SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

Substantive Program Modification Form

UNIVERSITY:	**SDSU**
CURRENT PROGRAM TITLE:	**Agricultural Systems Technology (B.S.)**
CIP CODE:	**01.0201**
UNIVERSITY DEPARTMENT:	**Agricultural & Biosystems Engineering**
UNIVERSITY DIVISION:	**Agriculture, Food & Environmental Sciences**

University Approval

To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.

Dennis D. Hedge — Vice President of Academic Affairs or President of the University

4/27/2019 — Date

1. **This modification addresses a change in:**
   - ☒ Total credits required within the discipline
   - ☒ Total credits of elective course work
   - ☐ Program name
   - ☐ CIP Code
   - ☐ Total credits of supportive course work
   - ☐ Total credits required for program
   - ☐ Existing specialization
   - ☐ Other (explain below)
2. **Effective date of change:** 2019-2020 Academic Year
3. **Program Degree Level:** Associate ☐ Bachelor's ☒ Master's ☐ Doctoral ☐
4. **Category:** Certificate ☐ Specialization ☐ Minor ☐ Major ☒
5. **If a name change is proposed, the change will occur:**
   - ☐ On the effective date for all students
   - ☐ On the effective date for students new to the program (enrolled students will graduate from existing program)

   Proposed new name:
6. **Primary Aspects of the Modification:**

Existing Curriculum				*Proposed Curriculum (Highlight Changes)*			
Pref	Num	Title	Cr Hrs	Pref	Num	Title	Cr Hrs
System General Requirements			**34-35**	**System General Requirements**			**32**
SGR 1 Written Communication ENGL 101 Composition I (3) ENGL 201 Composition II (3)			6	SGR 1 Written Communication ENGL 101 Composition I (3) ENGL 201 Composition II (3)			6
SGR 2 Oral Communication SPCM 101 Fundamentals of Speech			3	SGR 2 Oral Communication SPCM 101 Fundamentals of Speech			3
SGR 3 Social Sciences/Diversity ECON 202 Macroeconomics (3)			6	SGR 3 Social Sciences/Diversity ECON 202 Macroeconomics (3)			6
SGR 4 Arts and Humanities/Diversity			6	SGR 4 Arts and Humanities/Diversity			6
SGR 5 Mathematics MATH 102 College Algebra (3) AND			5-6	SGR 5Mathematics MATH 114 College Algebra (3)			3

