

ENGINEERING AND INDUSTRIAL TECHNOLOGY

The college offers Engineering and Industrial Technology programs in 19 different fields. These programs are designed to prepare students for immediate employment or to help them upgrade skills they already use.

Three different lengths of program give students convenient options. Career studies programs supply basic skills. Certificate programs add more advanced training and general education courses. Associate of Applied Science (AAS) programs include both basic and advanced courses in the major field as well as general education requirements. Programs, whatever the level, may offer more than one track, or area of specialization.

Students must meet extra requirements or complete prerequisites before being admitted to some of the Engineering and Industrial Technology programs. These requirements are listed with the individual program descriptions.

Students may include related work experience as part of their education. The college's cooperative education program allows them to earn income while they gain experience and college credit.

AUTOMOTIVE TECHNOLOGY

This National Automotive Technician Education Foundation (NATEF) Certified Automotive Technician Training Program prepares students to begin employment as automotive technicians or to upgrade their skills if they are already employed in the field. The program also prepares students for the National Institute for Automotive Service Excellence (ASE) Certified Automotive Technician examinations and Virginia state inspection certification.

The career studies program will give students the background they need for entry-level positions as an engine performance, air conditioning, or electrical technician. The certificate can lead to employment as an automotive tune-up specialist, troubleshooter, or diagnostic specialist. With the associate's degree, students may become a diagnostician, line technician, service advisor, manager, or manufacturing representative.

The college offers the Toyota T-TEN Automotive Technology program. This is a program in automotive technology that is a partnership with Toyota Motor Sales, Toyota and Lexus dealers, and the college. Its mission is to support Toyota and Lexus dealerships success by providing skilled, entry-level automotive service personnel. Students are provided specific Toyota training in addition to the regular A.A.S. automotive technology curriculum.

The college also offers the DaimlerChrysler College Automotive program (CAP). Along with classroom instruction, CAP offers on-site training at sponsoring Chrysler, Dodge, and Jeep dealerships under the direction of master technicians. Students rotate class time and internship while fulfilling requirements of an AAS Degree in Automotive Technology.

ASSOCIATE OF APPLIED SCIENCE DEGREE: AUTOMOTIVE TECHNOLOGY (909)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
AUT 166	Automotive Diagnosis I	5	
AUT 167	Automotive Diagnosis II	5	AUT 166
ENG 111	College Composition I	3	Placement
SDV 106	Preparation for Employment (or SDV 100)	1	
	Health/Physical Education ¹	1	
Semester Total		15	



SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
AUT 168	Automotive Diagnosis III	5	AUT 167
AUT 169	Automotive Diagnosis IV	5	AUT 168
MTH 103	Applied Technical Mathematics	3	Placement
	Humanities Elective ¹	3	
Semester Total		16	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
AUT 297	Cooperative Education in Automotive	3	AUT 166
Semester Total		3	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
AUT 220	Automotive Diagnosis V	5	AUT 166
AUT 221	Automotive Diagnosis VI	5	AUT 166
AUT 297	Cooperative Education in Automotive	3	AUT 166
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 5

Course No.	Course Title	Credits	Prerequisite
AUT 247	Automotive Diagnosis VII	5	AUT 166
AUT 248	Automotive Diagnosis VIII	5	AUT 166
AUT 297	Cooperative Education in Automotive	1	AUT 166
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		15	

Total Minimum Credits	65
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**CAREER STUDIES:
AUTOMOTIVE ENGINE DIAGNOSIS (062)**

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
AUT 166	Automotive Diagnosis I	5	
AUT 167	Automotive Diagnosis II	5	AUT 166
AUT 297	Cooperative Education in Automotive	2	AUT 166
Semester Total		12	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
AUT 168	Automotive Diagnosis III	5	AUT 167
AUT 169	Automotive Diagnosis IV	5	AUT 168
AUT 297	Cooperative Education in Automotive	2	AUT 166
Semester Total		12	

Total Minimum Credits	24
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**CAREER STUDIES:
AUTO PARTS MANAGEMENT TRAINEE (062.02)**

This career studies certificate is offered in partnership with Advance Auto Parts.

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
BUS 100	Introduction to Business	3	
BUS 205	Human Resource Management	3	
ENG 111	College Composition I	3	Placement
MKT 100	Principles of Marketing	3	
Semester Total		12	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
AST 205	Business Communications	3	ENG 111
BUS 200	Principles of Management	3	BUS 100
	Approved Electives*	3	
	Approved Electives*	3	
Semester Total		12	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
BUS 202	Applied Management Principles	3	BUS 200
Semester Total		3	

Total Minimum Credits	27
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* Students may select electives from the following list without approval:

ACC 220	Accounting for Small Business	3
AUT 101	Introduction to Automotive Systems	3
BUS 111	Principles of Supervision	3
BUS 297	Cooperative Education	1-6
ITE 115	Basic Computer Literacy	4
MKT 110	Principles of Selling	3
MKT 260	Customer Service Management	3
MKT 271	Consumer Behavior	3
STD 106	Preparation for Employment	1

**CAREER STUDIES:
AUTOMOTIVE SERVICE AND PARTS SPECIALIST (062.03)**

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
AST 117	Keyboarding	1	
AUT 101	Introduction to Automotive Services	3	
AUT ____	Vehicle Systems Knowledge I	3	
ENG 111	College Composition I (or ENG 131)	3	Placement
SPD 105	Oral Communications	3	
Semester Total		13	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ACC 220	Accounting for Small Business (or ACC 211)	3	
ITE 115	Introduction to Computer Applications and Concepts (or SAF 125)	4	
MTH 103	Applied Technical Mathematics (or MTH 121)	3	Placement
AUT ____	Vehicle Systems Knowledge II	3	
Semester Total		13	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
AUT 297	Cooperative Education in Automotive	3	AUT 166
Semester Total		3	
Total Minimum Credits		29	

**CAREER STUDIES:
DIESEL AND INDUSTRIAL MACHINE REPAIR (062.01)**

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
DSL 121	Diesel Engines I	6	
DSL 143	Diesel Truck Electrical Systems	4	
Semester Total		10	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
DSL 122	Diesel Engines II	5	
DSL 152	Diesel Power Trains, Chassis, and Suspension	4	
Semester Total		9	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
DSL 133	Diesel Fuel and Injection Systems	6	
Semester Total		6	
Total Minimum Credits		25	

1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your academic advisor or counselor to choose the appropriate course(s).

