

INDUSTRIAL TECHNOLOGY
Associate in Applied Science (AAS) Degree

Minimum Credits: 60
Contact Hours: 75

INTRODUCTION This associate degree program is designed to provide a multi-disciplined technical background. Students interested in pursuing careers in technology can tailor the program to emphasize their major area of interest. The program offers students a broad-based curriculum across all areas of technical education, preparing the graduates for emerging job markets and technical fields. The program is designed to allow students to focus on areas of interest or specialize in one of several technical specializations: Design, Mechatronics, Machining, and Unmanned Remote Robotics. Students, with assistance from an advisor, will select a major area of technical emphasis. These technical courses plus supporting courses from other disciplines comprise the Industrial Technology degree requirements.

Graduates can move on to complete a four-year degree in the field of Engineering Technology and should consult with an academic advisor for this option.

GENERAL EDUCATION COURSES

COURSE	TITLE	CREDITS	CONTACT HOURS
ENG 111 or ENG 120	English Composition I or Applied Communications	3.0	3.0
ENG 112 or ENG 123	English Composition II or Technical Communication	3.0	3.0
MTH 110 or MTH 113	Technical Math I or Intermediate Algebra	3.0-4.0	4.0
MTH 112 or MTH122	Technical Math II or Plane Trigonometry	3.0	3.0-4.0
PLS 221	American Government and Politics	3.0	3.0
PHY 111 or PHY 121	Applied Physics or General College Physics	<u>3.0-4.0</u>	<u>4.0-6.0</u>
GENERAL EDUCATION CREDITS/CONTACT HOURS:		18.0-20.0	20.0-23.0

CORE PROGRAM COURSES

COURSE	TITLE	CREDITS	CONTACT HOURS
APP100E	Electrical Studies ^A	3.0	4.0
CAD150	3D Modeling ^A	3.0	4.0
MFG101	Machining Processes I ^A	4.0	6.0
APP106M	Industrial Safety	1.0	1.0
IND229	Hydraulic and Pneumatic Power ^A	3.0	4.0
MET200	Material Science ^A	3.0	4.0
EGR130	Team Design Project ^A	2.0	3.0

INTRO MANUFACTURING (CHOOSE 1 FROM THE LIST BELOW) ^A		3.0	4.0
MFG122	Manufacturing Processes	3.0	4.0
MFG120	Print Interpretation & Processes	3.0	4.0
APP121M	Apprentice Blueprint Reading	3.0	4.0

INDUSTRIAL COMPUTER KNOWLEDGE (CHOOSE 1 FROM THE LIST BELOW) ^A		3.0-4.0	3.0-6.0
APP114E	Programmable Logic Controllers	3.0	4.0
IND120	Industrial Networking	3.0	4.0
MFG201	Intro to CNC	4.0	6.0
WLD260	Welding Automation	3.0	4.0
MTH119	Intro. To Computers and Programming	3.0	3.0
CIS206	Object Oriented Programming	3.0	4.0
MTH221	C++ Programming	3.0	4.0

CORE PROGRAM CREDITS/CONTACT HOURS: 25.0-26.0 33.0-35.0

SUGGESTED ELECTIVES

From the list below, select courses until at total 60 credits are earned

APP104E,APP111E,APP114E,APP123E	Apprentice – Electrical Courses ^A	3.0	4.0
APP122M,128M,223M	Apprentice – Millwright Courses ^A	1.5-3.0	2.0-4.0
AVI135,136,137	Aviation Unmanned course ^A	1.0	1.25-1.5
CAD220,250	Computer Aided Design Courses ^A	3.0	4.0
CNS150,151,170	Computer Networking Systems Courses ^A	3.0-4.0	4.0-5.0
EGR 122	Introduction to Engineering ^A	1.0	1.0
ELE220	PC Base Data Acquisition and Control ^A	3.0	4.0
IND225	Strength of Materials ^A	4.0	5.0
GEO151,152	Global Information Systems (GIS) ^A	1.5	2.0
MFG102,MFG122,MFG201,MFG204,MFG220	Manufacturing Technology Courses ^A	3.0-6.0	3.0-7.0
WLD123,124,134,135,240,242,250,252,260	Welding Courses ^A	<u>1.5-5.0</u>	<u>2.25-8.0</u>