Existing Curriculum				*Proposed Curriculum (Highlight Changes)*			
Pref	Num	Title	Cr Hrs	Pref	Num	Title	Cr Hrs
MATH 120 Trigonometry (3) OR MATH 115 Precalculus (5)							
Goal #6 Natural Sciences PHYS 111-111L Introduction to Physics I & Lab (4) AND CHEM 106-106L Chemistry Survey & Lab (4) OR CHEM 112-112L General Chemistry I & Lab (4)			8	SGR 6 Natural Sciences PHYS 101-101L Survey of Physics & Lab (4) AND CHEM 106-106L Chemistry Survey & Lab (4) OR CHEM 112-112L General Chemistry I & Lab (4)			8
College Requirements			**9**	**College Requirements**			**9**
Students who wish to complete a Bachelor of Science in Agriculture must complete a minimum of 11 credits from the approved list of **Group 1 courses in Agriculture.** • PS 213-213L Soils & Lab (3) (Major Requirements)				Students who wish to complete a Bachelor of Science in Agriculture must complete a minimum of 11 credits from the approved list of **Group 1 courses in Agriculture.** • PS 213-213L Soils & Lab (3) (Major Requirements)			
AST	333-333L	Soil and Water Mechanics & Lab	3	AST	333-333L	Soil and Water Mechanics & Lab	3
AST	342-342L	Applied Electricity & Lab	3	AST	342-342L	Applied Electricity & Lab	3
PS	103-103L	Crop Production & Lab	3	PS	103-103L	Crop Production & Lab	3
Major Requirements			**77**	**Major Requirements**			**79**
Major Core			42	Major Core			45
ACCT	210	Principles of Account I	3	ACCT	210	Principles of Accounting I	3
AST	119	First Year Seminar	2	AST	119	First Year Seminar	2
AST OR AST	213-213L 313-313L	Ag, Industrial & Outdoor Power & Lab (3) Farm Machinery Systems Management & Lab (3)	3	AST OR AST	213-213L 313-313L	Ag, Industrial & Outdoor Power & Lab (3) Farm Machinery Systems Management & Lab (3)	3
AST	273-273L	Microcomputer Applications in Agriculture & Lab	3	AST	273-273L	Microcomputer Applications in Agriculture & Lab	3
AST	390	Seminar	1	AST	390	Seminar	1
AST	412-412L	Fluid Power Technology & Lab	3	AST	412-412L	Fluid Power Technology & Lab	3
AST	423-423L	Rural Structures & Lab	3	AST	423-423L	Rural Structures & Lab	3
AST	463	Agricultural Waste Management	3	AST	463	Agricultural Waste Management	3
AST OR AST OR AST	494 496 497	Internship (2) Field Experience (2) Cooperative Experience (2)	2	AST OR AST OR AST	494 496 497	Internship (2) Field Experience (2) Cooperative Experience (2)	2
BADM	350	Legal Environment of Business	3	BLAW	350	Legal Environment of Business	3
BIOL	101-101L	Biology Survey I & Lab	3	BIOL	101-101L	Biology Survey I & Lab	3
GE AND GE OR PRAG	121 123 326	Engineering Design Graphics I (1) Computer Aided Drawing (1) Precision Ag Data Mapping (2)	2	GE AND GE OR PRAG	121 123 326	Engineering Design Graphics I (1) Computer Aided Drawing (1) Precision Ag Data Mapping (2)	2
				MATH	120	Trigonometry	3
PRAG	203-203L	Introduction to Precision Agriculture & Lab	2	PRAG	203-203L	Introduction to Precision Agriculture & Lab	2
PRAG	340	Climate Risk Management with Precision Agriculture	3	PRAG	340	Climate Risk Management with Precision Agriculture	3
PRAG	426-426L	Emerging Technologies & Lab	3	PRAG	426-426L	Emerging Technologies & Lab	3
PS	213-213L	Soils & Lab	3	PS	213-213L	Soils & Lab	3
Technical Electives			**35**	**Technical Electives**			**34**
It is strongly recommended that students choose one of the following emphasis areas:				Select 34 credits from the following courses. It is strongly recommended that students choose one of the following emphasis areas.			
Business Emphasis				**Business Emphasis**			
ACCT	211	Principles of Accounting II	3	ACCT	211	Principles of Accounting II	3
AGEC	271	Farm and Ranch Management	3	AGEC	271	Farm and Ranch Management	3

