



Engineering & Manufacturing Technology

**ENGINEERING GRAPHICS TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE**

Your Butler experience will prepare you to apply advanced computer-aided design (CAD) skills to the creation of graphic representations and simulations in support of architectural and engineering projects with the aid of CAD. This program includes instruction in engineering graphics, two-dimensional and three-dimensional design, solid modeling, residential design, and commercial design.

General Education Requirements	20 Hours
Communications	9
___English Comp I (EG 101)	
___Public Speaking (SP 100)	
___Technical Writing (EG 112)	

Science and Math	8
___Trigonometry (MA 140)	
___Gen. Physics (PH 143)	

Social/Behavioral Science Requirement	3
___Ethics (PL 291)	

Mechanical Option Required Courses	38 Hours
___Two-Dimensional Design (AR 121)	3
___Engineering Graphics I (EN 101)	3
___Engineering Graphics II (EN 102)	3
___Manufacturing Processes (IT 204)	3
___Engineering Concepts (EN 115)	2
___Eng. Graphics Tech Capstone (EN 206)	3
___AutoCAD Basics (EN 107)	3
___AutoCAD Advanced (EN 207)	3
___Networking Basics (IN 134)	3
___Basic CATIA (IT 218)	3
___3D Modeling & CAD (EN 214)	3
___Advanced CATIA (IT 219)	3
___Internship I (EN 193)	3

Related Electives	6 Hours
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Any Engineering course not listed under required or any Manufacturing Technology course.

A total of 64 credit hours are required for this degree. In addition to the 20 credit hours of general education requirements and 38 credit hours of required courses, 6 credit hours of related electives are required.

Architectural/Civil/Structural Option

Required Courses		41Hours
___Two-Dimensional Design (AR 121)		3
___Engineering Graphics I (EN 101)		3
___Engineering Graphics II (EN 102)		3
___Residential Design and CAD I (EN 103)		3
___Introduction to Surveying (SR 104)		3
___Engineering Concepts (EN 115)		2
___3D Modeling & CAD (EN 214)		3
___Commercial Building Design and CAD (EN 211)		3
___Eng. Graphics Tech Capstone (EN 206)		3
___Structural, Civil and Pipe Design & CAD (EN 217)		3
___AutoCAD Basics (EN 107)		3
___AutoCAD Advanced (EN 207)		3
___Networking Basics (IN 134)		3
___Internship (EN 193)		3

Related Electives		3
___Any Manufacturing Engineering Technology (IT) Course.		
___Surveying II (SR 204)		3
___Statics (EN 260)		3
___PC Visual Basic Programming (IN 108)		3
___Introduction to Programming (IN 105)		3
___Physical Geology (PS 102)		4
___Special Topics (EN 253/254)		3

A total of 64 credit hours are required for this degree. In addition to the 20 credit hours of general education requirements and 41 credit hours of required courses, 3 credit hours of related electives are required.

Engineering Graphics Technology

Career Program
Degree Offered: Associate in Applied Science
Credits Required: 64
Contact: Buford Pringle, Lead Instructor at 316.218.6136 or Pedro Leite, Executive Director, at 316.218-6302 or e-mail pleite@butlercc.edu

Accreditation
ABET-TAC.

Prior to Admission
Appropriate placement score(s), see an advisor for details.

Additional Costs
An additional \$25 lab fee is assessed to each program course and subject to change.

Recommended Course Sequence
Engineering Graphics I (EN 101) is required before upper level EN Courses

After Butler
Recent graduates hold positions as Architectural and Engineering Technicians. After finishing a bachelor's degree, graduates hold positions as aeronautical, electrical, electronic or mechanical engineers, architects, and drafters.

University Articulations
Students wishing to take advantage of articulations with WSU, KSU-Salina or most universities are advised to complete up through PH 251 Physics I, which requires several Math prerequisites.

High School Articulation Credit
High schools must have a signed, current articulation on file. Students must also maintain a 3.0 GPA in all CAD/Drafting courses. Students may be eligible for additional articulated courses. Student must submit a drawing portfolio for review by lead instructor and pass a drawing exam prior to enrollment.

Median Wage for Mechanical Engineering Technicians in South Central Kansas is \$40,706 per year. (Source: Kansas Department of Human Resources Local Area IV, 2003 edition Source: Workforce Planning Guide & Wage Survey, Local Area IV 2003 Edition, KDHR.)