ELECTIVE CREDITS/CONTACT HOURS: 17.0 22.0

MINIMUM PROGRAM CREDITS/CONTACT HOURS: 60.0 75.0

CONCENTRATION- CNC MACHINING*Elective for concentration in CNC MACHINING*

MFG102	Machining Processes II ^A	4.0	6.0
MFG201	CNC I ^A	From Program Req.	
MFG202	CNC II ^A	4.0	6.0
MFG203	CNC III ^A	4.0	6.0
MFG204	CAM I ^A	3.0	4.0
	Technical Elective ^A	3.0	4.0
PROGRAM WITH CNC MACHINING CONCENTRATION CREDITS/CONTACT HOURS:		62.0-64.0	81.0-85.0

SUGGESTED SEQUENCING OF COURSES FOR CNC MACHINING CONCENTRATION:

YEAR 1 (FALL SEMESTER) <u>14.0-15.0</u> CREDITS		CREDITS	CONTACT HRS	YEAR 1 (SPRING SEMESTER) <u>17.0</u> CREDITS		CREDITS	CONTACT HRS
ENG 111 or ENG 120	3.0	3.0	3.0	ENG 112 or 123	3.0	3.0	3.0
MTH 110 Tech Math I or MTH 113 Inter Alg	3.0-4.0	4.0	4.0	MTH112 Tech Math II or MTH122 Plane Trig	3.0	3.0-4.0	3.0-4.0
MFG 101 Machining Processes	4.0	6.0	6.0	MFG201 CNC1	4.0	6.0	6.0
MFG 122 Manufacturing Processes	3.0	4.0	4.0	CAD150 3D Modeling	3.0	4.0	4.0
APP106M Industrial Safety	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	MFG102 Machining Processes II	<u>4.0</u>	<u>6.0</u>	<u>6.0</u>
TOTAL	14.0-15.0	18.0	18.0	TOTAL	17.0	22.0-23.0	22.0-23.0
YEAR 2 (FALL SEMESTER) <u>16.0</u> CREDITS		CREDITS	CONTACT HRS	YEAR 2 (SPRING SEMESTER) <u>15.0</u> CREDITS		CREDITS	CONTACT HRS
MFG202 CNC II	4.0	6.0	6.0	MFG203 CNC III	4.0	6.0	6.0
APP100E Electrical Studies	3.0	4.0	4.0	MFG204 Computer-Aided Mfg.(CAM)	3.0	4.0	4.0
MET200 Material Science	3.0	4.0	4.0	EGR 130 Team Design Project	2.0	3.0	3.0
IND229 Hydraulic and Pneumatic Power	3.0	4.0	4.0	PHY 111 Applied Physics	3.0	4.0	4.0
PLS221 American Government	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>	Technical Elective	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>
TOTAL	16.0	21.0	21.0	TOTAL	15.0	21.0	21.0

NOTES:

^AIncluded in occupational specialty – GPA of 2.0 or higher must be maintained in the area of occupational specialty.

