

# PROGRAM TO PROGRAM ARTICULATION AGREEMENT

Between  
SOUTH CENTRAL COLLEGE  
and  
SOUTH DAKOTA STATE UNIVERSITY

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Agreement with Respect to Applying the  
**Mechatronics Engineering Technology**  
**Associate of Applied Sciences Degree Program at SCC**  
Toward the  
**Electronics Engineering Technology**  
**Bachelor of Science Degree Program at SDSU**

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## I. Parties

The parties to this agreement are South Dakota State University (SDSU), Brookings SD and South Central College (SCC), Mankato MN.

## II. Purpose

The purpose of this agreement is to:

- A. have a signed articulation agreement that addresses the varying needs of students and complimentary nature of the institutions' programs;
- B. provide increased educational opportunities for students from the region;
- C. extend and clarify educational opportunities for students; and
- D. provide SCC students who have completed the A.A.S. degree in Mechatronics Engineering Technology an opportunity to earn a Bachelor of Science degree with a major in Electronics Engineering Technology.

## III. Academic Program

Graduation Requirements for the BS in Electronics Engineering Technology at SDSU

Electronics Engineering Technology Major requirements:	64
General Education (SGR & IGR) credits:	35
<u>Block Transfer credits from SCC Mechatronics Engineering Technology:</u>	<u>21</u>
<b>Total Credits Required:</b>	<b>120</b>

- A. Upon successful completion of the major requirements specified in III.B. below, SDSU will accept **21** course credits from the A.A.S. degree in Mechatronics Engineering Technology for students majoring in Electronics Engineering Technology. Students must successfully complete the A.A.S. degree in Mechatronics Engineering Technology from SCC before transferring to SDSU for the block transfer course credits to be accepted. *General Education coursework is in addition to the 21 course credits.* Students must meet all Board of Regents policies and university graduation requirements in order to receive a degree.

- B. Requirements to be completed at SDSU to earn a Bachelor of Science degree with a major in Electronics Engineering Technology are outlined below.

Major requirements: 33 credits

1. ET 320/L, Analog Electronics & Lab (3 credits)
2. ET 325/L, Advanced Analog Devices & Lab (3 credits)
3. ET 330/L, Microcontrollers & Networks & Lab (3 credits)
4. ET 332/L, Advanced Digital Devices & Lab (3 credits)
5. ET 380/L, Circuit Boards & Design & Lab (3 credits)
6. ET 426/L, Communication Systems & Lab (3 credits)
7. MNET 367/L, Production Strategy & Lab (3 credits)
8. OM 462, Quality Management (3 credits)
9. OM 469, Project Management (2 credits)
10. ET or OM 471/L\*, Capstone Experience & Lab (2 credits) \*meets Advanced Writing (AW) requirement
11. OM 494, Internship (2 credits)
12. Electronics Technical Elective (3 credits)

Required Support Courses: 31 credits

1. ACCT 210, Principles of Accounting I (3 credits)
2. ACCT 211, Principles of Accounting II (3 credits)
3. GE 425, Occupational Safety & Health (3 credits)
4. MATH 121/L, Survey of Calculus & Lab (5 credits)
5. MGMT 310, Business Finance (3 credits)
6. MGMT 325, Management Information Systems (3 credits)
7. MGMT 360, Organization & Management (3 credits)
8. MGMT 460, Human Resource Management (3 credits)
9. STAT 281, Introduction to Statistics (3 credits)
10. 2 credits from SGR 6 (see below)

The general education coursework to meet South Dakota Regental Systems General Education Requirements (SGR) and SDSU Institutional Graduation Requirements (IGR) must also be completed as outlined below. ***This coursework may be taken at SCC if equivalent courses are available.*** Please note that BOR Policy 2.5.12 states: "Total transfer credit for work at a junior, community college (2 year), and/or two-year technical college may not exceed one-half of the hours required for completion of the baccalaureate degree at the accepting institution." *For the BS-EET program, that number is 60 credits.*

General Education(SGR & IGR) Courses: 35 credits

1. Must include ENGL 101, Composition I, (SGR 1) (3 credits)
2. Must include ENGL 277, Technical Writing in Engineering (SGR 1) (3 credits)
3. Must include SPCM 101, Fundamentals of Speech, (SGR 2) (3 credits)
4. Must include ECON 202, Principles of Macroeconomics (SGR 3 & Globalization) (3 credits)
5. Must include MATH 102, College Algebra (SGR 5) (3 credits)
6. Must include PHYS 111/111L, Introduction to Physics I & Lab (SGR 6) (4 credits)
7. Must include PHYS 113/113L, Introduction to Physics II & Lab (SGR 6) (4 credits) [2 credits count toward ET major]
8. Must include GE 231, Technology, Society & Ethics, (IGR 2 & Globalization) (3 credits)
9. 9 remaining credits must meet System General Education requirements, Institutional Graduation requirements and be selected from the approved list of courses specified in BOR policy 2:7. *See most recent transfer equivalency documents for more information.*

**Total number of credits at SDSU: 99**

**Transfer credits from SCC: 21\*** (additional SGR credits can be earned at SCC)

**Total credits required: 120**

Additional requirements:

1. Students transferring from SCC must have a cumulative GPA of "C" (2.0 on a 4.0 scale) and no course grade below a "C" (2.0 on a 4.0 scale).
2. In accordance with BOR policy 2:28, students must demonstrate satisfactory performance in writing, mathematics, reading and science reasoning as evidenced by receiving a passing score on all sections of the Collegiate Assessment of Academic Proficiency (CAAP) exam or meet established waiver requirements. The exam must be taken during the first semester of enrollment at SDSU.

