

Industrial Technologies**Bioprocess Technology****Credential: Associate in Applied Science****Degree in Bioprocess Technology****A50440**

The Bioprocess Technology curriculum is designed to prepare individuals to work as Process Operators in biological products manufacturing facilities. Students will combine basic science and communication skills, manufacturing technologies, and good manufacturing practices in the course of study. Students will be expected to develop a strong basic science foundation with a sound understanding of the major technologies employed in the industry. They will also be expected to develop collaborative and disciplined work ethics while consistently practicing problem-solving skills.

Upon successful completion of the program, individuals should possess the necessary skills to qualify for employment in a variety of bioprocessing industries.

Program Length: 5 semesters

Career Pathway Options: Associate in Applied Science in Bioprocess Technology; Certificate in Bioprocess Technology

Program Sites: Lee Campus - Day Program

Course requirements for Bioprocess Technology Degree**A. General Education Courses (19 SHC) C-L-SHC**

COM 120	Interpersonal Communication	3-0-3
	OR	
COM 231	Public Speaking	3-0-3
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
ENG 114	Professional Research and Reporting	3-0-3
	Humanities/Fine Arts Elective	3
MAT 161	College Algebra	3-0-3
	OR	
MAT 121	Algebra/Trigonometry I	2-2-3
	Social/Behavioral Science Elective	3

B. Required Major Core Courses (21 SHC)

BPM 110	Bioprocess Practices	3-4-5
BPM 111	Bioprocess Measurements	3-3-4
BPM 112	Upstream Bioprocessing	3-4-5
BPM 113	Downstream Bioprocessing	3-3-4
PTC 110	Industrial Environment	3-0-3

C. Other Major Hours Required for Graduation (28 SHC)

BIO 110	Principles of Biology	3-3-4
BIO 175	General Microbiology	2-2-3
BIO 176	Advanced General Microbiology	1-2-2
CHM 131	Introduction to Chemistry	3-0-3
CHM 131A	Introduction to Chemistry Lab	0-3-1
CHM 132	Organic and Biochemistry	3-3-4
CIS 110	Introduction to Computers	2-2-3

ISC 121	Environmental Health and Safety	3-0-3
ISC 221	Statistical Quality Control	3-0-3
	Co-op/Project Elective	2

Co-op/Project Elective (Choose one course.)

COE 112	Co-op Work Experience I	0-20-2
EGR 285	Design Project	0-4-2

Total Semester Hours Credit required for graduation: 68

Semester Curriculum for Bioprocess Technology Degree**1st Semester (Fall) C-L-SHC**

BIO 110	Principles of Biology	3-3-4
CHM 131	Introduction to Chemistry	3-0-3
CHM 131A	Introduction to Chemistry Lab	0-3-1
CIS 110	Introduction to Computers	2-2-3
MAT 121	Algebra/Trigonometry I	2-2-3
	OR	
MAT 161	College Algebra	3-0-3
PTC 110	Industrial Environment	3-0-3

13/14-8/10-17

2nd Semester (Spring)

BIO 175	General Microbiology	2-2-3
BPM 110	Bioprocess Practices	3-4-5
CHM 132	Organic/Biochemistry	3-3-4
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
ISC 121	Environmental Health and Safety	3-0-3

14-11-19

3rd Semester (Summer)

	Co-op/Project Elective	0-20/4-2
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4th Semester (Fall)

BIO 176	Advanced General Microbiology	1-2-2
BPM 111	Bioprocess Measurements	3-3-4
COM 120	Interpersonal Communication	3-0-3
	OR	
COM 231	Public Speaking	3-0-3
	Humanities/Fine Arts Elective	10-5-12

5th Semester (Spring)

BPM 112	Upstream Bioprocessing	3-4-5
BPM 113	Downstream Bioprocessing	3-3-4
ENG 114	Professional Research and Reporting	3-0-3
ISC 221	Statistical Quality Control	3-0-3
	Social/Behavioral Science Elective	3

15-7-18

Total Semester Hours Credit: 68

Bioprocess Technology
Credential: Certificate in Bioprocess
Technology
C50440

2nd Semester (Spring)		
BPM 110	Bioprocess Practices	3-4-5
	Major Elective	3
Total Semester Hours Credit: 17		3-4- 8

This program prepares individuals to enter the workforce in biological products manufacturing facilities. Coursework includes computer or math skill development, exposure to the industrial work environment, basic bioprocessing operations, and a major course elective. Graduates should be qualified to become entry-level trainees in bioprocess manufacturing.

Program Length: 2 semesters
 Career Pathway Options: Certificate in Bioprocess Technology, Associate in Applied Science Degree in Bioprocess Technology.
 Program Site: Lee Campus – Day or Evening Program

Course Requirements for Bioprocess Manufacturing Technology Certificate

A. Required Major Core Courses (8 SHC)		C-L-SHC
BPM 110	Bioprocess Practices	3-4-5
PTC 110	Industrial Environment	3-0-3

B. Other Courses (9 SHC)		
CIS 110	Introduction to Computers	2-2-3
	OR	
MAT 121	Algebra/Trigonometry I	2-2-3
	OR	
MAT 161	College Algebra	3-0-3
ISC 121	Environmental Health and Safety	3-0-3
	Major Elective	3

Major Elective may be selected from the following:		
BIO 110	Principles of Biology	3-3-4
CHM 131	Introduction to Chemistry	3-0-3
CHM 131A	Introduction to Chemistry Lab	0-3-1
CIS 110	Introduction to Computers	2-2-3
ISC 221	Statistical Quality Control	3-0-3
MAT 121	Algebra/Trigonometry I	2-2-3
MAT 161	College Algebra	3-0-3

Total Semester Hours Credit required for graduation: 17

Semester Curriculum for Bioprocess Technology Certificate		
1st Semester (Fall)		C-L-SHC
CIS 110	Introduction to Computers	2-2-3
	OR	
MAT 121	Algebra/Trigonometry I	2-2-3
	OR	
MAT 161	College Algebra	3-0-3
ISC 121	Environmental Health and Safety	3-0-3
PTC 110	Industrial Environment	3-0-3
		8/9-0/2-9

**Bioprocess Technology Credential:
Associate in Applied Science Degree in
BioQuality Technology
A50440QA**

The Bioprocess Technology curriculum is designed to prepare individuals to work in Quality Assurance in biological products manufacturing facilities. Students will combine basic science and communication skills, manufacturing technologies, current good manufacturing practices (cGMP), quality systems, auditing, and validation in the course of study.

