

APPLIED ENGINEERING TECHNOLOGY

(Formally Industrial Systems Technology) (Wallace and Sparks Campuses)

The Applied Engineering Technology program provides instruction and skills development in the rapidly growing, related fields of Industrial Systems Technology, Manufacturing Systems Technology and Nuclear Systems Technology. Instruction is presented at a highly technical level, involving the applications of mathematics, science, and communication skills as well as hands-on training in AC and DC fundamentals, process controls, and principles of industrial mechanics and maintenance, robots, programmable controllers, hydraulics and pneumatics, radiation protection and detection, reactor plant protection and safety, and nuclear plant systems. Students will be exposed to a common core of technical courses and will then choose an area of specialization in Industrial Systems Technology, Manufacturing Systems Technology and Nuclear Systems Technology. Successful completion of the program prepares graduates for entry-level employment in a variety of industrial-related fields.

DEGREE CURRICULUM

<i>Course</i>	<i>Credit Hours</i>
Area I: Written and Oral Communications	6
ENG 101 English Composition I	3
SPH 106 Fundamentals of Oral Communication OR	
SPH 107 Fundamentals of Public Speaking	3
Area II: Humanities and Fine Arts	3
Humanities/Fine Arts Elective	3
Area III: Natural Sciences, Mathematics, and Computer Science	9-10
CIS 146 Microcomputer Applications	3
MTH 100 Intermediate College Algebra	3
PHS 112 Physical Science II	4
(Industrial Systems Technology and Manufacturing Systems Technology only)	
CHM 104 Introduction to Inorganic Chemistry	4
(Nuclear Systems Technology only)	
PHY 115 Technical Physics	4
(Nuclear Systems Technology only)	
Area IV: History, Social and Behavioral Sciences	3
PSY 200 Psychology	3
Area V: Career and Technical Core Courses	
ORI 101 Orientation to College OR	
ORI 105 Orientation and Student Success	1-3
ORI 104 WorkKeys® Assessment and Advisement	1
WKO 110 NCCER Core	3
INT 100 Mathematics for Industrial Technicians	3
(Industrial Systems Technology and Manufacturing Systems Technology only)	
INT 101 DC Fundamentals OR	
ELT 108 DC Fundamentals	3
INT 103 AC Fundamentals OR	
ELT 109 AC Fundamentals	3
ELT 221 Electronics for Electricians	3
INT 176 Elements of Industrial Controls	3
INT 113 Industrial Motor Controls I OR	

ELT 209	Motor Controls I	3
INT 213	Industrial Motor Controls II OR	
ELT 212	Motor Controls II	3
Total Core Technical Credits		26-28

After completing the Core Technical Course Requirements, students may choose from the following concentrations:

INDUSTRIAL SYSTEMS TECHNOLOGY CONCENTRATION (IAM)

<i>Course</i>	<i>Credit Hours</i>
Area V: Required Field of Concentration Courses	27-30
INT 117 Principles of Industrial Mechanics	3
INT 134 Principles of Industrial Maintenance	
Welding and Metal Cutting Techniques	3
INT 139 Introduction to Robot Programming	3
INT 105 Introduction to Process Technology	3
INT 208 Advanced Process Simulation	3
INT 177 Elements of Industrial Control Lab	2
INT 118 Fundamentals of Industrial Hydraulics and Pneumatics	3
WKO 106 Workplace Skills	3
Total Concentration Credits	27-30
Total Credits for Degree	74-76

MANUFACTURING SYSTEMS TECHNOLOGY CONCENTRATION (MS6)

This concentration prepares students for Certified Production Technician Testing through the Manufacturing Skill Standards Council (MSSC).

<i>Course</i>	<i>Credit Hours</i>
Area V: Career and Technical Courses	28
INT 105 Introduction to Process Technology	3
WKO 131 MSSC Safety	3
WKO 132 MSSC Quality Practices and Measure	3
WKO 133 MSSC Manufacturing Processes and Production	3
INT 117 Principles of Industrial Mechanics	3
INT 208 Advanced Process Simulation	3
INT 177 Elements of Industrial Control Lab	2
INT 118 Fundamentals of Industrial Hydraulics and Pneumatics	3
INT 134 Principles of Industrial Maintenance Welding and Metal Cutting Techniques	3
Total Concentration Credits	26-29
Total Credits for Degree	74-76