CONCENTRATION- DESIGN*Elective for concentration in Design*

CAD220	Machine Design ^A	3.0	4.0
CAD250	Advance 3D Modeling ^A	3.0	4.0
MFG204	CAM I ^A	3.0	4.0
IND225	Strength of Materials ^A	4.0	5.0
CIS171,172	Excel ^A	2.0	2.5
	Technical Elective ^A	3.0	4.0
PROGRAM WITH DESIGN CONCENTRATION CREDITS/CONTACT HOURS:		60.0-63.0	76.5-82.5

SUGGESTED SEQUENCING OF COURSES FOR DESIGN CONCENTRATION:

YEAR 1 (FALL SEMESTER) <u>14.0-15.0</u> CREDITS		CREDITS	CONTACT HRS	YEAR 1 (SPRING SEMESTER) <u>15.0</u> CREDITS		CREDITS	CONTACT HRS
MTH 110 Tech Math I or MTH 113 Inter Alg	3.0-4.0	4.0	4.0	MTH112 Tech Math II or MTH122 Plane Trig	3.0	3.0-4.0	3.0-4.0
MFG 101 Machining Processes	4.0	6.0	6.0	PHY 111 Applied Physics	3.0	4.0	4.0
MFG 122 Manufacturing Processes	3.0	4.0	4.0	CAD 150 3D Modeling	3.0	4.0	4.0
APP 100E Electrical Studies	3.0	4.0	4.0	APP114E Programmable Logic Controllers	3.0	4.0	4.0
APP106M Industrial Safety	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	Computer-Aided Mfg.(CAM)	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>
TOTAL	14.0-15.0	21.0	21.0	TOTAL	15.0	19.0-20.0	19.0-20.0
YEAR 2 (FALL SEMESTER) <u>15.0</u> CREDITS		CREDITS	CONTACT HRS	YEAR 2 (SPRING SEMESTER) <u>17.0</u> CREDITS		CREDITS	CONTACT HRS
ENG 111 or ENG 120	3.0	3.0	3.0	ENG 112 or 123	3.0	3.0	3.0
CAD 220 Machine Design	3.0	4.0	4.0	IND 225 Strength of Materials	4.0	5.0	5.0
IND229 Hydraulic and Pneumatic Power	3.0	4.0	4.0	CAD 250 Advanced 3D Modeling	3.0	4.0	4.0
MET 200 Material Science	3.0	4.0	4.0	EGR 130 Team Design Project	2.0	3.0	3.0
PLS221 American Government	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>	CIS 171,CIS 172 Spreadsheets I,II,	2.0	2.5	2.5
TOTAL	15.0	18.0	18.0	Technical Elective	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>
				TOTAL	17.0	21.5	21.5

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[Gainful Employment Information for the Industrial Technology Program](#)

CONCENTRATION- MECHATRONICS

Elective for concentration in Mechatronics

APP107E/CNS151	Specialty Wiring ^A	3.0	4.0
APP123E	Linear electronics ^A	3.0	4.0
CAD220	Machine Design ^A	3.0	4.0
IND120	Industrial Networking ^A	From Program Req.	
APP114E	Programmable Logic Controllers ^A	3.0	4.0
MFG201	CNC I ^A	4.0	6.0
	Technical Elective ^A	3.0	4.0
PROGRAM WITH MECHATRONICS CONCENTRATION CREDITS/CONTACT HOURS:		62.0-65.0	79.0-85.0

SUGGESTED SEQUENCING OF COURSES FOR MECHATRONICS CONCENTRATION:

