST 4003, AGST 4022, AGST 4501 and AGST 4511, which together introduce a broader range of technologies. AGST 4543 is being renamed, and the description is being cleaned up. This reconfiguration will improve student preparation by aligning classes to build on each other, broadening student skillsets and giving a choice between AGST 4501 and 4511.

Other than course changes, the change request is to rename this minor from “Minor in Spatial Technologies and Geographic Information Systems” to “Minor in Precision Agriculture.” This name better reflects the term used in the industry and will reduce confusion about a planned addition of a GIS Certificate Program.

**3.Effective Date**

Fall 2019

**4.Justification –** *Please provide details as to why this change is necessary.*

Note: Multiple bulletin changes associated with an AGST program realignment are being submitted.

**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.* |

The following changes occur on pages 125, 432,

\*Due to the high number of concurrent changes, for clarity, the Minor Name Change is highlighted on the bulletin page 125.

From pg. 125

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**~~Minor in Spatial Technologies and Geographic Information Systems~~
Minor in Precision Agriculture**

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| **Required Courses:**Students must maintain a minimum GPA of 3.0 and a grade of at least a “C” for each course in the minor. | **Sem. Hrs.** |
| AGST 3503, ~~Agricultural Spatial Technologies I~~ Geospatial Data Applications | 3 |
| ~~AGST 3513, Agricultural Spatial Technologies II~~ | ~~3~~ |
| AGST 3543, Fundamentals of GIS/GPS | 3 |
| AGST 4003, Modern Irrigation Systems | 3 |
| ~~AGST 4013, Precision Application Technology~~***AGST 4022, Irrigation Technology Tools*** | ~~3~~***2*** |
| AGST 4543, Advanced ~~GIS for Agriculture and Natural Resources~~ Geographic Information Systems | 3 |
| *Select one of the following:****AGST 4501, Agricultural Decision Analysis*** **OR*****AGST 4511, Introduction to Unmanned Aircraft Systems*** | ***1*** |
| AGST 4773, Remote Sensing | 3 |
| **Total Required Hours:** | **18** |

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*The bulletin can be accessed at* [*https://www.astate.edu/a/registrar/students/bulletins/*](https://www.astate.edu/a/registrar/students/bulletins/)

125

From pg. 432

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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 Agricultural 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. Prerequisites: CS 1013 or CIT 1503, ENG 1013, MATH 1023 or higher. Fall.

**AGST 3503. ~~Agriculture Spatial Technologies I~~**Geospatial Data Applications 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.~~software applications to manage geospatial and tabular data, including text editors, spreadsheets, databases and geodatabases for data: collection, cleaning, joining, filtering, summarization, visualization and unit conversion. Prerequisite: AGST 2003, PSSC 2813. Fall, Spring.

**~~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.~~

**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~~ Geospatial data acquisition, mapping, and interpretation for human-environment interactions using geographic information systems and the global positioning system. Prerequisites: COMS 1203, MATH 1023 or higher; Prerequisite or corequisite: AGEC 3013 or AGST 3503 or BIO 3023. 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. Prerequisites: AGST 2003; PSSC 2813. Spring.

**~~AGST 4013. Precision Application Technology~~** ~~Techniques of soil and crop homogeneity de- tection 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 501~~**~~V~~**~~3.~~ ~~Spring~~**~~.~~**

***AGST 4022. Irrigation Technology Tools***  *Technical tools and software related to irrigation system hydraulic design and management. Dual listed with AGST 5022. Prerequisites: AGST 3543, AGST 4003. Fall.*

***AGST 4501. Agricultural Decision Analysis*** *Hands-on experience with cloud/desktop software, spatial algorithms and image processing of georeferenced data obtained from diverse sources, such as human scouts, ground and equipment sensors, and unmanned aerial systems. Dual listed with AGST 5501. Prerequisite: AGST 3543 with a grade of B or better. Fall.*

***AGST 4511. Introduction to Unmanned Aircraft Systems*** *Software and mobile applications for designing flight missions, collecting data, and analyzing/interpreting imagery for agricultural practices. Intended to prepare students for the Federal Aviation Administration (FAA) remote pilot license exam. Dual listed with AGST 5511. Prerequisites: AGST 3543, AGST 4773. Fall.*

**AGST 4543. Advanced Geographic Information Systems ~~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.~~Methods, concepts, software, analysis and modeling of geospatial data using raster and vector data models for human-environment interactions using geographic information systems (GIS). 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.~~Passive and active means of aerial and satellite image acquisition, processing, analysis, and interpretation for research and decision making in agricultural, environmental, and natural resource applications. Prerequisite, AGST 3543 with a grade of B or better. Fall.

**AGST 4843~~3513~~. ~~Agriculture Spatial Technologies II~~ Agricultural Systems Technology Capstone** ~~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.~~ Integrate environmental phenomena, reveal a spatial problem, choose effective decision tools, and design a solution to an existing agricultural, environmental or natural resources problem using modern geospatial technologies. (AGST majors only) Prerequisites: AGST 3503, AGST 4543, AGST 4773 Spring.

***AGST 489V. Special Problems in Agricultural Systems Technology*** *For students of senior standing to work on special problems. Approval of instructor and dean necessary. Fall, Spring, Summer.*

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432