Students will be expected to develop a strong basic science foundation with a sound understanding of the major technologies employed in the industry. They will also be expected to develop collaborative and disciplined work ethics while consistently practicing problem-solving skills.

Upon successful completion of the program, individuals should possess the necessary skills to qualify for employment in a variety of bioprocessing industries.

Program Length: 5 semesters

Career Pathway Options: Associate in Applied Science Degree in BioQuality Technology

Program Sites: Lee Campus - Day Program

Course requirements for BioQuality Technology Degree

A. General Education Courses (19 SHC) C-L-SHC

COM 120	Interpersonal Communication	3-0-3
	OR	
COM 231	Public Speaking	3-0-3
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
ENG 114	Professional Research and Reporting	3-0-3
	Humanities/Fine Arts Elective	3
MAT 121	Algebra/Trigonometry I	2-2-3
	OR	
MAT 161	College Algebra	3-0-3
	Social/Behavioral Science Elective	3

B. Required Major Core Courses (21 SHC)

BPM 110	Bioprocess Practices	3-4-5
BPM 111	Bioprocess Measurements	3-3-4
BPM 112	Upstream Bioprocessing	3-4-5
BPM 113	Downstream Bioprocessing	3-3-4
PTC 110	Industrial Environment	3-0-3

C. Other Major Hours Required for Graduation (28 SHC)

BIO 110	Principles of Biology	3-3-4
BIO 175	General Microbiology	2-2-3
CHM 131	Introduction to Chemistry	3-0-3
CHM 131A	Introduction to Chemistry Lab	0-3-1
CHM 132	Organic and Biochemistry	3-3-4
CIS 110	Introduction to Computers	2-2-3
ISC 175	Quality Assurance Fundamentals	1-0-1
ISC 278	cGMP Quality Systems	2-0-2

ISC 279	Auditing for cGMP	2-2-3
ISC 280	Validation Fundamentals	1-2-2
	*Co-op/Project Elective	0-20/4-2
Total Semester Hours Credit required for graduation: 68		

***Co-Op/Project Elective (Choose one)**

COE 112	Co-op Work Experience I	0-20-2
EGR 285	Design Project	0-4-2

Semester Curriculum for BioQuality Technology Degree

1st Semester (Fall)		C-L-SHC
BIO 110	Principles of Biology	3-3-4
CHM 131	Introduction to Chemistry	3-0-3
CHM 131A	Introduction to Chemistry Lab	0-3-1
CIS 110	Introduction to Computers	2-2-3
MAT 161	College Algebra	3-0-3
	OR	
MAT 121	Algebra/Trigonometry I	2-2-3
PTC 110	Industrial Environment	3-0-3
		13/14-8/10-17

2nd Semester (Spring)

BIO 175	General Microbiology	2-2-3
BPM 110	Bioprocess Practices	3-4-5
CHM 132	Organic/Biochemistry	3-3-4
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
ISC 175	Quality Assurance Fundamentals	1-0-1
		12-11-17

3rd Semester (Summer)

	Co-op/Project Elective	0-20/4-2
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4th Semester (Fall)

BPM 111	Bioprocess Measurements	3-3-4
COM 231	Public Speaking	3-0-3
	OR	
COM 120	Interpersonal Communication	3-0-3
	Humanities/Fine Arts Elective	3-0-3
ISC 278	cGMP Quality Systems	2-0-2
ENG 114	Professional Research and Reporting	3-0-3
		14-3-15

5th Semester (Spring)

BPM 112	Upstream Bioprocessing	3-4-5
BPM 113	Downstream Bioprocessing	3-3-4
ISC 280	Validation Fundamentals	1-2-2
	Social/Behavioral Science Elective	3
ISC 279	Auditing for cGMP	2-2-3
		12-11-17

Total Semester Hours Credit: 68

Bioprocess Technology Credential: Certificate in BioQuality Technology C50440QA

This program prepares individuals with a background in manufacturing to function in the quality assurance area of a biological product manufacturing facilities. Coursework includes basic bioprocessing operations, cGMP, quality systems, auditing, and validation. Graduates should be qualified to work in a bioprocess quality assurance environment.

Applicants must have previous industrial experience.

Program Length: 2 semesters

Career Pathway Options: Certificate in BioQuality Technology, Associate in Applied Science Degree in BioQuality Technology.

Program Site: Lee Campus – Day or Evening Program

Course Requirements for BioQuality Technology Certificate

A. Required Major Core Courses (5 SHC)

BPM 110	Bioprocess Practices	3-4-5
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B. Other Courses (8 SHC)

ISC 175	Quality Assurance Fundamentals	1-0-1
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ISC 278	cGMP Quality Systems	2-0-2
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ISC 279	Auditing for cGMP	2-2-3
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ISC 280	Validation Fundamentals	1-2-2
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Total Semester Hours Credit required for graduation: 13

Semester Curriculum for BioQuality Technology Certificate

1st Semester (Fall) C-L-SHC

BPM 110	Bioprocess Practices	3-4-5
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ISC 175	Quality Assurance Fundamentals	1-0-1
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ISC 278	cGMP Quality Systems	2-0-2
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		6-4-8
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2nd Semester (Spring)

ISC 279	Auditing for cGMP	2-2-3
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ISC 280	Validation Fundamentals	1-2-2
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		3-4-5
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Total Semester Hours Credit: 13

Industrial Systems Technology Credential: Associate in Applied Science Degree in Industrial Systems Technology A50240

The Industrial Systems Technology curriculum is designed to prepare or upgrade individuals to safely service, maintain, repair and install equipment. Instruction includes theory and skill training needed for inspecting, testing, troubleshooting, and diagnosing industrial systems. Students will learn multi-craft technical skills in blueprint reading, mechanical systems maintenance, electricity, hydraulics/pneumatics, welding, machining or fabrication, as well as various diagnostic and repair procedures. Practical application in these industrial systems will be emphasized and additional advanced coursework may be offered.