**ENGINEERING GRAPHICS TECHNOLOGY
CERTIFICATE**

Your Butler experience will prepare you to apply advanced computer-aided design (CAD) skills to the creation of graphic representations and simulations in support of architectural and engineering projects. With the aid of CAD, this program includes instruction in engineering graphics, two-dimensional and three-dimensional design, solid modeling, residential and commercial design.

Prior to Admission

Appropriate placement score(s), see an advisor for details.

Required Courses

		3I Hours
___Engineering Graphics I	(EN 101)	3
___Engineering Graphics II	(EN 102)	3
___Residential Design and CAD I	(EN 103)	3
___Engineering Concepts	(EN 115)	2
___Eng. Graphics Tech Capstone	(EN 206)	2
___Commercial Building Design and CAD	(EN 211)	3
___Structural, Civil and Pipe Design & CAD	(EN 217)	3
___Math Requirement	(MA 114 or above)	3
___Basic CATIA	(IT 218)	3
___Auto CAD Basics	(EN107)	3
___Auto CAD Advanced	(EN 207)	3

Certificate requires 3I credit hours.

After Butler

Career opportunities include Aerospace Engineering, Chemical Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, and Nuclear Engineering.

Median Wage for Architectural and Civil Drafters in South Central Kansas is \$34,050 per year. Median Wage for Civil Engineering Technicians is \$34,258 per year. Median Wage for Mechanical Engineering Technicians is \$40,706 per year. (Source: Kansas Department of Human Resources Local Area IV, 2003 edition.)

CAD Technician

Career Program
Certificate in CAD Technician
Credits Required: 31

Contact: Buford Pringle, Lead Instructor at 316.218.6136 or Pedro Leite, Executive Director, at 316.218-6302 or e-mail pleite@butlercc.edu

Accreditation

Currently seeking ABET-TAC accreditation.

Recommended Course Sequence

AUTOCAD Basics (EN 107) is required before upper level EN Courses

Additional Costs

An additional \$25 lab fee is assessed to each program course and subject to change.

**COMPOSITE ENGINEERING TECHNOLOGY
AAS DEGREE**

Your Butler experience will prepare you to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using advanced materials and polymers in commercial manufacturing. Instruction will prepare students to design products via Catia and produce those products within a laboratory setting.

Prior to admission

Students are required to take the ASSET test. Students must score a minimum of 37 Reading, 35 Writing, and Numerical Math.

General Education Requirements

Communications		9
___English Comp I	(EG 101)	3
___Public Speaking	(SP 100)	3
___1 additional course in communications		3

Science and Math

___College Algebra	(MA 131)	11
___Applied Physics	(PH 109)	3
___Applied Chemistry	(CH 105)	5

Required Courses

___Industrial Safety (August/Intersession)	(IT 205)	3
___Intro to Composites	(IT 135)	4
___Composites Manufacturing Practices	(IT 136)	4
___Beginning Concepts of CNC	(IT 120)	3
___Machine Processes I	(IT 100)	3
___Basic Catia	(IT 218)	3
___Machine Processes II	(IT 102)	3
___Composite Structure Repair	(IT 235)	4
___Adv. Techniques in Composites	(IT 236)	4
___Intro to Quality Assurance	(IT 260)	3
___Advanced Catia	(IT 219)	3
___Intro Manufacturing and Material Science	(IT 226)	3
___Any IT elective course or department consent		4

AAS Degree requires 64 credit hours.

Composite Engineering Technology

Career Program
AAS in Composite Engineering Technology
Credits Required: 64
Contact: Buford Pringle, CMFGT, Lead Instructor, at 316.218.6136 or Pedro Leite, Executive Director, at 316.218-6302 or e-mail pleite@butlercc.edu

Accreditation

ABET-TAC Pending



**COMPOSITE ENGINEERING TECHNOLOGY
MANUFACTURING AND COMPOSITES CERTIFICATE**

Your Butler experience will prepare you to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using advanced materials and polymers in commercial manufacturing. Instruction will prepare students to design products via Catia and produce those products within a laboratory setting.

Prior to admission

Students are required to take the ASSET test. Students must score a minimum of 37 Reading, 35 Writing, and Numerical Math.