CIVIL ENGINEERING

The Civil Engineering Technology program prepares students to enter the field with instruction in theoretical concepts and practical experience. Options include two different career studies and an associate's degree.

Students earning the Inspection/Lab Technician career studies certificate become inspector assistants or construction material testers.

The Civil Engineering Technician career studies certificate prepares graduates to take entry-level positions in the fields of surveying, laboratory testing, drafting, and transportation.

With the associate's degree, graduates work as civil engineering technicians, construction inspectors, estimators, surveyors, construction superintendents, or civil or highway engineering aides.

ASSOCIATE OF APPLIED SCIENCE DEGREE: CIVIL ENGINEERING TECHNOLOGY (915)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
CIV 110	Introduction to Civil Engineering Technology	2	
CIV 116	Topographic Drafting	3	
MTH 115	Technical Mathematics ³	3	Placement
SDV 100	College Success Skills	1	
	Humanities Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		15	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
CIV 115	Civil Engineering Drafting	3	
CIV 135	Construction Management And Estimating	3	
ENG 111	College Composition I	3	Placement
MTH 116	Technical Mathematics II ³	3	MTH 115
	Social Science Elective ¹	3	
	Approved Technical Elective ²	3	
Semester Total		18	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
CIV 171	Surveying I	3	MTH 115
CIV 228	Concrete Technology	2	Coreq: CIV 229
CIV 229	Concrete Laboratory	1	Coreq: CIV 228
CIV 235	Asphalt Technology	2	Coreq: CIV 236
CIV 236	Asphalt Laboratory	1	Coreq: CIV 235
MEC 131	Mechanics I – Statics for Engineering Technology	3	MTH 116
	Health/Physical Education ¹	2	
	Approved Technical Elective ²	3	
Semester Total		17	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
CIV 172	Surveying II	3	CIV 171
CIV 225	Soil Mechanics	2	Coreq: CIV 226
CIV 226	Soil Mechanics Laboratory	1	Coreq: CIV 225
CIV 240	Fluid Mechanics and Hydraulics	3	MEC 131
MEC 132	Mechanics II – Strength of Materials for Engineering Technology	3	MEC 131
	Approved Technical Elective ²	3	
Semester Total		15	
Total Minimum Credits		65	

**CAREER STUDIES:
CIVIL ENGINEERING TECHNICIAN (077.02)**

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
CIV 110	Introduction to Civil Engineering Technology	2	
CIV 116	Topographic Drafting	3	
CIV 171	Surveying I	3	MTH 115
CIV 228	Concrete Technology	2	Coreq: CIV 229
CIV 229	Concrete Laboratory	1	Coreq: CIV 228
CIV 235	Asphalt Technology	2	Coreq: CIV 236
CIV 236	Asphalt Laboratory	1	Coreq: CIV 235
MTH 115	Technical Mathematics ³	3	Placement
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
CIV 115	Civil Engineering Drafting	3	
CIV 120	Masonry Technology	3	
CIV 172	Surveying II	3	CIV 171
CIV 225	Soil Mechanics	2	Coreq: CIV 226
CIV 226	Soil Mechanics Laboratory	1	Coreq: CIV 225
Semester Total		12	
Total Minimum Credits		29	

**CAREER STUDIES:
INSPECTIONS/LAB TECHNOLOGY (077.03)**

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
CIV 110	Introduction to Civil Engineering Technology	2	
CIV 228	Concrete Technology	2	Coreq: CIV 229
CIV 229	Concrete Laboratory	1	Coreq: CIV 228
CIV 235	Asphalt Technology	2	Coreq: CIV 236
CIV 236	Asphalt Laboratory	1	Coreq: CIV 235
Semester Total		8	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
CIV 225	Soil Mechanics	2	Coreq: CIV 226
CIV 226	Soil Mechanics Laboratory	1	Coreq: CIV 225
Semester Total		3	
Total Minimum Credits		11	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Eligible courses for Approved Technical Elective include DRF 151, DRF 201, GIS 200, GIS 201 and any course with a CIV prefix not required for degree.
- 3 MTH 163 and MTH 164 can be substituted for MTH 115 and MTH 116.

COMPUTER AIDED DRAFTING AND DESIGN PROGRAM (CADD)

The Computer Aided Drafting and Design Program at Tidewater Community College is offered at the Portsmouth and Virginia Beach campuses. It allows the student to work in two areas of specialization, Architectural Drafting and Design Technology and Mechanical Drafting and Design Technology.

ARCHITECTURAL DRAFTING AND DESIGN TECHNOLOGY

The architectural drafting specialization is offered at the Virginia Beach campus.

The associate's degree prepares students for employment as an advanced CADD drafter or designer for an architectural or civil engineering firm. See a faculty advisor for additional information about other options that may be available.