Upon completion of this curriculum, graduates should be able to individually, or with a team, safely install, inspect, diagnose, repair and maintain industrial process and support equipment. Students will also be encouraged to develop their skills as life-long learners.

Program Length: 5 semesters

Career Pathway Options: Associate in Applied Science in Industrial Systems Technology

Program Sites: Lee Campus - Day Program

Course Requirements for Industrial Systems Technology

A. General Education Courses (15/17 SHC) C-L-SHC

*ENG 111	Expository Writing	3-0-3
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ENG 111A	Expository Writing Lab	0-2-1
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	Humanities/Fine Arts Elective	3-0-3
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	Social/Behavioral Science Elective	3-0-3
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MAT 115	Mathematical Models	2-2-3
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	Or	
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PHY 121	Applied Physics I	3-2-4
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Communications Elective (select 3 SHC)

ENG 112	Argument-Based Research	3-0-3
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ENG 113	Literature-Based Research	3-0-3
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ENG 114	Prof Research & Reporting	3-0-3
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ENG 116	Technical Report Writing	3-0-3
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B. Required Major Core Courses (18/19 SHC)

BPR 111	Blueprint Reading	1-2-2
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ELC 112	DC/AC Electricity	3-6-5
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HYD 110	Hydraulics/Pneumatics	2-3-3
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ISC 110	Workplace Safety	1-0-1
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	Or	
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ISC 112	Industrial Safety	2-0-2
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MEC 111	Machine Processes I	1-4-3
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MNT 110	Introduction to Maintenance Procedures	1-3-2
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WLD 112	Basic Welding Processes	1-3-2
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C. Other Major Hours Required for Graduation (43 SHC)

AHR 120	HVACR Maintenance	1-3-2
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BPR 115	Electric/Fluid Power Diagrams	1-2-2
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**CIS 111	Basic PC Literacy	1-2-2	WLD 212	Inert Gas Welding	1-3-2
ELC 117	Motors and Controls	2-6-4			10-18-16
ELC 128	Introduction to PLC	2-3-3	5th Semester (Spring)		
ELC 228	PLC Applications	2-6-4	ELC 228	PLC Applications	2-6-4
ELC 229	Applications Project	1-3-2	ELC 229	Applications Project	1-3-2
ELN 229	Industrial Electronics	3-3-4	ELN 231	Industrial Controls	2-3-3
ELN 231	Industrial Controls	2-3-3	MNT 240	Industrial Equipment Troubleshooting	1-3-2
HYD 121	Hydraulics/Pneumatics II	1-3-2		Technical Elective	1
MNT 230	Pumps and Piping Systems	1-3-2		Social/Behavioral Science Elective	3-0-3
MNT 240	Industrial Equipment Troubleshooting	1-3-2			9-15-15
WLD 115	SMAW (Stick) Plate	2-9-5	Total Semester Hours Credit:	75/77	
WLD 212	Inert Gas Welding	1-3-2			
	Technical Elective	3			

Technical Electives (Choose 3 SHC)

COE 111	Co-op Work Experience I	0-10-1
COE 112	Co-op Work Experience I	0-20-2
COE 121	Co-op Work Experience II	0-10-1
MNT 111	Maintenance Practices	2-2-3

*Students may substitute ENG 110.

**Students may substitute CIS 110.

Total Semester Hours Credit required for graduation: 75/77

Semester Curriculum for Industrial Systems Technology

1st Semester (Fall) C-L-SHC

BPR 111	Blueprint Reading	1-2-2
ELC 112	DC/AC Electricity	3-6-5
	Humanities/Fine Arts Elective	3-0-3
MEC 111	Machine Processes I	1-4-3
MNT 110	Introduction to Maintenance Procedures	1-3-2
WLD 112	Basic Welding Processes	1-3-2
		10-18-17

2nd Semester (Spring)

CIS 111	Basic PC Literacy	1-2-2
ELN 229	Industrial Electronics	3-3-4
*ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
MAT 115	Mathematical Models	2-2-3
	Or	
PHY 121	Applied Physics I	3-2-4
WLD115	SMAW (Stick) Plate	2-9-5

11/12-16/18-17/19

3rd Semester (Summer)

AHR 120	HVACR Maintenance	1-3-2
BPR 115	Electric/Fluid Power Diagrams	1-2-2
ISC 110	Workplace Safety	1-0-1
	Or	
ISC 112	Industrial Safety	2-0-2
HYD 110	Hydraulics/Pneumatics	2-3-3
	Technical Elective	2

5/6-8-10/11

4th Semester (Fall)

ELC 117	Motors and Controls	2-6-4
ELC 128	Introduction to PLC	2-3-3
	Communications Elective	3-0-3
HYD 121	Hydraulics/Pneumatics II	1-3-2
MNT 230	Pumps and Piping Systems	1-3-2

Industrial Systems Technology Credential: Diploma in Industrial Systems Technology D50240

The Industrial Systems Technology curriculum is designed to prepare or upgrade individuals to safely service, maintain, repair and install equipment. Instruction includes theory and skill training needed for inspecting, testing, troubleshooting, and diagnosing industrial systems. Students will learn multi-craft technical skills in blueprint reading, mechanical systems maintenance, electricity, hydraulics/pneumatics, welding, machining or fabrication, as well as various diagnostic and repair procedures. Practical application in these industrial systems will be emphasized and additional advanced coursework may be offered.

Upon completion of this curriculum, graduates should be able to individually, or with a team, safely install, inspect, diagnose, repair, and maintain industrial process and support equipment. Students are encouraged to develop life-long learning skills.