Required Courses

___ Industrial Safety (August/Intersession)	(IT 205)	3
___ Intro to Composites	(IT 135)	4
___ Composites Manufacturing Practices	(IT 136)	4
___ Beginning Concepts of CNC	(IT 120)	3
___ Machine Processes I	(IT 100)	3
___ Basic Catia	(IT 218)	3
___ Machine Processes II	(IT 102)	3
___ Composite Structure Repair	(IT 235)	4
___ Adv. Techniques in Composites	(IT 236)	4
___ Intro to Quality Assurance	(IT 260)	3
___ Advanced Catia	(IT 219)	3

Certificate requires 37 credit hours.

Composite Engineering Technology

Career Program

Certificate in Composite Engineering Technology

Credits Required: 37

Contact; Buford Pringle, CMFGT, Lead Instructor, at 316.218.6136 or

Pedro Leite, Executive Director, at 316.218-6302 or

e-mail pleite@butlercc.edu

Accreditation

ABET-TAC Pending

**COMPOSITE ENGINEERING TECHNOLOGY
COMPOSITE TECHNICIAN CERTIFICATE**

Your Butler experience will prepare you to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using advanced materials and polymers in commercial manufacturing. Instruction will prepare students to design products via Catia and produce those products within a laboratory setting. Focuses on Composite Fabrication, Repair, Machining, Lay Up, and Basic Design.

Prior to admission

Students are required to take the ASSET test. Students must score a minimum of 37 Reading, 35 Writing, and Numerical Math.

Required Courses

___ Intro to Composites	(IT 135)	4
___ Composites Manufacturing Practices	(IT 136)	4
___ Composite Structure Repair	(IT 235)	4
___ Adv. Techniques in Composites	(IT 236)	4

Certificate of Completion requires a total of 16 credit hours.

Composite Engineering Technology

Career Program

Certificate of Completion in Composite Technician

Credits Required: 16

Contact; Buford Pringle, CMFGT, Lead Instructor, at 316.218.6136 or

Pedro Leite, Executive Director, at 316.218-6302 or

e-mail pleite@butlercc.edu

Accreditation

ABET-TAC Pending

MANUFACTURING ENGINEERING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE

Your Butler experience will prepare you to apply basic engineering principles and technical skills to the identification and resolution of production problems in the manufacture of products. This program provides instruction in machine operations, production line operations, engineering analysis, systems analysis, automation, computer-aided manufacturing (CAM), manufacturing planning, quality control, and informational infrastructure.

General Education Requirements

Course	18 Hours
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Communications

___ English Comp I	(EG 101)	
___ Public Speaking	(SP 100)	
___ One other course	(EG 102, EG 112)	

Science and Math

___ Math Requirement	(MA 131)	6
___ Science Requirement	(PH 109 or CH 105 or above CH 105 strongly advised)	

Social/Behavioral Science Requirement

___ Sociology	(BS 105) or	3
___ General Psychology	(BS 160)	

Required Courses

Required Courses	37 Hours
___ Machine Processes I	(IT 100) 3
___ Machine Processes II	(IT 102) 3
___ Beginning Concepts of CNC	(IT 120) 3
___ Machine Trades Print Reading	(IT 150) 1
___ Manufacturing Processes	(IT 204) 3
___ Industrial Safety	(IT 205) 3
___ Basic CATIA	(IT 218) 3
___ Advanced CATIA	(IT 219) 3
___ Adv. Automated Manufacturing with CNC	(IT 220) 3
___ Introduction to Material and	(IT 226) 3
___ Manufacturing Part Design	(IT 230) 3
___ Introduction to Quality Assurance	(IT 260) 3
___ Introduction to Metrology	(IT 263) 3

A total of 64 hours is required for this degree. In addition to the 18 credit hours of general education requirements and 37 hours of required courses, students must choose 9 credit hours from the list of related electives below:

Related Electives

Related Electives	9 Hours
___ Engineering Graphics I	(EN 101) 3
___ Engineering Graphics II	(EN 102) 3
___ Engineering Concepts	(EN 115) 2
___ Industrial Supervision	(IT 141) 3
___ Mechanical Devices and Sys	(IT 116) 3
___ Fluid Power	(IT 117) 3
___ Cooperative Education	(IT 197) 3
___ Basic FeatureCAM	(IT 216) 3
___ Basic Mastercam	(IT 217) 3
___ Advanced FeatureCAM	(IT 221) 3
___ Advanced Mastercam	(IT 225) 3

Manufacturing Engineering Technology

Career Program

Degree Offered: Associate in Applied Science in
Manufacturing Technology

Credits Required: 64

Contact: Buford Pringle, CMFGT, Lead Instructor, at 316.218.6136 or
Pedro Leite, Executive Director, at 316.218-6302 or

e-mail pleite@butlercc.edu

Accreditation

ABET-TAC.