ASSOCIATE OF APPLIED SCIENCE DEGREE: COMPUTER AIDED DRAFTING AND DESIGN TECHNOLOGY SPECIALIZATION: ARCHITECTURAL DRAFTING AND DESIGN (729.01)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ARC 100	Introduction to Architecture	3	
DRF 151*	Engineering Drawing Fundamentals I	3	Coreq: DRF 201
DRF 201	Computer Aided Drafting And Design I	4	Coreq: DRF 151
ENG 111	College Composition I	3	Placement
MTH 115	Technical Mathematics	3	Placement
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ARC 121	Architectural Drafting I	3	Coreq: ARC133
ARC 133	Materials and Methods of Construction I	3	Coreq: ARC 121
DRF 202	Computer Aided Drafting And Design II	4	DRF 201
MTH 116	Technical Mathematics II	3	MTH 115
	Approved Technical Elective ²	3	
	Health/Physical Education ¹	1	
Semester Total		17	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
ARC 122	Architectural Drafting II	3	ARC 121
ARC 221	Architectural CAD Applications Software	3	ARC 121 and ARC 133
MEC 131	Mechanics I – Statics for Engineering Technology	3	MTH 116
PHY 201	General College Physics I (or Approved Technical Elective ²)	4	
	Social Science Elective ¹	3	
	Health/Physical Education ¹	1	
Semester Total		17	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
DRF 280	Design Capstone Project	3	ARC 122 and ARC 221 or DRF 201 and DRF 211
MEC 132	Mechanics II – Strength of Materials for Engineering Technology	3	MEC 131
PHY 202	General College Physics II (or Approved Technical Elective ²)	4	PHY 201
	Humanities Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		16	
Total Minimum Credits		67	

* Students enrolled in DRF 151 should also enroll in DRF 201. If a student can only enroll in one of these courses, DRF 151 will be the first course on the Virginia Beach Campus.

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Consult with your faculty advisor or counselor. Eligible courses for Approved Technical Elective include any ARC, MEC or DRF courses not required in the program.

COMPUTER AIDED DRAFTING AND DESIGN PROGRAM (CADD)

MECHANICAL DRAFTING AND DESIGN TECHNOLOGY

The Mechanical Drafting and Design Technology specialization is offered at the Portsmouth and Virginia Beach campuses and focuses on preparing students to work successfully in computer aided design and related computer aided manufacturing operations (CAD/CAM). Graduates typically find employment in the fields of mechanical and machine design, structural, manufacturing, civil engineering, marine design, construction, and related areas. Using Autodesk Software, students learn to prepare working drawings reflecting national and international standards, practices, and procedures. Additionally, students learn to prepare engineering drawings supporting mechanical engineering and design utilizing welding details, industrial piping, geometric dimensioning and tolerancing (GD&T), electrical schematics, sheet metal developments, and solid modeling.

Business and industry professionals can update their skills and knowledge relating to AutoCAD and Autodesk Software, current ANSI and ISO Standards and procedures, and improve their knowledge of material selection and processing for efficient design.

TCC utilizes the latest Autodesk Software Products. The Portsmouth Campus is a Premier Authorized Training Center for AutoCAD (ATC).

The certificate program provides the student with the basic skills and knowledge necessary for an entry-level position as a CADD operator or drafting/design assistant.

The degree program provides a more thorough background, performance skills, and experiences necessary for higher-level positions and the potential for success in the field. Graduates of the program are prepared for employment in CAD/CAM areas of business and industry.

In addition to providing for college transfer opportunities and preparing students to move directly into business and industry upon graduation, the CADD Program is designed to work in partnership with local business and industry to meet their educational and training needs.

The Northrop Grumman Newport News Design CO-OP Work-Study program is an example of that cooperation. Northrop Grumman Newport News (NGNN) and Tidewater Community College have entered into an agreement to jointly train the next generation of marine designers at NGNN. There is no previous design experience required to begin this program. NGNN will pay all of the tuition costs of

qualified CADD students to complete their AAS Degree in the Mechanical Drafting and Design Technology Program. This educational opportunity is based on a coordinated program of full-time study and on-the-job work experiences. Students will participate in a program of full-time academic studies at TCC and two semesters of full-time employment at NGNN, where the student will be working in the design and engineering area. Students will work under the guidance and direction of practicing professional engineers and designers. Generally, CADD students are accepted into the CO-OP program at selected times of the year, defined by NGNN. Students starting the CO-OP program at the beginning of the CADD program would be expected to complete their AAS Degree in two and one-half years. Upon completion of the AAS Mechanical Drafting and Design Technology degree, the student may be offered a full-time job with Northrop Grumman Newport News in a design-related area. Contact Lorenz Drake (822-2426 or e-mail ldrake@tcc.edu) or Ralph Denton (822-7178 or e-mail rdenton@tcc.edu) for specific information about this CO-OP Work-Study program.

ASSOCIATE OF APPLIED SCIENCE DEGREE: COMPUTER AIDED DRAFTING AND DESIGN SPECIALIZATION: MECHANICAL DRAFTING AND DESIGN TECHNOLOGY (729)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
DRF 151*	Engineering Drawing Fundamentals I	3	Coreq: DRF 201
DRF 201	Computer Aided Drafting and Design I	4	Coreq: DRF 151
ENG 111	College Composition I	3	Placement
MEC 111	Materials for Industry	3	
MTH 115	Technical Mathematics	3	Placement
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
DRF 152	Engineering Drawing Fundamentals II	3	DRF 151
DRF 202	Computer Aided Drafting and Design II	4	DRF 201
MTH 116	Technical Mathematics II	3	MTH 115
	Health/Physical Education ¹	1	
	Humanities Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		17	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
DRF 211	Advanced Technical Drafting I	3	DRF 201 and DRF 202
DRF 247	Ship Design Drafting (or Approved Technical Elective ²)	3	DRF 201
MEC 131	Mechanics I – Statics for Engineering Technology	3	MTH 116
PHY 201	General College Physics I (or Approved Technical Elective ²)	4	
	Approved Technical Elective ²	3	
Semester Total		16	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
DRF 212	Advanced Technical Drafting II	3	DRF 201 and DRF 202
DRF 280	Design Capstone Project	3	
MEC 132	Mechanics II – Strength of Materials for Engineering Technology	3	MEC 131
PHY 202	General College Physics II (or Approved Technical Elective ²)	4	PHY 201
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		17	
Total Minimum Credits		67	