YEAR 1 (FALL SEMESTER) <u>17.0-18.0</u> CREDITS		CREDITS	CONTACT HRS	YEAR 1 (SPRING SEMESTER) <u>15.0</u> CREDITS		CREDITS	CONTACT HRS
MTH 110 Tech Math I or MTH 113 Inter Alg	3.0-4.0	4.0	MTH112 Tech Math II or MTH122 Plane Trig	3.0	3.0-4.0		
MFG 101 Machining Processes	4.0	6.0	PHY 111 Applied Physics	3.0	4.0		
MFG 122 Manufacturing Processes	3.0	4.0	CAD 150 3D Modeling	3.0	4.0		
APP 100E Electrical Studies	3.0	4.0	APP123E Linear electronics	3.0	4.0		
IND120 Industrial Networking	3.0	4.0	PLS221 American Government	<u>3.0</u>	<u>3.0</u>		
APP106M Industrial Safety	<u>1.0</u>	<u>1.0</u>	TOTAL	15.0	18.0-19.0		
TOTAL	17.0-18.0	23.0					
YEAR 2 (FALL SEMESTER) <u>15.0</u> CREDITS		CREDITS	CONTACT HRS	YEAR 2 (SPRING SEMESTER) <u>15.0</u> CREDITS		CREDITS	CONTACT HRS
ENG 111 or ENG 120	3.0	3.0	ENG 112 or 123	3.0	3.0		
CAD 220 Machine Design	3.0	4.0	APP114E Programmable Logic Controllers	3.0	4.0		
IND229 Hydraulic and Pneumatic Power	3.0	4.0	MFG201 CNC I	4.0	6.0		
MET 200 Material Science	3.0	4.0	EGR 130 Team Design Project	2.0	3.0		
APP107E Specialty Wiring	<u>3.0</u>	<u>4.0</u>	Technical Elective	<u>3.0</u>	<u>4.0</u>		
TOTAL	15.0	19.0	TOTAL	15.0	20.0		

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CONCENTRATION- UNMANNED REMOTE ROBOTICS

Elective for concentration in Unmanned Remote Robotics

MRT101	Introduction to Underwater Robotics ^A	3.0	4.0
AVI135	UAS Pilot Exam Prep ^A	1.0	1.25
AVI136	UAS Ops & Safety ^A	1.0	1.5
AVI137	UAS Payloads & Process ^A	1.0	1.25
APP107E/CNS151	Specialty Wiring ^A	3.0	4.0
APP123E	Linear electronics ^A	3.0	4.0
GEO151	Introduction to GIS ^A	1.5	2.0
GEO152	Advance GIS ^A	1.5	2.0
	Technical Elective ^A	3.0	4.0
PROGRAM WITH UNMANNED REMOTE ROBOTICS CONCENTRATION CREDITS/CONTACT HOURS:		61.0-64.0	79.0-84.0

SUGGESTED SEQUENCING OF COURSES FOR UNMANNED REMOTE ROBOTICS CONCENTRATION:

YEAR 1 (FALL SEMESTER) <u>17.0</u> CREDITS		CREDITS	CONTACT HRS	YEAR 1 (SPRING SEMESTER) <u>15.0</u> CREDITS		CREDITS	CONTACT HRS
MTH 113 Inter Alg	4.0	4.0	MTH122 Plane Trig	3.0	3.0		
MRT 101 Intro. Underwater Robotics	3.0	4.0	GEO151/152 GIS	3.0	4.0		
MFG 122 Manufacturing Processes	3.0	4.0	CAD 150 3D Modeling	3.0	4.0		
APP 100E Electrical Studies	3.0	4.0	APP123E Linear electronics	3.0	4.0		
IND120 Industrial Networking	3.0	4.0	PLS221 American Government	<u>3.0</u>	<u>3.0</u>		
APP106M Industrial Safety	<u>1.0</u>	<u>1.0</u>	TOTAL	15.0	18.0		
TOTAL	17.0	21.0					
YEAR 2 (FALL SEMESTER) <u>17.0</u> CREDITS		CREDITS	CONTACT HRS	YEAR 2 (SPRING SEMESTER) <u>14.0</u> CREDITS		CREDITS	CONTACT HRS
ENG 111 or ENG 120	3.0	3.0	ENG 112 or 123	3.0	3.0		
MFG 101 Machining Processes	4.0	6.0	MET 200 Material Science	3.0	4.0		
IND229 Hydraulic and Pneumatic Power	3.0	4.0	AVI 135/136/137 UAS	3.0	4.0		
PHY 121 Applied Physics	4.0	6.0	EGR 130 Team Design Project	2.0	3.0		
APP107E Specialty Wiring	<u>3.0</u>	<u>4.0</u>	Technical Elective	<u>3.0</u>	<u>4.0</u>		
TOTAL	17.0	23.0	TOTAL	14.0	18.0		

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