Prior to Admission

Appropriate placement score(s), see an advisor for details.

Recommended Course Sequence

Semester 1: IT 100, IT 102, IT 204, IT 120, IT 218

Semester 2: IT 220, IT 141, MA 131,

Semester 3: IT 226, IT 227, IT 228

Semester 4: IT 117, IT 215, IT 205, Advanced Programming Course

University Articulations

Students wishing to take advantage of articulations with WSU, KSU-Salina or most universities are advised to complete up through PH 251 Physics I, which requires several Math prerequisites.

High School Articulation Credit

High schools must have a signed current articulation on file. Students must also maintain a 3.0 GPA in all Manufacturing courses.

Additional Costs

Courses with labs have a \$50 lab fee and are subject to change.

CATIA Courses have a \$150 lab fee.

After Butler

Recent graduates hold positions in manufacturing, manufacturing Engineering, machining, CNC (Computer Numerical Control) operation and Industrial Engineering.

Median Wage for Computer-Controlled Machine Tool Operators in South Central Kansas is \$37,523 per year. Median Wage for Numerical Tool and Process Control Programmers in South Central Kansas is \$44,357 per year. Median Wage for a Manufacturing Technologist in South Central Kansas is \$42,220 per year. (Source: Workforce Planning Guide & Wage Survey, Local Area IV 2003 Edition, KDHR.)



MANUFACTURING ENGINEERING TECHNOLOGY

CERTIFICATE

Your Butler experience will prepare you to apply basic engineering principles and technical skills to the identification and resolution of production problems in the manufacture of products. This program provides instruction in machine operations, production line operations, engineering analysis, systems analysis, instrumentation, physical controls, automation, computer-aided manufacturing (CAM), manufacturing planning, quality control, and informational infrastructure.

Prior to Admission

Appropriate placement score(s), see an advisor for details.

Required Courses

		34 Hours
___Machine Processes I	(IT 100)	3
___Machine Processes II	(IT 102)	3
___Beginning Concepts of CNC	(IT 120)	3
___Machine Trades Print Reading	(IT 150)	1
___Manufacturing Processes	(IT 204)	3
___Advanced CATIA	(IT 219)	3
___Introduction to Quality Assurance	(IT 260)	3
___Industrial Safety	(IT 205)	3
___Basic CATIA	(IT 218)	3
___Adv. Automated Manufacturing with CNC	(IT 220)	3
___Intro to Material and Manufacturing Science	(IT 226)	3
___Manufacturing Part Design	(IT 228)	3

Students must have 3 hours of related electives from the following:

Related Electives

		Hours
___Engineering Graphics I	(EN 101)	3
___Engineering Graphics II	(EN 102)	3
___Mechanical Devices and Systems	(IT 116)	3
___Fluid Power	(IT 117)	3
___Geo. Dimensioning & Tolerancing	(IT 212)	3
___Basic Feature CAM	(IT 216)	3
___Advanced Feature CAM	(IT 221)	3
___Advanced Mastercam	(IT 225)	3

Certificate requires 37 credit hours.

Manufacturing Engineering Technology

Career Program

Certificate in Manufacturing Technology and eligibility to take the Society of Manufacturing Engineers (SME) certification test

Credits Required: 37

Contact: Buford Pringle, CMFGT, Lead Instructor, at 316.218.6136 or

Pedro Leite, Executive Director, at 316.218-6302 or

e-mail pleite@butlercc.edu

Accreditation

ABET-TAC

Prior to Admissions

Appropriate placement score(s), see an advisor for details.

Recommended Course Sequence

Semester 1:

IT 100, IT 102, IT 204, IT 120, IT 205

Semester 2:

IT 220, IT 141, EN 101, MA 131,

Semester 3:

IT 226, IT 227, IT 228

Semester 4:

IT 117, IT 215, Advance Programming

High School Articulation Credit

High Schools must have a signed current articulation on file. Students must also maintain a 3.0 GPA in all Manufacturing courses.

Additional Costs

Courses with labs have a \$50 lab fee and are subject to change.