CERTIFICATE: COMPUTER AIDED DRAFTING AND DESIGN TECHNOLOGY (727.02)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
DRF 151*	Engineering Drawing Fundamentals I	3	Coreq: DRF 201
DRF 201	Computer Aided Drafting And Design I	4	Coreq: DRF 151
ENG 111	College Composition I	3	Placement
MEC 111	Materials for Industry	3	
MTH 115	Technical Mathematics	3	Placement
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
DRF 152	Engineering Drawing Fundamentals II	3	DRF 151
DRF 202	Computer Aided Drafting And Design II	4	DRF 201
DRF 297	Cooperative Education in CADD (or Approved Technical Elective ²)	3	
	Approved Technical Elective ²	3	
	Social Science Elective ¹	3	
Semester Total		16	
Total Minimum Credits		33	

* Students enrolled in DRF 151 should also enroll in DRF 201. If a student can only enroll in one of these courses, DRF 151 will be the first course.

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Consult with your faculty advisor or counselor. Eligible courses include any ARC, MEC, or DRF courses not required in the program.

ELECTROMECHANICAL CONTROLS TECHNOLOGY

CONTROLS

The career studies certificate plan in Controls prepares students to install, adjust, and troubleshoot industrial controls. With an Associate of Applied Science degree, students will be ready for a job as an industrial machine installer/repairer, electrical/electronic equipment repairer, office machine repairer, mechanical control and valve repairer, programmable controller installer and repairer, electrical and electronic equipment assembler, electromechanical systems repairer and an automated machinery maintenance mechanic.

ELECTRICAL WIRING

The career studies certificate plan in Electrical Wiring for Technicians provides the classroom training required by the state to sit for the electrician licensing exam. The career studies certificate plan in Electrical Wiring includes additional training in electrical theory and electrical power and motor controls.

The certificate in Electrical Wiring prepares students as electricians and helps those already employed to upgrade their skills and knowledge for advancement. The associate's degree graduate can work as an electrician in industrial machine installation and repair, electrical/electronic equipment repair, mechanical control and valve repair, programmable controller installation and repair, electrical/electronic equipment assembly, electromechanical systems repair, and automatic machinery maintenance.

**ASSOCIATE OF APPLIED SCIENCE DEGREE:
ELECTROMECHANICAL CONTROLS TECHNOLOGY (706.01)**

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ELE 127	Residential Wiring Methods (or ELE 149)	3	
ELE 131	National Electrical Code I	4	
ELE 150	AC/DC Circuit Fundamentals	3	
ELE	Approve ELE Elective ³	3	
ENG 111	College Composition I	3	Placement
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ELE 132	National Electrical Code II	4	ELE 131
ELE 145	Transformer Connections And Circuits	2	ELE 150
MTH 103	Applied Technical Mathematics I (or MTH 115)	3	Placement
PHY 130	Survey of Applied Physics	3	
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
ELE 146	Electric Motor Controls	4	ELE 150
ETR 203	Electronic Devices I	3	ELE 150
MEC 126	Computer programming for Technologies	3	ELE 150
MEC 269	Fluid Power Pneumatic Systems	3	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
ELE 233	Programmable Logic Controller Systems I	3	ELE 146
ETR 281	Digital Systems	3	
MEC 268	Fluid Power Hydraulic Systems	3	
	Approved Technical Elective ²	3	
	Health/Physical Education ¹	1	
	Humanities Elective ¹	3	
Semester Total		16	
Total Minimum Credits		65	

CERTIFICATE: ELECTRICAL WIRING (942.01)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
ELE 127	Residential Wiring Methods	3	
ELE 131	National Electrical Code I	4	
ELE 150	AC/DC Circuit Fundamentals	3	
ELE	Approve ELE Elective ³	3	
ENG 111	College Composition I	3	Placement
Semester Total		16	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ELE 132	National Electrical Code II	4	ELE 131
ELE 145	Transformer Connections And Circuits	2	ELE 150
ELE 146	Electric Motor Controls	4	ELE 150
ELE 149	Wiring Methods in Industry	3	
MTH 103	Applied Technical Mathematics I (or MTH 115)	3	Placement
Semester Total		16	
Total Minimum Credits		32	

CAREER STUDIES: CONTROLS (053.02)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
ELE 150	AC/DC Circuit Fundamentals	3	
ETR 203	Electronic Devices I	3	
ETR 281	Digital Systems	3	
MEC 269	Fluid Power Pneumatic Systems	3	
Semester Total		12	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ELE 146	Electric Motor Controls	4	
ELE 233	Programmable Logic Control Systems I	3	
MEC 268	Fluid Power Hydraulic Systems	3	
Semester Total		10	
Total Minimum Credits		22	

CAREER STUDIES: ELECTRICAL WIRING (053.01)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
ELE 127	Residential Wiring	3	
ELE 131	National Electrical Code I	4	
ELE 150	AC/DC Circuit Fundamentals	3	
Semester Total		10	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ELE 132	National Electrical Code II	4	ELE 131
ELE 145	Transformer Connections And Circuits	2	ELE 150
ELE 146	Electric Motor Controls	4	ELE 150
ELE 149	Wiring Methods in Industry	3	
Semester Total		13	
Total Minimum Credits		23	

CAREER STUDIES: ELECTRICAL WIRING FOR TECHNICIANS (053.03)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
ELE 131	National Electrical Code I	4	
ELE	Approved ELE Elective ³	3	
Semester Total		7	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ELE 132	National Electrical Code II	4	ELE 131
ELE	Approved ELE Elective ³	3	
Semester Total		7	
Total Minimum Credits		14	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your academic advisor or counselor to choose the appropriate course(s).
- 2 Consult with your academic advisor or counselor. Courses must be approved by the appropriate academic dean.
- 3 The ELE electives may be ELE 150, ELE 127, ELE 149, or another course approved by the appropriate academic dean.