Existing Curriculum				*Proposed Curriculum (Highlight Changes)*			
Pref	Num	Title	Cr Hrs	Pref	Num	Title	Cr Hrs
AGEC	354	Agricultural Marketing and Prices	3	AGEC	354	Agricultural Marketing and Prices	3
AGEC	454	Economics of Grain and Livestock Marketing	3	AGEC	454	Economics of Grain and Livestock Marketing	3
AGEC	479	Agricultural Policy	3	AGEC	479	Agricultural Policy	3
AST	443-443L	Food Processing and Engineering Fundamentals & Lab	3	AST	443-443L	Food Processing and Engineering Fundamentals & Lab	3
ECON	201	Principles of Microeconomics	3	ECON	201	Principles of Microeconomics	3
		Any 200 level or above selected from AGEC AST, BADM, ACCT, AS, ECON, PS, ENTR	12			Any 200 level or above selected from AGEC, AST, BADM, ACCT, AS, ECON, PS, ENTR	10
		Science Electives, Selected from CHEM, PHYS, BIOL, MICR	2			Science Electives, Selected from CHEM, PHYS, BIOL, MICR	3
Production Emphasis				**Production Emphasis**			
AGEC	271	Farm and Ranch Management	3	AGEC	271	Farm and Ranch Management	3
AGEC	354	Agricultural Marketing and Prices	3	AGEC	354	Ag Marketing and Prices	3
AS OR DS	101-101L 130-130L	Introduction to Animal Science & Lab (3,1) Introduction to Dairy Science & Lab (3)	3-4	AS OR DS	101-101L 130-130L	Introduction to Animal Science & Lab (3,1) Introduction to Dairy Science & Lab (3)	3-4
PRAG	423	Soil Fertility and Plant Nutrient Management	3	PRAG	423	Soil Fertility and Plant Nutrient Management	3
PS	223	Principles of Plant Pathology & Lab	3	PS	223	Principles of Plant Pathology & Lab	3
PS OR PS	405-405L 407-407L	Insect Biology & Lab (3) Insect Pest Management & Lab (2,1)	3	PS OR PS	405-405L 407-407L	Insect Biology & Lab (3) Insect Pest Management & Lab (2,1)	3
PS	440-440L	Crop Management with Precision Ag	4	PS	440-440L	Crop Management with Precision Ag	4
		Any 200 level or above selected from AGEC, AST, BADM, ACCT, AS, ECON, PS, ENTR	10-11			Any 200 level or above selected from AGEC, AST, BADM, ACCT, AS, ECON, PS, ENTR	8-9
		Science Electives, Selected from CHEM, PHYS, BIOL, MICR	2			Science Electives, Selected from CHEM, PHYS, BIOL, MICR	3-4
Precision Ag Emphasis				**Precision Ag Emphasis**			
AST OR AST	213-213L 313-313L	Ag Industrial and Outdoor Power & Lab (3) Farm Machinery Systems Management & Lab (3)	3	AST OR AST	213-213L 313-313L	Ag Industrial and Outdoor Power & Lab (3) Farm Machinery Systems Management & Lab (3)	3
CSC	130	Visual Basic Programming	3	CSC	130	Visual Basic Programming	3
ET	232-232L	Digital Electronics & Microprocessors & Lab	3	ET	232-232L	Digital Electronics & Microprocessors & Lab	3
ET	210	Introduction to Electronic Systems	4	ET	210	Introduction to Electronic Systems	4
ET	240	Techniques of Servicing	2	ET	240	Techniques of Servicing	2
GEOG	372-372L	Introduction to GIS & Lab	3	GEOG	372-372L	Introduction to GIS & Lab	3
GEOG	484-484L	Remote Sensing & Lab	3	GEOG	484	Remote Sensing & Lab	3
PRAG	304-304L	Electrical Diagnostics in Farm Machinery & Lab	3	PRAG	304-304L	Electrical Diagnostics in Farm Machinery & Lab	3
PRAG	345	Principles and Implications of Chemical Application Systems	3	PRAG	345	Principles and Implications of Chemical Application Systems	3
PRAG	423	Soil Fertility and Plant Nutrient Management	3	PRAG	423	Soil Fertility and Plant Nutrient Management	3
PRAG	440-440L	Crop Management with Precision Ag & Lab	3	PRAG	440-440L	Crop Management with Precision Ag & Lab	3
		Any 300 level or above selected from AST, CSC, ET, GEOG, PHYS, or PS	2			Any 300 level or above selected from AST, CSC, ET, GEOG, PHYS, or PS	1
Processing Emphasis				**Processing Emphasis**			
				ABE	343-343L	Unit Operations of Biological Materials Processing & Lab	3
AS OR	101-101L	Introduction to Animal Science & Lab (3,1)	3-4	AS OR	101-101L	Introduction to Animal Science & Lab (3,1)	3-4

Existing Curriculum				*Proposed Curriculum (Highlight Changes)*			
Pref	Num	Title	Cr Hrs	Pref	Num	Title	Cr Hrs
DS	130-130L	Introduction to Dairy Science & Lab (3)		DS	130-130L	Introduction to Dairy Science & Lab (3)	
AS	241-241L	Introduction to Meat science & Lab	3	AS	241-241L	Introduction to Meat science & Lab	3
AS	350	Meat Prod Safety/HACCP	3	AS	350	Meat Prod Safety/HACCP	3
AST	443	Food Processing and Engineering Fundamentals & Lab	3	AST	443	Food Processing and Engineering Fundamentals & Lab	3
DS	321-321L	Dairy Product Processing I & Lab	5	DS	321-321L	Dairy Product Processing I & Lab	5
DS	421-421L	Dairy Plant Management & Lab	4	DS	421-421L	Dairy Plant Management & Lab	4
MICR	231-231L	General Microbiology & Lab	4	MICR	231-231L	General Microbiology & Lab	4
MICR	311-311L	Food Microbiology & Lab	4	MICR	311-311L	Food Microbiology & Lab	4
PS	308-308L	Grain Grading & Lab	2	PS	308-308L	Grain Grading & Lab	2

Summary of Credits Agricultural Systems Technology (B.S.)			
System General Requirements	**34-35**	**System General Requirements**	**32**
College Requirements	**9**	**College Requirements**	**9**
Major Requirements	**77**	**Major Requirements**	**79**
Electives	**0**	**Electives**	**0**
Total number of hours required for major	77	Total number of hours required for major	79
Total number of hours required for degree	120	Total number of hours required for degree	120

7. Explanation of the Change:

The proposed changes are to help provide clearer plan of study for students in AST. Requiring MATH 114 for SGR 5 and moving MATH 120 to a major requirement better aligns with how students would progress through their coursework.

Requiring PHYS 101 is consistent with course requirements in Agronomy and Precision Agriculture.