Program Length: 3 semesters

Career Pathway Options: Associate in Applied Science in Industrial Systems Technology (Higher entrance standards required); Diploma in Industrial Systems Maintenance Technology

Program Sites: Lee Campus - Day Program

Course Requirements for Industrial Systems Technology Diploma

A. General Education Courses (9/10 SHC)	C-L-SHC
*ENG 102 Applied Communication II	3-0-3
Humanities/Fine Arts Elective	3-0-3
*MAT 101 Applied Mathematics I	2-2-3
Or	
PHY 121 Applied Physics I	3-2-4

B. Required Major Core Courses (18/19 SHC)

BPR 111 Blueprint Reading	1-2-2
ELC 112 DC/AC Electricity	3-6-5
HYD 110 Hydraulics/Pneumatics	2-3-3
ISC 110 Workplace Safety	1-0-1
OR	
ISC 112 Industrial Safety	2-0-2
MEC 111 Machine Processes I	1-4-3
MNT 110 Introduction to Maintenance Procedures	1-3-2
WLD 112 Basic Welding Processes	1-3-2

C. Other Major Hours Required for Graduation (17/18 SHC)

AHR 120 HVACR Maintenance	1-3-2
BPR 115 Elc Fluid Power Diagrams	1-2-2
CIS 111 Basic PC Literacy	1-2-2
ELN 229 Industrial Electronics	2-4-4

MNT 111	Maintenance Practices	2-2-3
	OR	
COE 112	Co-op Work Exp. I	0-20-2
WLD 115	SMAW (Stick) Plate	2-9-5

*These courses are not transferable to the Associate in Applied Science Degree.

Total Semester Hours Credit required for graduation: 44/47

Semester Curriculum for Industrial Systems Technology Diploma

1st Semester (Fall)	C-L-SHC
BPR 111 Blueprint Reading	1-2-2
ELC 112 DC/AC Electricity	3-6-5
MEC 111 Machine Processes I	1-4-3
MNT 110 Introduction to Maintenance Procedures	1-3-2
WLD 112 Basic Welding Processes	1-3-2
Humanities/Fine Arts Elective	3-0-3
	10-18-17

2nd Semester (Spring)	
CIS 111 Basic PC Literacy	1-2-2
ELN 229 Industrial Electronics	3-3-4
*ENG 102 Applied Communication II	3-0-3
HYD 110 Hydraulics/Pneumatics	2-3-3
WLD 115 SMAW (Stick) Plate	2-9-5
	11-17-17

3rd Semester (Summer)	
AHR 120 HVACR Maintenance	1-3-2
BPR 115 Electric/Fluid Power Diagrams	1-2-2
ISC 110 Workplace Safety	1-0-1
OR	
ISC 112 Industrial Safety	2-0-2
*MAT 101 Applied Mathematics I	2-2-3
OR	
PHY 121 Applied Physics I	3-2-4
Technical Elective	2
	5/6/7-7-10/11/12

Technical Elective (Choose 2/3 SHC)

COE 112	Co-op Work Exp. I	0-20-2
MNT 111	Maintenance Practice	2-2-3

*These courses are not transferable to the Associate in Applied Science Degree.

Total Semester Hours Credit: 44/47

Industrial Systems Technology/Bio-maintenance
Credential: Associate in Applied Science
Degree in Industrial Systems Technology/Bio-maintenance
A502400B

The Industrial Systems Technology curriculum is designed to prepare or upgrade individuals to safely service, maintain, repair and install equipment. Instruction includes theory and skill training needed for inspecting, testing, troubleshooting, and diagnosing industrial systems. Students will learn multi-craft technical skills in blueprint reading, mechanical systems maintenance, electricity, hydraulics/pneumatics, welding, machining or fabrication, as well as various diagnostic and repair procedures. Practical application in these industrial systems will be emphasized and additional advanced coursework may be offered.

Upon completion of this curriculum, graduates should be able to individually, or with a team, safely install, inspect, diagnose, repair and maintain industrial process and support equipment. Students will also be encouraged to develop their skills as life-long learners.

Program Length: 5 semesters

Career Pathway Options: Associate in Applied Science in Industrial Systems Technology

Program Sites: Lee Campus - Day Program

Course Requirements for Industrial Systems Technology

A. General Education Courses (15/16 SHC)		C-L-SHC
ENG 110	Freshman Composition	3-0-3
ENG 116	Technical Report Writing	3-0-3
	Humanities/Fine Arts Elective	3-0-3
MAT 115	Mathematical Models	2-2-3
	Or	
PHY 121	Applied Physics I	3-2-4
	Social/Behavioral Science Elective	3-0-3

B. Required Major Core Courses (18/19 SHC)

BPR 111	Blueprint Reading	1-2-2
ELC 112	DC/AC Electricity	3-6-5
HYD 110	Hydraulics/Pneumatics	2-3-3
ISC 110	Workplace Safety	1-0-1
	OR	
ISC 112	Industrial Safety	2-0-2
MEC 111	Machine Processes I	1-4-3
MNT 110	Introduction to Maintenance Procedures	1-3-2
WLD 112	Basic Welding Processes	1-3-2

C. Other Major Hours Required for Graduation (42 SHC)

AHR 120	HVACR Maintenance	1-3-2
BPM 110	Bioprocess Practices	3-4-5
BPR 115	Electric/Fluid Power Diagrams	1-2-2
CIS 111	Basic PC Literacy	1-2-2
ELC 117	Motors and Controls	2-6-4
ELC 128	Introduction to PLC	2-3-3

ELC 228	PLC Applications	2-6-4
ELN 229	Industrial Electronics	3-3-4
ELN 231	Industrial Controls	2-3-3
ISC 278	cGMP Quality systems	2-0-2
MNT 230	Pumps and Piping Systems	1-3-2
MNT 240	Industrial Equipment Troubleshooting	1-3-2
MNT 270	Bioprocess Equipment Maintenance	1-3-2
MNT 280	Bioprocess Operating Systems	1-3-2
	Technical Elective	3

Technical Elective Course Listing (Select 3 SHC):

COE 111	Co-op Work Experience I	0-10-1
COE 112	Co-op work Experience I	0-20-2
COE 121	Co-op Experience II	0-10-1
MNT 111	Maintenance Practices	2-2-3

*Students may substitute ENG 110.

