

ITS: ADVANCED MANUFACTURING



Associate of Applied Science Degree

10-825-13

Rapid changes in technology and work processes have created a growing demand for flexibility and enhanced skill levels in the workplace. Employers increasingly are seeking workers able to perform multiple tasks and roles that cut across traditional occupational categories. To be productive and effective in the changing workplace, workers may need skills and knowledge drawn from a variety of traditional areas of study. As a result, Blackhawk Technical College has a versatile Individualized Technical Studies degree that complements industry needs, enabling students interested in pursuing an associate degree to create a unique, individualized program. This specialized program of study combines the skills taught in two or more existing Blackhawk programs and is designed in cooperation with an occupational advisor from the target industry and an academic advisor from Blackhawk. Students achieve their career goals by acquiring skills and knowledge in an associate degree program tailored to meet their specific employment needs.

The **Advanced Manufacturing** Individualized Technical Studies degree allows students to develop their own degree in manufacturing-related fields. Advanced Manufacturing uses innovative technology to enhance design and production. Careers in this area aim to increase efficiency, reduce waste, ensure safety and produce high-quality goods to drive industry growth and adapt to modern demands. Example plans for this degree are shown in the pathways tabs.

Below are the general requirements for your Individualized Technical Studies degree. Working with your academic advisor, you can plan your Individualized Technical Studies degree program.

General Education Courses (21-30 credits required)

Communications (select at least two courses) - 6 credits total required

Code	Title	Credits
801-136	English Composition 1	3
801-195	Written Communication	3
or 801-196	Oral/Interpersonal Communication	
801-197	Technical Reporting	3
801-198	Speech	3

Social Science (select at least one course) - 3 credits total required

Code	Title	Credits
809-166	Introduction to Ethics: Theory and Application	3
809-172	Introduction to Diversity Studies	3
809-195	Economics	3
809-196	Introduction to Sociology	3

Behavioral Science (select at least one course) - 3 credits total required

Code	Title	Credits
809-198	Introduction to Psychology	3
809-159	Abnormal Psychology	3
809-188	Developmental Psychology	3
809-172	Introduction to Diversity Studies	3
809-196	Introduction to Sociology	3
809-166	Introduction to Ethics: Theory and Application	3

Mathematics or Science (select at least one course) - 3 credits total required

Select an appropriate mathematics or science course in consultation with your academic advisor.

Code	Title	Credits
804-113	College Technical Mathematics 1A	3
804-114	College Technical Mathematics 1B	2
804-134	Mathematical Reasoning	3
804-118	Intermediate Algebra with Applications	4
804-189	Introductory Statistics	3
804-195	College Algebra w Apps	3
804-196	Trigonometry w Apps	3
804-197	College Algebra and Trigonometry with Applications	5
804-198	Calculus 1	4
804-211	Quantitative Reasoning	3

Also select 6 additional credits of approved General Education courses to complete the General Education Course Requirements.

Individualized Technical Studies Courses (36-47 credits required)

Working with your academic advisor, select existing courses from the program areas in which you are interested. At least 20 credits must be focused in one of your desired areas.

Electives (0-6 credits required)

Select up to an additional 6 credits of electives that are relevant to your career goals.

Total Program Credits - 60-70

10-825-13 (with 82MD Major)

The Mechanical Design Pathway is an example of a plan you could follow to complete the ITS: Advanced Manufacturing associate degree.

Code	Title	Credits
General Education Courses		
801-136	English Composition 1	3
801-197	Technical Reporting	3
804-197	College Algebra and Trigonometry with Applications	5
809-198	Introduction to Psychology	3
809-196	Introduction to Sociology	3

Core Emphasis Courses

444-118	Surface Grinding Operations	1
444-121	Lathe - Advanced Setups & Tooling	1
444-120	Milling - Advanced Setups & Tooling	1
444-114	Milling - Manual Intermediate	1
444-106	Metrology - Basic	1
444-113	Lathe - Manual Advanced	1
444-112	Lathe - Manual Intermediate	1
444-109	Secondary Operations - Drill Press	1

444-302	Semi-Precision Machining	2
444-300	Shop Computing	2
442-116	Welding Metal Fabrication	1
444-100	Manual Milling 1	1
444-101	Manual Milling 2	1
421-310	Print Reading for Manufacturing	1
444-331	Blueprint Reading 2	1
444-102	Lathe - Manual Basic 1	1
444-103	Lathe - Manual Basic 2	1
444-118	Surface Grinding Operations	1
444-339	CMM Concepts	1
444-338	Manufacturing Support Systems	1
444-355	Intermediate CAM	1
444-340	CNC Turning Operations 1	1
444-335	CNC Mill Fundamentals	1
444-336	CNC Lathe Fundamentals	1
444-354	Basic CAM	1
444-345	CNC Milling Operations 2	1
444-340	CNC Turning Operations 1	1
444-341	CNC Turning Operations 2	1
444-342	CNC Turning Programming 1	1
444-343	CNC Turning Programming 2	1
444-346	CNC Milling Programming 1	1
444-347	CNC Milling Programming 2	1

Technical Studies Courses

606-311	Basic CAD	1
606-312	Intermediate CAD	1
606-310	GD&T Interpretations	1
620-146	Basic Mechanics	1
620-126	Robotics 1	1
620-111	Programming Fundamentals 1	1
606-155	Statics & Dynamics 1	1
606-156	Statics & Dynamics 2	1
606-157	Statics & Dynamics 3	1
623-622	Lean Manufacturing	1
620-121	Programmable Automation Controllers (PACs) 1	1
620-116	Fluid Power 1: Basic Pneumatics	1
620-117	Fluid Power 2: Basic Hydraulics	1

Total Credits 64

10-825-13 (with 82QS Major)

The Quality Specialist Pathway is an example of a plan you could follow to complete the ITS: Advanced Manufacturing associate degree.

Code	Title	Credits
General Education Courses		
801-136	English Composition 1	3
801-198	Speech	3
804-189	Introductory Statistics	3
809-143	Microeconomics	3
809-198	Introduction to Psychology	3

809-196	Introduction to Sociology	3
809-172	Introduction to Diversity Studies	3
Core Emphasis Courses		
102-155	Introduction to Project Management	3
623-622	Lean Manufacturing	1
421-310	Print Reading for Manufacturing	1
606-176	CAD Fund-Solid Modeling	1
623-123	Quality Improvement	3
102-134	Lean Six Sigma	3
623-169	Lean Manufacturing Systems	3
606-310	GD&T Interpretations	1
422-310	Metrology Fundamentals	1
422-311	Metrology Inspection	1
623-814	Reliability Engineering	3
Technical Studies Courses		
196-101	Principles of Supervision	3
196-153	Supervision: Improving Performance and Discipline	1
196-157	Essentials of Quality: Quality Management Basics	1
196-158	Essentials of Quality: Quality Data Assessment	1
196-159	Essentials of Quality: Lean Tools	1
196-168	Organizational Development	3
103-128	Introduction to Microsoft Office Suites	2
196-100	Supervision: Applying Human Resource Procedures	1
5 additional credits in Management or Leadership Development		5
Total Credits		60