After Butler

Recent graduates hold positions in manufacturing, machining and CNC (Computer Numerical Control) operation, Manufacturing Engineering, and Industrial Engineering.

Median Wage for Computer-Controlled Machine Tool Operators in South Central Kansas is \$37,523 per year. Median Wage for Numerical Tool and Process Control Programmers in South Central Kansas is \$44,357 per year. (Source: Workforce Planning Guide & Wage Survey, Local Area IV 2003 Edition, KDHR.)

SURVEYING TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE

Butler Community College's Associate of Applied Science in Surveying Technology degree is designed to prepare students for necessary training for future licensure as a land surveyor in Kansas. All 50 states and all U.S. territories license surveyors. The program consists of topics including field surveying techniques, surveying laws and ethics, Global Position Systems (GPS), Geographic Information Systems (GIS), land information systems, safety, drafting, and records research. The two-year Associate of Applied Science in Surveying Technology degree is designed to provide necessary training for future licensure as a land surveyor in Kansas.

General Education Requirements Communications

24 Hours
12

___English Comp I	(EG 101)
___English Comp II	(EG 102)
___Public Speaking	(SP 100)
___Technical Writing	(EG 112)

Science and Math

9

___College Algebra w/Review or	(MA 131) or
___College Algebra	(MA 135)
___Trigonometry	(MA 140)
___Applied Physics or	(PH109) or
___Basic Physics I	(PH 130)

Social/Behavioral Science

3

___US History I or	(HS 131)
___ US History II	(HS 132)

Required Courses

39 Hours

___Introduction to Surveying	(SR 104)	3
___AutoCAD Basics	(EN 107)	3
___Introduction to GIS/GPS	(SR 110)	3
___Accounting I	(BA 126)	3
___Surveying II	(SR 204)	3
___Advanced GIS/GPS	(SR 210)	3
___Principles of Management	(BA 210)	3
___Boundary Control	(SR 220)	3
___Business Ethics	(BA 220)	3
___Survey Law	(SR 222)	3
___Legal Descriptions	(SR 224)	2
___Subdivision Planning and Design	(SR 112)	3
___Route Surveying	(SR 226)	3
___Internship	(SR 193)	1

A total of 63 credit hours is required for this degree; 24 hours of general education and 39 hours of technical courses.

Students who have completed the general education requirement and have previously earned an Associates Degree or a Bachelors degree may complete a Certificate of Completion in Surveying Technology by completing the 39 hours of required technical courses.

Surveying Technology

Career Program

Degree Offered: Associate in Applied Science

Credits Required: 63

Contact: Buford Pringle, Lead Instructor at 316.218.6136 or Pedro Leite, Executive Director, at 316.218-6302 or e-mail pleite@butlercc.edu

Prior to Admission

Appropriate placement score(s), see an advisor for details.

Additional Costs

An additional \$25 lab fee is assessed to each program course and subject to change.

Recommended Course Sequence

Semester 1: EG 101, MA 131 or MA 135, SR 104, EN 107, SR 110.

Semester 2: EG 102, PH 109 or PH 130, SR 204, HS 131 or HS 132, MA 140.

Semester 3: SP 100, BA 126, SR 220, SR 210, SR 222, EG 112.

Semester 4: SR 224, BA 210, BA 220, SR 112, SR 226, SR 193.

Median Wage for Surveyors in South Central Kansas is \$36,400 per year. (Source: Kansas Wage Survey, 2007.)

SURVEYING TECHNOLOGY CERTIFICATE

Your Butler experience will prepare you for future licensure as a land surveyor in Kansas.

Prior to Admission

Appropriate placement score(s), see an advisor for details.

Required Courses

39 Hours

___Introduction to Surveying	(SR 104)	3
___AutoCAD Basics	(EN 107)	3
___Introduction to GIS/GPS	(SR 110)	3
___Accounting I	(BA 126)	3
___Surveying II	(SR 204)	3
___Advanced GIS/GPS	(SR 210)	3
___Principles of Management	(BA 210)	3
___Boundary Control	(SR 220)	3
___Business Ethics	(BA 220)	3
___Survey Law	(SR 222)	3
___Legal Descriptions	(SR 224)	2
___Subdivision Planning and Design	(SR 112)	3
___Route Surveying	(SR 226)	3
___Internship	(SR 193)	1

Certificate requires 39 credit hours.