ELECTRONICS TECHNOLOGY

ELECTRONICS AND COMPUTER ENGINEERING TECHNOLOGY

The certificate will train students for entry level electronic technician positions, or help you advance within the field. The Associate of Applied Science degree can qualify students to seek such positions as biomedical equipment technician, communication electronics technician, computer electronics technician, electrical/electronic technician, and electrical/electronics engineering technician.

Entry into this plan requires the following high school units or their equivalent as a minimum: four units of English, three units of mathematics (two units of algebra, one unit of geometry), one unit of laboratory science and one unit of social studies.

ASSOCIATE OF APPLIED SCIENCE DEGREE: ELECTRONICS TECHNOLOGY SPECIALIZATION: ELECTRONICS AND COMPUTER ENGINEERING TECHNOLOGY (981.04)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
ETR 104	Electronic Fundamentals With Computer Applications	4	Coreq: MTH 166
MTH 166	Precalculus with Trigonometry	5	Placement
SDV 100	College Success Skills	1	
	Health/Physical Education ¹	1	
	Humanities Elective ¹	3	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ENG 112	College Composition II	3	ENG 111
ETR 113	DC and AC Fundamentals I	4	ETR 104
ETR 279	Digital Principles, Terminology, and Applications	4	
MTH 173	Calculus with Analytic Geometry I	5	MTH 166
Semester Total		16	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
ETR 114	DC and AC Fundamentals II	4	ETR 113
ETR 148	Amplifiers and Integrated Circuits	4	ETR 113
	Social Science Elective ¹	3	
Semester Total		11	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
ETR 250	Solid State Circuits	4	ETR 148
ETR 261	Microprocessor Applications I ³	4	
PHY 201	General College Physics I	4	MTH 163 or MTH 166
Semester Total		12	

SEMESTER 5

Course No.	Course Title	Credits	Prerequisite
ETR 297	Cooperative Education (or Approved Elective) ²	4	
PHY 202	General College Physics II	4	PHY 201
	Social Science Elective ¹	3	
	Health/Physical Education ¹	1	
Semester Total		12	
Total Minimum Credits		68	

CERTIFICATE: ELECTRONICS ENGINEERING TECHNOLOGY (943.01)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
ETR 104	Electronic Fundamentals With Computer Applications	4	Coreq: MTH 166
MTH 166	Precalculus with Trigonometry	5	Placement
SDV 100	College Success Skills	1	
Semester Total		13	



SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ETR 113	DC and AC Fundamentals I	4	ETR 104
ETR 279	Digital Principles, Terminology, and Applications	4	
Semester Total		8	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
ETR 114	DC and AC Fundamentals II	4	ETR 113
ETR 148	Amplifiers and Integrated Circuits	4	ETR 113
	Social Science Elective ¹	3	
Semester Total		11	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
ETR 250	Solid State Circuits	4	ETR 148
ETR 261	Microprocessor Applications I ³	4	
Semester Total		8	
Total Minimum Credits		40	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Approved elective must be one of the following: ETR 228, ETR 241 (prerequisite ETR 148), ETR 293, or EGR 125.
- 3 ETR 193 Introduction to LabVIEW can be substituted for ETR 261.

Note:
Successful completion of this program satisfies the college computer competency requirement.

**ELECTRONICS TECHNOLOGY
ELECTRONIC METROLOGY**

Admission to this program requires the student to have the following high school units (or their equivalent): four units of English, three units of mathematics (two of algebra and one of geometry), one unit of laboratory science, and one unit of social studies. Those students who complete the Careers Studies Certificate in Electronic Metrology - Practicing Calibrator may carry those credits to the AAS degree program. Graduates of the degree program will be prepared for employment in a variety of fields, such as telecommunications, manufacturing, quality assurance, and quality control.

**ASSOCIATE OF APPLIED SCIENCE DEGREE
ELECTRONICS TECHNOLOGY
SPECIALIZATION: ELECTRONIC METROLOGY (981.07)**

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
ETR 104	Electronic Fundamentals With Computer Applications	4	Coreq: MTH 166
MTH 166	Precalculus with Trigonometry	5	Placement
SDV 100	College Success Skills	1	
	Health/Physical Education ¹	1	
Semester Total		14	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ENG 112	College Composition II	3	ENG 111
ETR 113	DC and AC Fundamentals I	4	ETR 104
ETR 279	Digital Principles, Terminology, and Applications	4	
IND 145	Introduction to Metrology	3	
Semester Total		14	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
ETR 114	DC and AC Fundamentals II	4	ETR 113
ETR 148	Amplifiers and Integrated Circuits	4	ETR 113
IND 146	Statistical Quality Control	3	IND 145
Semester Total		11	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
ETR 248	Test Instruments and Measurements	2	ETR 113
ETR 250	Solid State Circuits	4	ETR 148
PHY 201	General College Physics I	4	MTH 163 or MTH 166
	Humanities Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 5

Course No.	Course Title	Credits	Prerequisite
ETR 193	Introduction to LabVIEW	4	
PHY 202	General College Physics II	4	PHY 201
	Social Science Elective ¹	3	
	Health/Physical Education ¹	1	
Semester Total		12	
Total Minimum Credits		67	

CAREER STUDIES: ELECTRONIC METROLOGY - PRACTICING CALIBRATOR (078.02)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
ETR 104	Electronic Fundamentals With Computer Applications	4	Coreq: MTH 166
IND 145	Introduction to Metrology	3	
MTH 166	Precalculus with Trigonometry	5	Placement
Semester		12	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
ETR 113	DC and AC Fundamentals I	4	ETR 104
ETR 193	Introduction to LabVIEW	4	
IND 146	Statistical Quality Control	3	IND 145
Semester Total		11	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
ETR 148	Amplifiers and Integrated Circuits	4	ETR 113
ETR 248	Test Instruments and Measurements	2	ETR 113
Semester Total		6	
Total Minimum Credits		29	

¹ Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).