NUCLEAR SYSTEMS TECHNOLOGY CONCENTRATION (IAC)

(Wallace Campus Only)

<i>Course</i>	<i>Credit Hours</i>
Area V: Required Field of Concentration Courses	28
MTH 103 Introduction to Technical Mathematics	3
PHY 115 Technical Physics	4
INT 105 Introduction to Process Technology	3
INT 117 Principles of Industrial Mechanics	3
INT 118 Fundamentals of Industrial Hydraulics and Pneumatics	3
NUC 118 Radiation Protection and Detection	3
NUC 119 Reactor Plant Protection and Safety Design	3
NUC 120 Nuclear Plant Systems I	3

NUC 121	Nuclear Plant Systems II	3
	Total Concentration Credits	28
	Total Credits for Degree	73-75

WKO 133	MSSC Manufacturing Processes and Production	3
WKO 134	Maintenance Awareness	3
	Total Credits for Short Certificate	12

Industrial Systems Technology
Associate in Applied Science Degree
Suggested Course Sequence

FIRST SEMESTER	SECOND SEMESTER	THIRD SEMESTER
ORI 101 or 105*	ENG 101	ELT 221
CIS 146	INT 103 or ELT 109	INT 176
MTH 100	INT 117	ORI 104
PHS 112	SPH 106 or 107	INT 118
INT 101 or ELT 108	Humanities/Fine Arts	INT 113 or ELT 209
WKO 110	Elective	
<i>*If applicable, ORI 101 or 105 is required for all first-time college students.</i>		
FOURTH SEMESTER	FIFTH SEMESTER	
INT 213 or ELT 212	PSY 200	
INT 139	INT 177	
INT 134	INT 208	
INT 105	INT 291	
	WKO 106	

MANUFACTURING PRODUCTION TECHNOLOGY

(This short certificate program prepares students for Certified Production Technician Testing through the Manufacturing Skill Standards Council (MSSC).

Course		Credit Hours
Area V:	Career and Technical Courses	
WKO 110	NCCER Core	3
INT 100	Mathematics for Industrial Technicians	3
INT 107	Fundamentals of Electricity I	3
INT 105	Introduction to Process Technology	3
WKO 131	MSSC Safety	3
WKO 132	MSSC Quality Practices and Measurement	3
WKO 133	MSSC Manufacturing Processes and Production	3
INT 117	Principles of Industrial Mechanics	3
INT 176	Elements of Industrial Control	3
INT 177	Elements of Industrial Control Lab	2
	Total Credits for Short Certificate	29

Nuclear Systems Technology
Associate in Applied Science Degree
Suggested Course Sequence

FIRST SEMESTER	SECOND SEMESTER	THIRD SEMESTER
WKO 110	INT 103 or ELT 109	INT 113 or ELT 209
CIS 146	INT 117	ORI 104
MTH 100	SPH 106 or 107	INT 176
INT 101 or ELT 108	PSY 200	ELT 221
ENG 101	Humanities/Fine Arts	INT 118
ORI 101 or 105*	Elective	
<i>*If applicable, ORI 101 or 105 is required for all first-time college students.</i>		
FOURTH SEMESTER	FIFTH SEMESTER	
CHM 104	NUC 120	
INT 105	PHY 115	
NUC 118	NUC 121	
NUC 119	MTH 103	
INT 213 or ELT 212		

SHORT CERTIFICATE CURRICULUM
INDUSTRIAL SYSTEMS TECHNOLOGY

Course		Credit Hours
Area V:	Required Field of Concentration Courses	
INT 118	Fundamentals of Industrial Hydraulics and Pneumatics	3
INT 113	Industrial Motor Controls I	3
INT 213	Industrial Motor Controls II	3
INT 101	DC Fundamentals OR	
ELT 108	DC Fundamentals	3
INT 103	AC Fundamentals OR	
ELT 109	AC Fundamentals	3
INT 134	Principles of Industrial Maintenance Welding and Metal Cutting Techniques	3
INT 176	Elements of Industrial Control	3
INT 177	Elements of Industrial Control Lab	2
	Total Credits for Short Certificate	24

MSSC CERTIFIED PRODUCTION TECHNICIAN (MPT)

Course		Credit Hours
Area V: Required Field of Concentration Courses		
WKO 131	MSSC Safety	3
WKO 132	MSSC Quality Practices and Measurement	3