Students who have completed the general education requirement and have previously earned an Associates Degree or a Bachelors degree may complete a Certificate of Completion in Surveying Technology by completing the 39 hours of required technical courses.



**PRE-ENGINEERING
ASSOCIATE IN SCIENCE**

Course	Hours
Communications	9
___ English Comp I (EG 101)	
___ English Comp II (EG 102)	
___ Public Speaking or Interpersonal Communication (SP 100)	
Science and Math	10*
___ Calculus I with Analytic Geometry (MA 151)	
___ College Chemistry I (CH 110)	
___ Calculus II w/Analytic Geometry (MA 152)	
Social/Behavioral Science	6
___ Social Science Requirement	
___ Behavioral Science Requirement	
Humanities/Fine Arts	6
___ Humanities Requirement	
___ Fine Arts Requirement	
Physical Education	1
___ Physical Education Requirement	

A minimum of 62 credit hours is required for the Associate in Science degree. In addition to general education requirements, coursework to complete this Associate in Science degree is listed below:

Required Courses	Hours
___ Calculus III with Analytic Geometry (MA 253)	3
___ Differential Equations (MA 260)	3
___ Physics I (PH 251)	5
___ Physics II (PH 252)	5
___ Engineering Graphics I or College Chemistry II (EN 101 or CH 115)	3-5**
___ Engineering Concepts (EN 115)	2
___ Statics (EN 260)	3

Related Electives **3-6**
 *Some related elective hours are met with extra hours in Math and Science above.

**Students interested in civil, electrical, industrial and mechanical options of pre-engineering need Engineering Graphics I. Students interested in chemical, nuclear and petroleum options of pre-engineering should enroll in Chemistry II. Advisement in either course for any option should be verified by future university of choice. Also see "Engineering Graphics Technology."

Program Information

Courses available range from basic math and algebra to calculus, differential equations and statistics. Butler has agreements with the state universities for course transfer.

Pre-Engineering

Career Program

Degree Offered: Associate in Science

Credits Required: 62

Contact: Larry Friesen, Lead Mathematics/Engineering Instructor, at 316.322.3138

Requirements - see Program of Study

Recommended Course Sequence

Semester 1: EG 101, MA 151, CH 110, EN 115, Physical Education
 Requirement Semester 2: EG 102, MA 152, EN 101 or CH 115, Semester 3: MA 253, PH 251, SP 100, Humanities Requirement, or Electives Semester 4: MA 260, PH 252, EN 260, Behavioral Science Requirement, Fine Arts Requirement

Recommended Electives

Any IN Programming course; Any IT Manufacturing Engineering Technology course, Engineering Graphics I & II, EC200

WELDING TECHNOLOGY ASSOCIATE IN APPLIED SCIENCE

Your Butler experience will prepare you to apply technical knowledge and skills to join or cut metal surfaces. Includes instruction in various welding and cutting processes, blueprint reading, and metallurgy, all as applied to both ferrous and non-ferrous metals.

General Education Requirements **15 Hours**

Communications		6
___ English Comp I	(EG 101)	
___ Public Speaking	(SP 100)	

Science, Math and Computer Science		9
___ Math Requirement	(MA 114 or above)	
___ Science Requirement	(PH 109 or CH 105 or above)	
___ Computer Science Requirement		

Social/Behavioral Science		3
___ Sociology	(BS 105) or	
___ General Psychology	(BS 160)	

Required Courses **35 Hours**

Fall		
___ OxyFuel Gas Welding	(WE 112)	2
___ Cutting Operations	(WE 113)	2
___ Welding Methods	(WE 114)	2
___ Shielded Arc Welding	(WE 116)	3
___ Blueprint Reading Welding	(WE 119)	3
___ Fundamentals of Welding I	(WE 121)	3
___ Gas Tungsten Arc Welding	(WE 215)	3
Spring		
___ Welding Survey	(WE 111)	3
___ Fundamentals of Welding II	(WE 122)	3
___ Automatic Arc & Inert Gas welding	(WE 212)	2
___ Welding and Pipefitting	(WE 213)	2
___ Welding Problems	(WE 216)	2
___ Gas Metal Arc Welding	(WE 219)	2
___ Metallurgy	(WE 220)	3

Related Electives		9
___ Intro to Business	(BA 110)	3
___ Personal Finance	(BA 112)	3
___ Business Law I	(BA 115)	3
___ Accounting I	(BA 126)	3
___ Personal Selling	(BA 215)	3
___ Principles of Management	(BA 210)	3
___ Industrial Supervision	(IT 141)	3
___ Industrial Safety	(IT 205)	3
___ Cooperative Education I, II, III, IV	(WE 197, 198, 297, 298)	2-5

A total of 62 credit hours is required for this degree. In addition to the 18 credit hours of general education requirements and 35 credit hours of required courses, you must choose 9 credit hours from the list of related electives.