Total Semester Hours Credit required for graduation: 75/77

Semester Curriculum for Industrial Systems Technology

1st Semester (Fall)		C-L-SHC
BPR 111	Blueprint Reading	1-2-2
ELC 112	DC/AC Electricity	3-6-5
	Humanities/Fine Arts Elective	3-0-3
MEC 111	Machine Processes I	1-4-3
MNT 110	Introduction to Maintenance Procedures	1-3-2
WLD 112	Basic Welding Processes	1-3-2
		10-18-17

2nd Semester (Spring)

BPM 110	Bioprocess Practices	3-4-5
CIS 111	Basic PC Literacy	1-2-2
ELN 229	Industrial Electronics	3-3-4
ENG 110	Freshman Composition	3-0-3
HYD 110	Hydraulics/Pneumatics	2-3-3
		12-12-17

3rd Semester (Summer)

AHR 120	HVACR Maintenance	1-3-2
BPR 115	Electric/Fluid Power Diagrams	1-2-2
MAT 115	Mathematical Models	2-2-3
ISC 110	Workplace Safety	1-0-1
	OR	
ISC 112	Industrial Safety	2-0-2
	Technical Elective	3
		5/6-7-11/12

4th Semester (Fall)

ELC 117	Motors and Controls	2-6-4
ELC 128	Introduction to PLC	2-3-3
ENG 116	Technical Report Writing	3-0-3
ISC 278	cGMP Quality systems	2-0-2
ISC 278	cGMP Quality systems	2-0-2
MNT 230	Pumps and Piping Systems	1-3-2
MNT 270	Bioprocess Equipment Maintenance	1-3-2
		11-15-16

5th Semester (Spring)

ELC 228	PLC Applications	2-6-4
ELN 231	Industrial Controls	2-3-3
MNT 240	Industrial Equipment Troubleshooting	1-3-2
MNT 280	Bioprocess Operating Systems	1-3-2

Social/Behavioral Science Elective 3-0-3
9-15-14

Total Semester Hours Credit: 75/77

Industrial Systems Technology Credential: Certificate in Electrical Controls C5024010

This curriculum will provide students with knowledge of electricity and electrical controls. Students will learn AC/DC electricity, pilot devices, control relays, motor starters, and electromechanical devices. Upon completion, students will have the flexibility of pursuing a Diploma or an Associate in Applied Science Degree in Industrial Systems Maintenance Technology.

Program Length: 2 semesters
Career Pathway Options: Associate in Applied Science in Industrial Systems Technology (Higher entrance standards required); Diploma in Industrial Systems Technology (Higher entrance standards required); Certificate in Electrical Controls
Program Sites: Lee Campus - Evening Program

Course Requirements for Electrical Controls Certificate

A. Required Subject Areas (5 SHC) C-L-SHC
ELC 112 DC/AC Electricity 3-6-5

B. Other Major Hours Required for Graduation (11/12 SHC)

ELC 117 Motors and Controls 2-6-4
ELC 128 Introduction to PLC 2-3-3
ELN 231 Industrial Controls 2-3-3
ISC 110 Workplace Safety 1-0-1
OR
ISC 112 Industrial Safety 2-0-2

Total Semester Hours Credit required for graduation: 16/17

Semester Curriculum for Electrical Controls Certificate

1st Semester (Fall) C-L-SHC
ELC 112 DC/AC Electricity 3-6-5
ELC 128 Introduction to PLC 2-3-3
5-9-8
2nd Semester (Spring)
ELC 117 Motors and Controls 2-6-4
ELN 231 Industrial Controls 2-3-3
ISC 110 Workplace Safety 1-0-1
OR
ISC 112 Industrial Safety 2-0-2
5/6-9-8/9

Total Semester Hours Credit: 16/17

Industrial Systems Technology Credential: Certificate in Industrial Hydraulics C5024020

This curriculum will provide students with knowledge of hydraulics and pneumatics. Students will learn hydraulic and pneumatic blueprint reading, how to repair valves and pumps, and how to measure and troubleshoot systems. Upon completion, students will have the flexibility of pursuing a Diploma or an Associate in Applied Science Degree in Industrial Systems Technology.

Program Length: 2 semesters
Career Pathway Options: Associate in Applied Science in Industrial Systems Technology (Higher entrance standards required); Diploma in Industrial Systems Maintenance Technology (Higher entrance standards required); Certificate in Industrial Hydraulics
Program Sites: Lee Campus - Evening Program

Course Requirements for Industrial Hydraulics Certificate

A. Required Major Core Courses (5 SHC) C-L-SHC
HYD 110 Hydraulics/Pneumatics 2-3-3
MNT 110 Introduction to Maintenance Procedures 1-3-2

B. Other Major Hours Required for Graduation (12 SHC)

BPR 115 Electric/Fluid Power Diagrams 1-2-2
ELC 128 Introduction to PLC 2-3-3
HYD 121 Hydraulics/Pneumatics II 1-3-2
MNT 111 Maintenance Practices 2-2-3
MNT 230 Pumps and Piping Systems 1-3-2

Total Semester Hours Credit required for graduation: 17

Semester Curriculum for Industrial Hydraulics Certificate

1st Semester (Fall) C-L-SHC
BPR 115 Electric/Fluid Power Diagrams 1-2-2
ELC 128 Introduction to PLC 2-3-3
HYD 110 Hydraulics/Pneumatics 2-3-3
MNT 110 Introduction to Maintenance Procedures 1-3-2
6-11-10
2nd Semester (Spring)
HYD 121 Hydraulics/Pneumatics II 1-3-2
MNT 111 Maintenance Practices 2-2-3
MNT 230 Pumps and Piping Systems 1-3-2
4-8-7

Total Semester Hours Credit: 17

Industrial Systems Technology
Credential: Certificate in Programmable
Logic Controllers (PLC)
C5024030

This curriculum will provide students with knowledge of PLC's and PLC applications. In addition, students will become proficient in the use of PLC software, hardware, maintenance and troubleshooting, and programming. Upon completion, students will have the flexibility of pursuing a Diploma or an Associate in Applied Science Degree in Industrial Systems Technology.