**IV. Obligations**

Both parties agree to confer with each other on a regular basis regarding changes in curricula involved in this articulation agreement.

**V. Modifications**

This agreement may be modified from time to time by the South Dakota Board of Regents and South Central College. Modifications may not diminish the entitlements enjoyed by students who have already attended classes delivered under the terms of earlier versions of the agreement, except in rare instances in which retroactive implementation of modifications may be required to comply with accreditation standards or to conform to professional licensure requirements.

**VI. Effective Date of Agreement**

This agreement will go into effect at the start of the Fall 2015 semester term at SCC and SDSU.

**VII. Acceptance of Agreement:**

For South Dakota State University:



Date: 5-4-2015

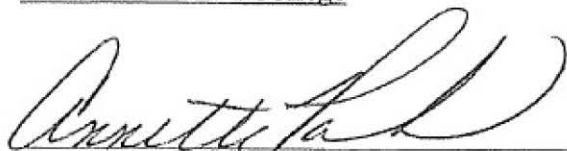
Lewis Brown  
Dean, College of Engineering



Date: 5-6-2015

Laurie Stenberg Nichols  
Provost and Vice President for Academic Affairs

For South Central College



Date: 6-29-15

Arnette  
President, SCC

**Attachment A**

**Supplemental Documentation to Program to Program Articulation  
Agreement  
Between  
South Central College  
and  
South Dakota State University**

**VI. Effective Date of Agreement**

This agreement will go into effect at the start of the Fall 2015 semester term at South Central College and South Dakota State University and will be reviewed by both parties prior to the Fall semester of 2020.

# ATTACHMENT A

AAS3470 Engineering, Manufacturing, Technology< Manufacturing Production Process Development <Mechatronics Engineering Technology, AAS Degree



## MECHATRONICS ENGINEERING TECHNOLOGY A.A.S. Degree – 60 Credits

Mechatronics is a new and rapidly growing field that integrates *mechanics* and *electronics*. In addition to studies in these two areas, students will gain knowledge and hands-on experience in, electricity, fluid power, sensors, control systems, robotics and programmable controllers – components that are used in a wide variety of industrial automation systems, machines and equipment. Students are prepared to act professionally and gain knowledge in organizational issues such as quality, customer service and communications. This program is designed for people who are interested in product development, plant maintenance, machine set up and installation, and troubleshooting of modern computer controlled machines. Mechatronics Engineering Technician jobs are found in the manufacturing, medical, electronics, agriculture, biotechnology and automotive industries. **NOTE:** All program plans are preliminary & curriculum may change without notice. Your catalog of record may have different requirements.

**Below is the recommended course sequence for students who start in the FALL.**

### First Year (Fall) – 17 Credits

Course ID	Course Name	Credits
CMAE 1514	Safety Awareness	2
CMAE 1518	Manufacturing Process and Production	2
CMAE 1522	Quality Practices	2
CMAE 1526	Maintenance Awareness	2
MECA 1122	Electricity - Devices and Circuits I	3
MECA 2120	Fluid Power 1	3
PHYS 101	Introductory Physics	3

### First Year (Spring) – 16 Credits

MATH 120	College Algebra	4
MECA 2130	Fluid Power II	3
MECA 1250	Mechatronics Systems Operations I	3
MECA 1222	Electricity - Devices and Circuits II	3
MECA 1223	Mechanical Systems 1	3

### Second Year (Fall) – 13 Credits

ENGL 100	Composition	4
MECA 2150	Mechatronics Systems Operations II	3
MECA 2110	Sensors and Control	3
MECA 2123	Mechanical Systems 2	3

### Second Year (Spring) – 14 Credits

ENGL 240	Technical Communication	4
MECA 2235	Robotics	3
MECA 2250	Mechatronics Systems Operations III	3
MECA 2240	Senior Project (Variable Credit)	4

### Additional Program Information

*In addition to the classes listed at left, college readiness classes may be required of some students. See Program Advisor.*

#### Program Core Competencies:

1. Demonstrate effective participation on a team.
2. Perform assembly, repair, operation and adjustment of manufacturing equipment.
3. Conduct trouble shooting of manufacturing equipment.
4. Diagnose and repair electromechanical systems.
5. Perform parts department operations including assembly, inventory, quality assurance and testing.
6. Use test equipment.

**Admission Dates:** Fall, Spring or Summer

**Program Location:** North Mankato and/or Faribault

*This program has an online option for one or more of its courses. Contact Advisor for online option availability. For more information, visit [www.online.southcentral.edu](http://www.online.southcentral.edu)*

#### Program Advisors:

**Doug Laven**  
Mechatronics Instructor  
North Mankato Campus A-129  
507-389-7460  
[doug.laven@southcentral.edu](mailto:doug.laven@southcentral.edu)

**Alex Goff**  
Mechatronics Instructor  
North Mankato Campus A-129  
507-389-7498  
[alex.goff@southcentral.edu](mailto:alex.goff@southcentral.edu)

**Mike Busch**  
Mechatronics Instructor  
North Mankato Campus A-129  
Faribault Campus B-124  
507-332-5863  
[mike.busch@southcentral.edu](mailto:mike.busch@southcentral.edu)