Note:

Successful completion of this program satisfies the college computer competency requirement.

INDUSTRIAL INDUSTRIAL MAINTENANCE TECHNOLOGY

This program is designed to provide training for students working in industrial maintenance, providing them with new technologies and skills in managerial techniques of supervision, process management control, quality assurance, and project management

Graduates will be prepared for the following job opportunities: plant maintenance coordinator, equipment maintenance coordinator, production-planning maintenance technician, or maintenance supervisor in a shipyard, manufacturing or assembly operation, or warehousing environment.

ASSOCIATE OF APPLIED SCIENCE DEGREE: INDUSTRIAL SPECIALIZATION: INDUSTRIAL MAINTENANCE TECHNOLOGY (963.10)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
ENV/IND	Approved Elective ²	3	
ENV/IND	Approved Elective ²	3	
MTH 115	Technical Mathematics I	3	Placement
SAF 120	Safety and Health Standards REG/Codes	3	
SDV 100	College Success Skills	1	
Semester Total		16	





SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
IND 115	Materials and Processes of Industry	4	
IND 145	Introduction to Metrology	3	
IND 146	Statistical Quality Control	3	
MTH 116	Technical Mathematics II	3	MTH 115
SAF 125	Computer Applications for Technicians	4	
Semester Total		17	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
IND 101	Quality Assurance Technology I	3	
IND 150	Industrial Management	3	
IND 165	Principles of Industrial Technology	3	
SAF 136	Industrial Safety Design And Maintenance Management	3	
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
IND 105	Nondestructive Testing and Inspection	3	
IND 166	Principles of Industrial Technology	3	
IND 293	Project Management	3	
	Health/Physical Education ¹	1	
	Humanities Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		16	
Total Minimum Credits		65	

CAREER STUDIES: INDUSTRIAL MAINTENANCE (067)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
DRF 160	Machine Blueprint Reading	3	
ENV/IND	Approved Elective ²	3	
SAF 120	Safety and Health Standards REG/Codes	3	
SAF 297	Cooperative Education (or Approved Technical Elective) ²	3	
SDV 100	College Success Skills	1	
Semester Total		13	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
IND 115	Materials and Processes of Industry	4	
IND	Approved IND Elective ²	3	
IND	Approved IND Elective ²	3	
Semester Total		10	
Total Minimum Credits		23	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Consult with your faculty advisor or counselor. Courses must be approved by the appropriate academic dean.

INDUSTRIAL

INDUSTRIAL MANAGEMENT

The Industrial Management program is designed to prepare “management-oriented technical professionals” with the practical knowledge, skills, and training to compete effectively for entry-level positions in industrial manufacturing, and engineering services companies throughout the United States.

Graduates will be prepared for the following job opportunities: industrial or manufacturing supervisory technician, production planning technician, methods engineering technician, materials-handling technician, wage and job evaluation technician, or plant layout technician.

ASSOCIATE OF APPLIED SCIENCE DEGREE: INDUSTRIAL SPECIALIZATION: INDUSTRIAL MANAGEMENT (963.01)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
IND 101	Quality Assurance Technology I	3	
IND 106	Industrial Engineering Technology	3	
IND 121	Industrial Supervision I	3	
SAF 125	Computer Applications for Technicians	4	
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
IND 115	Materials and Processes of Industry	4	
IND 145	Introduction to Metrology	3	
IND 146	Statistical Quality Control	3	
IND 237	Fundamentals of ISO 9000	3	
MTH 115	Technical Mathematics I	3	Placement
Semester Total		16	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
IND 137	Team Concepts and Problem Solving	3	
IND/SAF	Approved Elective ²	3	
MTH 116	Technical Mathematics II	3	MTH 115
SAF 120	Safety and Health Standards REG/Codes	3	
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
IND 150	Industrial Management	3	
IND 293	Project Management	3	
IND/SAF	Approved Elective ²	3	
	Health/Physical Education ¹	1	
	Humanities Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		16	
Total Minimum Credits		65	

CAREER STUDIES: INDUSTRIAL MANAGEMENT (016.01)

Course No.	Course Title	Credits	Prerequisite
IND 106	Industrial Engineering Technology	3	
IND 115	Materials and Processes of Industry	4	
IND 160	Introduction to Robotics	3	
IND/SAF	Approved Elective ²	3	
IND/SAF	Approved Elective ²	3	
IND/SAF	Approved Elective ²	3	
Total Minimum Credits		19	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Consult with your faculty advisor or counselor. Courses must be approved by the appropriate academic dean.

INDUSTRIAL INDUSTRIAL MANUFACTURING ENGINEERING TECHNOLOGY

The Industrial Manufacturing Engineering Technology program is designed to educate the professional industrial worker in the new technologies which integrate manufacturing functions in the factory of the future. This program consists of courses which are designed to enhance the worker's ability to communicate, to acquire and integrate information, and to manage and work effectively in team scenarios with manufacturing systems.