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Industrial Systems Technology (Higher entrance standards required); Diploma in Industrial Systems Technology (Higher entrance standards required); Certificate in Programmable Logic Controllers

Program Sites: Lee Campus - Evening Program

Course Requirements for Programmable Logic Controller Certificate

A. Required Subject Area Courses (5 SHC) C-L-SHC
 ELC 112 DC/AC Electricity 3-6-5

B. Other Major Hours Required for Graduation (11 SHC)

ELC 128 Introduction to PLC 2-3-3
 ELC 228 PLC Applications 2-6-4
 ELN 229 Industrial Electronics 3-3-4

Total Semester Hours Credit required for graduation: 16

Semester Curriculum for Programmable Logic Controller Certificate

1st Semester (Fall) C-L-SHC
 ELC 112 DC/AC Electricity 3-6-5
 ELC 128 Introduction to PLC 2-3-3
 5-9-8

2nd Semester (Spring)

ELC 228 PLC Applications 2-6-4
 ELN 229 Industrial Electronics 3-3-4
 5-9-8

Total Semester Hours Credit: 16

Industrial Systems Technology
Credential: Certificate in Welding
C5024040

The Welding certificate will provide students with knowledge of various types of welding processes and applications. Students will learn principles of welding, flame cutting, brazing, ARC, MIG, TIG and safety procedures. Upon completion, students will have the flexibility of pursuing a diploma or an Associate in Applied Science Degree in Industrial Systems Technology.

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Industrial Systems Technology (Higher entrance standards required); Diploma in Industrial Systems Technology (Higher entrance standards required); Certificate in Welding
 Program Sites: Lee Campus - Evening Program

Course Requirements for Welding Certificate

A. Required Major Core Courses (5/6 SHC)		C-L-SHC
BPR 111	Blueprint Reading	1-2-2
ISC 110	Workplace Safety	1-0-1
	OR	
ISC 112	Industrial Safety	2-0-2
WLD 112	Basic Welding Processes	1-3-2

B. Other Major Hours Required for Graduation (7 SHC)

WLD 115	SMAW (Stick) Plate	2-9-5
WLD 212	Inert Gas Welding	1-3-2

Total Semester Hours Credit Required for Graduation: 12

Semester Curriculum for Welding Certificate

1st Semester (Fall)		C-L-SHC
BPR 111	Blueprint Reading	1-2-2
WLD 112	Basic Welding Processes	1-3-2
ISC 110	Workplace Safety	1-0-1
	OR	
ISC 112	Industrial Safety	2-0-2
		3/4-5-5/6

2nd Semester (Spring)

WLD 115	SMAW (Stick) Plate	2-9-5
WLD 212	Inert Gas Welding	1-3-2
		3-12-7

Total Semester Hours Credit: 12/13

Machining Technology

Credential: Diploma in Machining Technology D50300

The Machining Technology curriculum is designed to develop skills in the theory and safe use of hand tools, power machinery, computerized equipment and sophisticated precision inspection instruments. Students will learn to interpret blueprints, set up manual and Computer Numerical Controllers (CNC) machines, perform basic and advanced machining operations and make decisions to insure that work quality is maintained. Employment opportunities for machining technicians exist in manufacturing industries, public institutions, governmental agencies, and in a wide range of specialty machining job shops.

Program Length: 3 semesters

Career Pathway Options: Associate in Applied Science in Machining Technology with a Concentration in Tool, Die and Mold Making (Higher entrance standards required); Diploma in Machining Technology

Program Sites:

Lee Campus - Day Program

Harnett Campus - Day Program

Course Requirements for Machining Technology Diploma

A. General Education Courses (9/10 SHC) C-L-SHC

*ENG 102	Applied Communication II	3-0-3
	OR	
ENG 110	Freshman Composition	3-0-3
	OR	
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
*MAT 101	Applied Mathematics I	2-2-3
	OR	
MAT 120	Geometry and Trigonometry	2-2-3
	Humanities/Fine Arts Elective	3-0-3

B. Required Major Core Courses (26 SHC)

MAC 111	Machining Technology I	2-12-6
MAC 112	Machining Technology II	2-12-6
MAC 113	Machining Technology III	2-12-6

Required Subject Areas

BPR 111	Blueprint Reading	1-2-2
BPR 121	Blueprint Reading: Mechanical	1-2-2
MAC 121	Introduction to CNC	2-0-2
MAC 124	CNC Milling	1-3-2

C. Other Major Hours Required for Graduation (8 SHC)

CIS 111	Basic PC Literacy	1-2-2
ISC 110	Workplace Safety	1-0-1
MAC 151	Machining Calculations	1-2-2
MEC 141	Manufacturing Processes	2-2-3

Total Semester Hours Credit required for graduation: 43/44

Semester Curriculum for Machining Technology Diploma

1st Semester (Fall)		C-L-SHC
BPR 111	Blueprint Reading	1-2-2
CIS 111	Basic PC Literacy	1-2-2
ISC 110	Workplace Safety	1-0-1
MAC 111	Machining Technology I	2-12-6
MAC 121	Introduction to CNC	2-0-2
MAC 151	Machining Calculations	1-2-2
MEC 141	Manufacturing Processes	2-2-3
		10-20-18

2nd Semester (Spring)		
BPR 121	Blueprint Reading: Mechanical	1-2-2
*ENG 102	Applied Communication II	3-0-3
	OR	
ENG 110	Freshman Composition	3-0-3
	OR	
ENG 111	Expository Writing	3-0-3
ENG111A	Expository Writing Lab	0-2-1
MAC 112	Machining Technology II	2-12-6
MAC 124	CNC Milling	1-3-2
*MAT 101	Applied Mathematics I	2-2-3
	OR	
MAT 120	Geometry and Trigonometry	2-2-3
		9-19-16/17

3rd Semester (Summer)		
MAC 113	Machining Technology III	2-12-6
	Humanities/Fine Arts Elective	3-0-3
		5-12-9

*These courses are not transferable to the Associate in Applied Science Degree.

Total Semester Hours Credit: 43/44

Machining Technology

Credential: Certificate in Machining Technology

C50300

The Machining Technology curriculum is designed to develop skills in the theory and safe use of hand tools, power machinery, computerized equipment and sophisticated precision inspection instruments. Students will learn to interpret blueprints, set up manual and Computer Numerical Controllers (CNC) machines, perform basic machining operations and make decisions to insure that work quality is maintained. Employment opportunities for machining technicians exist in manufacturing industries, public institutions, governmental agencies, and in a wide range of specialty machining job shops.