Welding Technology

Career Program
Degree Offered: Associate in Applied Science
Credits Required: 62

Contact: Matt Galbraith, Lead Instructor, at 316.323.6824 or Dennis Rittle, Technical Advancement Director, at 316.322.3277

Recommendations

These classes are in high demand and fill quickly. Enrollment is limited.

Accreditation

All Instructors are AWS Certified Welding educators. The Welding Department is a certified participating organization in the AWS SENCE Program.

Additional Costs/Tool Requirement

An additional \$25 lab fee is assessed to each program course and subject to change.

High School Articulation Credit

High Schools must have a signed current articulation on file. Students must also maintain a 3.0 GPA in all Welding courses.

Recommended Course Sequence

Semester 1:
WE 121, WE 112, WE 116, WE 113, WE 114, WE 119, WE 215
Semester 2:
WE 122, WE 220, WE 111, WE 219, WE 216, WE 212, WE 213
Semester 3:
General Education Classes
Semester 4:
General Education Classes

After Butler

Recent graduates hold positions as welders, welding inspectors or supervisors, and welding sales representatives.

Median Wage for Welders, Cutters, Solderers, and Brazers in South Central Kansas is \$30,905 per year. (Source: Workforce Planning Guide & Wage Survey, Local Area IV 2003 Edition, KDHR.)



**WELDING TECHNOLOGY
CERTIFICATE**

Your Butler experience will prepare you to apply technical knowledge and skills to join or cut metal surfaces. Includes instruction in various welding and cutting processes, blueprint reading, and metallurgy, all as applied to both ferrous and non-ferrous metals.

Prior to Admission

Appropriate placement score(s), see an advisor for details.

Required Courses

35 Hours

Fall		
___OxyFuel Gas Welding	(WE 112)	2
___Cutting Operations	(WE 113)	2
___Welding Methods	(WE 114)	2
___Shielded Arc Welding	(WE 116)	3
___Blueprint Reading (Welding)	(WE 119)	3
___Fundamentals of Welding I	(WE 121)	3
___Gas Tungsten Arc Welding	(WE 215)	3
Spring		
___Welding Survey	(WE 111)	3
___Fundamentals of Welding II	(WE 122)	3
___Auto. Arc & Inert Gas Welding	(WE 212)	2
___Welding and Pipefitting	(WE 213)	2
___Welding Problems	(WE 216)	2
___Gas Metal Arc Welding (MIG)	(WE 219)	2
___Metallurgy	(WE 220)	3

Certificate requires 35 credit hours with a minimum accumulative GPA of 2.0 in program classes.

Welding Technology

Career Program

Certificate in Welding Technology

Credits Required: 35

Contact: Matt Galbraith, Lead Instructor, at 316.323.6824 or Dennis Rittle, Technical Advancement Director, at 316.322.3277

Recommendations

These classes are in high demand and fill quickly. Enrollment is limited.

Accreditation

All Instructor are AWS Certified Welding educators.

The Welding Department is a certified participating organization in the AWS SENCE Program

High School Articulation Credit

High Schools must have a signed current articulation on file. Students must also maintain a 3.0 GPA in all Welding courses.

Additional Costs/Tool Requirement

An additional \$25 lab fee is assessed to each program course and subject to change.

Prior to Admission

Appropriate placement score(s), see an advisor for details.

Recommended Course Sequence

Semester 1: WE 121, WE 112, WE 116, WE 113, WE 114, WE 111, WE 215

Semester 2: WE 122, WE 220, WE 119, WE 219, WE 216, WE 212, WE 213

After Butler

Recent graduates hold positions as welders, welding inspectors or supervisors, and welding sales representatives

Median Wage for Welders, Cutters, Solderers, and Brazers in South Central

Kansas is \$30,905 per year. (Source: Workforce Planning Guide & Wage Survey, Local Area IV 2003 Edition, KDHR.)