Graduates will be prepared for the following job opportunities: manufacturing technologist, manufacturing process engineering technologist, line supervisor, industrial/technical representative, industrial/technical sales, production technologist, production foreman, production-planning technician, or line manager in a shipyard.

ASSOCIATE OF APPLIED SCIENCE DEGREE: INDUSTRIAL SPECIALIZATION: INDUSTRIAL MANUFACTURING ENGINEERING TECHNOLOGY (963.06)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
IND 101	Quality Assurance Technology I	3	
IND 145	Introduction to Metrology	3	
MTH 115	Technical Mathematics I	3	Placement
SAF 125	Computer Applications for Technicians	4	
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
IND 115	Materials and Processes of Industry	4	
IND 146	Statistical Quality Control	3	
IND 160	Introduction to Robotics	3	
MTH 116	Technical Mathematics II	3	MTH 115
	Health/Physical Education ¹	2	
Semester Total		15	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
IND 251	Automated Manufacturing Systems I	3	
IND 293	Project Management	3	
ENV/IND	Approved Elective ²	3	
SAF 120	Safety and Health Standards REG/Codes	3	
	Social Science Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		18	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
IND 150	Industrial Management	3	
IND 216	Plant Layout and Material Handling	3	
IND 245	Time and Motion Study	3	
ENV/IND	Approved Elective ²	3	
	Humanities Elective ¹	3	
Semester Total		15	
Total Minimum Credits		65	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Consult with your faculty advisor or counselor. Courses must be approved by the appropriate academic dean.

INDUSTRIAL

INDUSTRIAL SUPERVISION

The Industrial Supervision program is designed to prepare current employees with the practical knowledge, skills, and training to compete effectively for entry-level supervisory positions in industrial manufacturing, and engineering services companies through the United States.

Graduates will be capable of delivering operational supervision, capable of leading workers or integrated product teams to provide the optimum outcome assessment maximizing productivity and resource allocations, serving the manufacturing and business community of Hampton Roads. Graduates will fill such positions as: industrial supervisory technician, production planning supervisor, materials-handling supervisor, production line supervisor, or plant operations technical supervisor.

ASSOCIATE OF APPLIED SCIENCE DEGREE: INDUSTRIAL SPECIALIZATION: INDUSTRIAL SUPERVISION (963.04)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
IND 101	Quality Assurance Technology I	3	
IND 121	Industrial Supervision I	3	
IND	Approved IND Elective ²	3	
SAF 125	Computer Applications for Technicians	4	
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
IND 106	Industrial Engineering Technology	3	
IND 115	Materials and Processes of Industry	4	
IND	Approved IND Elective ²	3	
MTH 115	Technical Mathematics I	3	Placement
SAF 120	Safety and Health Standards REG/Codes	3	
Semester Total		16	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
IND 122	Industrial Supervision II	3	
IND 145	Introduction to Metrology	3	
IND 146	Statistical Quality Control	3	
MTH 116	Technical Mathematics II	3	MTH 115
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
IND 150	Industrial Management	3	
IND 216	Plant Layout and Material Handling	3	
IND 245	Time and Motion Study	3	
	Health/Physical Education ¹	1	
	Humanities Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		16	

Total Minimum Credits 65

CAREER STUDIES: INDUSTRIAL SUPERVISION (007.02)

Course No.	Course Title	Credits	Prerequisite
IND 101	Quality Assurance Technology I	3	
IND 121	Industrial Supervision I	3	
IND 216	Plant Layout and Material Handling	3	
IND 245	Time and Motion Study	3	
Total Minimum Credits		12	

¹ Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).

² Consult with your faculty advisor or counselor. Courses must be approved by the appropriate academic dean.

INDUSTRIAL MECHANICAL METROLOGY

This program was developed in cooperation with the U.S. military's metrology program. Students who complete the military's program may transfer a total of thirteen (13) credits into the career studies certificate program. When students complete the career studies certificate, they may then pursue an AAS degree.

This program provides students the knowledge and skills needed to operate, maintain, calibrate, and troubleshoot physical measurement standards and associated test, measurement, and diagnostic equipment.

Students who successfully complete this program will be prepared for employment as metrology technicians or technologists in a variety of fields, such as manufacturing, electrical power, aerospace, transportation, and environmental protection.

ASSOCIATE OF APPLIED SCIENCE DEGREE: INDUSTRIAL SPECIALIZATION: MECHANICAL METROLOGY (963.15)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
IND 101	Quality Assurance Technology I	3	
IND 145	Introduction to Metrology	3	
MTH 115	Technical Mathematics I	3	Placement
SAF 125	Computer Applications for Technicians	4	
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
IND 102	Quality Assurance Technology II	3	IND 101
IND 115	Materials and Processes of Industry	4	
IND 109	Force, Mass, and Torque Measurement	2	MTH 115
IND 146	Statistical Quality Control	3	
MTH 116	Technical Mathematics II	3	MTH 115
Semester Total		15	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
IND 159	Precision Dimensional Measurement	3	MTH 115
IND 175	Pressure Measurement	2	MTH 115
IND 237	Fundamentals of ISO 9000	3	
SAF 120	Safety and Health Standards REG/Codes	3	
	Health/Physical Education ¹	2	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
IND 150	Industrial Management	3	
IND 203	Temperature and Humidity Measurement	2	MTH 115
IND	Approved IND Elective ²	3	
IND	Approved IND Elective ²	3	
	Humanities Elective ¹	3	
	Social Science Elective ¹	3	
Semester Total		17	
Total Minimum Credits		65	

CAREER STUDIES: MECHANICAL METROLOGY - PRACTICING CALIBRATOR (081.01)

SEMESTER 1

Course No.	Course Title	Credits	Prerequisite
IND 145	Introductory Metrology	3	
IND 146	Statistical Quality Control	3	
MTH 115	Technical Mathematics I	3	Placement
Semester Total		9	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
IND 109	Force, Mass, and Torque Measurement	2	MTH 115
IND 159	Precision Dimensional Measurement	3	MTH 115
IND 175	Pressure Measurement	2	MTH 115
IND 203	Temperature and Humidity Measurement	2	MTH 115
IND 204	Opto-Mechanical Measurement of Angles and Surfaces	2	MTH 115
IND 205	Flow, Viscosity, and Specific Gravity Measurement	2	MTH 115
Semester Total		13	
Total Minimum Credits		22	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Students are encouraged to take IND 204 and IND 205 as elective courses.