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Machining Technology with a Concentration in Tool, Die and Mold Making (Higher entrance standards required); Diploma in Machining Technology (Higher entrance standards required); Certificate in Machining Technology

Program Sites:

Lee Campus - Evening Program

Harnett Campus - Evening Program

Course Requirements for Machining Technology Certificate

A. Required Major Core Courses (16 SHC) C-L-SHC
MAC 111 Machining Technology I 2-12-6

Required Subject Areas

BPR 111	Blueprint Reading	1-2-2
BPR 121	Blueprint Reading: Mechanical	1-2-2
ISC 110	Workplace Safety	1-0-1
MAC 121	Introduction to CNC	2-0-2
MEC 141	Intro to Manufacturing Processes	2-2-3

Total Semester Hours Credit required for graduation: 16

Semester Curriculum for Machining Technology Certificate

1st Semester (Fall)		C-L-SHC
BPR 111	Blueprint Reading	1-2-2
ISC 110	Workplace Safety	1-0-1
MAC 111A	Machining Technology IA	1-6-3
MAC 121	Introduction to CNC	2-0-2
MEC 141	Intro to Manufacturing Processes	2-2-3
		7-10-11

2nd Semester (Spring)

BPR 121	Blueprint Reading: Mechanical	1-2-2
MAC 111B	Machining Technology IB	1-6-3
		2-8-5

Total Semester Hours Credit: 16

Machining Technology with a Concentration in Tool, Die and Mold Making

Credential: Associate in Applied Science

Degree in Machining Technology with a Concentration in Tool, Die and Mold Making

A5030A

Tool, Die and Mold Making is a concentration under the curriculum title of Machining Technology. This curriculum is designed to develop skills in the use of hand tools, computerized equipment and precision instruments for machine tooling used for the mass production of parts.

Students will learn to interpret blueprints, set up manual and Computer Numerical Controllers (CNC) machines and perform basic and advanced machining operations. Emphasis will be placed on the production of tooling used for punching, stamping and molding of parts.

Graduates should qualify for employment opportunities in manufacturing industries and Tool, Die and Mold Making industries.

Program Length: 6 semesters

Career Pathway Options: Associate in Science in Machining Technology with a Concentration in Tool, Die and Mold Making

Program Sites: Lee Campus - Day Program

Course Requirements for Machining Technology with a Concentration in Tool, Die and Mold Making

A. General Education Courses (15/16 SHC)		C-L-SHC
ENG 110	Freshman Composition	3-0-3
	OR	
ENG 111	Expository Writing	3-0-3
	AND	
ENG 111A	Expository Writing Lab	0-2-1
ENG 114	Professional Research and Reporting	3-0-3
	OR	
ENG 116	Technical Report Writing	3-0-3
MAT 120	Geometry and Trigonometry	2-2-3
	Humanities/Fine Arts Elective	3-0-3
	Social/Behavioral Science Elective	3-0-3

B. Required Major Core Courses (44 SHC)

BPR 111	Blueprint Reading	1-2-2
BPR 121	Blueprint Reading: Mechanical	1-2-2
MAC 111	Machining Technology I	2-12-6
MAC 112	Machining Technology II	2-12-6
MAC 113	Machining Technology III	2-12-6

Required Subject Areas

MAC 122	CNC Turning	1-3-2
MAC 124	CNC Milling	1-3-2

Concentration Courses

MAC 153	Compound Angles	1-2-2
MAC 243	Die Making I	2-6-4

MAC 244	Die Making II	1-9-4
MAC 245	Mold Construction I	2-6-4
MAC 246	Mold Construction II	1-9-4

C. Other Major Hours Required for Graduation (17 SHC)

CIS 111	Basic PC Literacy	1-2-2
MAC 151	Machining Calculations	1-2-2
MAC 224	Advanced CNC Milling	1-3-2
MAC 226	CNC EDM Machining	1-3-2
MAC 241	Jigs and Fixtures I	2-6-4
MEC 110	Introduction to CAD/CAM	1-2-2
MEC 141	Manufacturing Process	2-2-3

Total Semester Hours Credit required for graduation: 76

Semester Curriculum for Machining Technology with a Concentration in Tool, Die and Mold Making

1st Semester (Fall)		C-L-SHC
BPR 111	Blueprint Reading	1-2-2
CIS 111	Basic PC Literacy	1-2-2
MAC 111	Machining Technology	2-12-6
MAC 151	Machining Calculations	1-2-2
MEC 141	Manufacturing Process	2-2-3

7-20-15

2nd Semester (Spring)

BPR 121	Blueprint Reading: Mechanical	1-2-2
ENG 110	Freshman Composition	3-0-3
OR		
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
MAC 112	Machining Technology II	2-12-6
MAC 124	CNC Milling	1-3-2
MAT 120	Geometry/Trigonometry	2-2-3

9-19/21-16/17

3rd Semester (Summer)

MAC 113	Machining Technology III	2-12-6
	Humanities/Fine Arts Elective	3-0-3

5-12-9

4th Semester (Fall)

MAC 122	CNC Turning	1-3-2
MAC 153	Compound Angles	1-2-2
MAC 241	Jigs and Fixtures I	2-6-4
MAC 245	Mold Construction I	2-6-4
ENG 116	Technical Report Writing	3-0-3
OR		
ENG 114	Professional Research and Reporting	3-0-3

9-17-15

5th Semester (Spring)

MAC 224	Advanced CNC Milling	1-3-2
MAC 226	CNC EDM Machining	1-3-2
MAC 243	Die Making I	2-6-4
MAC 246	Mold Construction II	1-9-4
MEC 110	Introduction to CAD/CAM	1-2-2

6-23-14

6th Semester (Summer)

MAC 244	Die Making II	1-9-4
	Social/Behavioral Science Elective	3-0-3

4-9-7

Total Semester Hours Credit: 76/77

Telecommunications Installation and Maintenance

Credential: Diploma in Telecommunications Installation and Maintenance D50380

The Telecommunications Installation and Maintenance curriculum prepares individuals for jobs in the telecommunications industry. It provides fundamental training for new students and provides upgrade training for current employees of telecommunications companies. Coursework includes basic electricity, cable splicing, fiber optics, LAN/WAN, cable fault location and repair, central office administration, standards and codes, and other related topics. Emphasis is placed on hands-on installation and maintenance training. A graduate should be prepared to work in the telecommunications industry in outside plant operations, on central office equipment, and on business communication equipment.