INDUSTRIAL OCCUPATIONAL SAFETY

This program offers industrial managers, key safety personnel, and others with occupational safety responsibilities the opportunity to gain current knowledge and information relevant to the field of occupational safety.

The career studies certificate plan is designed for students to become a safety technician, a safety examiner for an insurance company, a consumer safety inspector, an industrial hygienist, an OSHA compliance/enforcement officer, a production specialist, or a fire marshal. An Associate of Applied Science degree is designed for any of a number of managerial/supervisory positions in safety including OSHA compliance, safety investigation and inspection, or environmental protection. It could also prepare you to become a safety compliance consultant.

ASSOCIATE OF APPLIED SCIENCE DEGREE: INDUSTRIAL SPECIALIZATION: OCCUPATIONAL SAFETY (963.12)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
SAF 120	Safety and Health Standards REG/Codes	3	
SAF 125	Computer Applications for Technicians	4	
SAF 126	Principles of Industrial Safety	3	
SDV 100	College Success Skills	1	
	Approved Technical Elective ²	3	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
MTH 115	Technical Mathematics I	3	Placement
SAF 135	Safety Program Organization and Administration	3	
SAF 205	Human Factors and Safety Psychology	3	
	Approved Technical Elective ²	3	
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
IND 101	Quality Assurance Technology I	3	
IND 145	Introduction to Metrology	3	
IND 146	Statistical Quality Control	3	
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		13	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
IND 115	Materials and Processes of Industry	4	
IND 150	Industrial Management	3	
IND 245	Time and Motion Study	3	
SAF 246	Hazardous Chemicals, Materials, and Waste in the Workplace	3	
	Humanities Elective ¹	3	
Semester Total		16	

Total Minimum Credits 65

CAREER STUDIES: OCCUPATIONAL SAFETY (050)

Course No.	Course Title	Credits	Prerequisite
SAF 120	Safety and Health Standards REG/Codes	3	
SAF 125	Computer Applications for Technicians	4	
SAF 126	Principles of Industrial Safety	3	
SAF 135	Safety Program Organization and Administration	3	
SAF 205	Human Factors and Safety Psychology	3	
	Approved Technical Elective ²	3	
Total Minimum Credits		19	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Consult with your faculty advisor or counselor. Courses must be approved by the appropriate academic dean.

INDUSTRIAL QUALITY ASSURANCE

The Quality Assurance program is designed to produce graduates who can manage, plan, design, and maintain effective quality control programs for a variety of industries. This program prepares the student who desires certification through the American Society for Quality (ASQ).

The Quality Assurance program prepares technicians to handle quality assurance issues and monitoring for industry and/or manufacturing company production operations.

Graduates are prepared for promotion to supervisory technical positions and find jobs in: quality engineering, quality assurance, production, operations, material management, and other industrial marine engineering functions.

ASSOCIATE OF APPLIED SCIENCE DEGREE: INDUSTRIAL SPECIALIZATION: QUALITY ASSURANCE (963.05)

SEMESTER 1 (BASED ON A FALL SEMESTER START)

Course No.	Course Title	Credits	Prerequisite
ENG 111	College Composition I	3	Placement
IND 101	Quality Assurance Technology I	3	
IND 106	Industrial Engineering Technology	3	
IND 237	Fundamentals of ISO 9000	3	
SAF 125	Computer Applications for Technicians	4	
SDV 100	College Success Skills	1	
Semester Total		17	

SEMESTER 2

Course No.	Course Title	Credits	Prerequisite
IND 115	Materials and Processes of Industry	4	
IND 145	Introduction to Metrology	3	
IND 146	Statistical Quality Control	3	
MTH 115	Technical Mathematics I	3	Placement
SAF 120	Safety and Health Standards REF/Codes	3	
Semester Total		16	

SEMESTER 3

Course No.	Course Title	Credits	Prerequisite
IND 102	Quality Assurance Technology II	3	
IND 105	Nondestructive Testing and Inspection	3	
IND 236	Total Quality Concepts	3	
MTH 116	Technical Mathematics II	3	MTH 115
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		16	

SEMESTER 4

Course No.	Course Title	Credits	Prerequisite
IND 150	Industrial Management	3	
IND	Approved IND Elective ²	3	
IND	Approved IND Elective ²	3	
	Humanities Elective ¹	3	
	Health/Physical Education ¹	1	
	Social Science Elective ¹	3	
Semester Total		16	
Total Minimum Credits		65	

CAREER STUDIES: QUALITY ASSURANCE (051)

Course No.	Course Title	Credits	Prerequisite
IND 101	Quality Assurance Technology I	3	
IND 102	Quality Assurance Technology II	3	
IND 146	Statistical Quality Control	3	
IND 236	Total Quality Concepts	3	
IND	Approved IND Elective ²	3	
IND	Approved IND Elective ²	3	
Total Minimum Credits		18	

- 1 Eligible courses are listed on page 146 in the 2006-2007 catalog. See your faculty advisor or counselor to choose the appropriate course(s).
- 2 Consult with your faculty advisor or counselor. Courses must be approved by the appropriate academic dean.