Program Length: 3 semesters

Career Pathway Options: Diploma in Telecommunications Installation and Maintenance

Program Sites: North Carolina School of Telecommunications. Day and selected evening courses. Corporate and career-centered programs.

Course Requirements for Telecommunications Installation and Maintenance Diploma

A. General Education Courses (6 SHC)		C-L-SHC
*ENG 102	Applied Communication II	3-0-3
	Humanities or Social/Behavioral Science	
	Elective	3-0-3

B. Required Major Core Courses (17 SHC)

TCT 103	Installer Level I Cabling	1-2-2
TEL 100	Telecommunications Basic Electricity	3-0-3
TEL 105	Fiber Optics: Splicing	1-2-2
TEL 106	Fiber Optics: Connectors	1-2-2
TEL 108	Comdial Key Systems	0-2-1
TEL 201	Station Installation and Repair	1-2-2
TEL 202	Cable Splicing	1-2-2
TEL 203	Cable Fault Location	0-2-1
TEL 205	Digital Central Office Administration	1-2-2

C. Other Major Hours Required for Graduation (18 SHC)

	Business Elective	3
**CIS 111	Basic PC Literacy	1-2-2
***MAT 101	Applied Mathematics I	2-2-3
TEL 209	ADSL Installation	0-2-1
	Major Electives	9

Business Electives (Choose one course)

BUS 110	Introduction to Business	3-0-3
BUS 125	Personal Finance	3-0-3
BUS 137	Principles of Management	3-0-3
BUS 151	People Skills	3-0-3

BUS 152	Human Relations	3-0-3
BUS 230	Small Business Management	3-0-3
BUS 255	Organizational Behavior in Business	3-0-3
BUS 270	Professional Development	3-0-3
BUS 280	REAL Small Business	4-0-4

Major Elective Course Listing - Select a minimum of 9 SHC from one of the following groups:

(Telecommunications Group)

ELC 144	OTDR Operation	1-0-1
NET 113	Home Automation Systems	2-2-3
TEL 102	Pole Climbing	0-2-1
TEL 104	CATV Installation and Repair: Distribution	0-2-1
TEL 109	T-1 Span Line Maintenance	0-2-1
TEL 204	Transmission Fundamentals	2-0-2
TCT 100	Telco Safety Regulations	1-2-2
TCT 101	Vault Management	1-2-2
TCT 102	Underground Locating	1-2-2
TCT 104	Installer Level 2 Copper	1-2-2
TCT 105	Installer Level 2 Fiber	1-2-2
TCT 106	Technician Level Cabling	1-2-2

(Small Home/Small Office Networking Group)

NET 113	Home Automation Systems	2-2-3
NET 125	Networking Basics	1-4-3
NET 126	Routing Basics	1-4-3
NET 175	Wireless Technologies	2-2-3

(Networking Infrastructure Group)

NET 116	Fundamentals of Voice/Data Cable	2-2-3
NET 125	Networking Basics	1-4-3
NET 126	Routing Basics	1-4-3
NET 225	Routing and Switching	1-4-3
NET 230	Wide Area Networking	2-2-3

*Students may substitute ENG 111/111A

**Students may substitute CIS 110

***Students may substitute MAT 140 or higher

Total Semester Hours Credit required for Graduation: 41

Semester Curriculum for Telecommunications Installation and Maintenance Diploma

1st Semester (Fall)		C-L-SHC
TCT 103	Installer Level I Cabling	1-2-2
TEL 100	Telecommunication Basic Electricity	3-0-3
TEL 105	Fiber Optics: Splicing	1-2-2
TEL 106	Fiber Optics: Connectors	1-2-2
TEL 108	Comdial Key Systems	0-2-1
TEL 201	Station Installation and Repair	1-2-2
TEL 202	Cable Splicing	1-2-2
TEL 203	Cable Fault Location	0-2-1
TEL 205	Digital Central Office Administration	1-2-2
TEL 209	ADSL Installation	0-2-1
		9-18-18

2nd Semester (Spring)

BUS	Business Elective	3
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CIS 111	Basic PC Literacy	1-2-2
ENG 102	Applied Communication II	3-0-3
	Humanities or Social/Behavioral Science	
	Elective	3-0-3
MAT 101	Applied Math I	2-2-3
	Major Elective	3
		12-4-17

3rd Semester (Summer)

Major Elective	6
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Total Semester Hours Credit: 41

Telecommunications Installation and Maintenance

Credential: Certificate in Telecommunications Installation and Maintenance C50380

The Telecommunications Installation and Maintenance curriculum prepares individuals for jobs in the telecommunications industry. It provides fundamental training for new students and provides upgrade training for current employees of telecommunications companies. Coursework includes basic electricity, cable splicing, fiber optics, LAN/WAN, cable fault location and repair, central office administration, standards and codes, and other related topics. Emphasis is placed on hands-on installation and maintenance training. A graduate should be prepared to work in the telecommunications industry in outside plant operations, on central office equipment, and on business communication equipment.

Program Length: 1 semester

Career Pathway Options: Certificate in Telecommunications Installation and Maintenance

Program Sites: N. C. School of Telecommunications – Day

Course Requirements for Telecommunications Installation and Maintenance Certificate

Required Major Courses (18 SHC)		C-L-SHC
TCT 103	Installer Level 1 Cabling	1-2-2
TEL 100	Telecommunication Basic Electricity	3-0-3
TEL 105	Fiber Optics: Splicing	1-2-2
TEL 106	Fiber Optics: Connectors	1-2-2
TEL 108	Comdial Key Systems	0-2-1
TEL 201	Station Installation and Repair	1-2-2
TEL 202	Cable Splicing	1-2-2
TEL 203	Cable Fault Location	0-2-1
TEL 205	Digital Central Office Administration	1-2-2
TEL 209	ADSL Installation	0-2-1

Total Semester Hours Credit required for graduation: 18

Semester Curriculum for Telecommunications Installation and Maintenance Certificate

1st Semester (Fall or Spring)	C-L-SHC
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TEL 100	Telecommunication Basic Electricity	3-0-3
TEL 105	Fiber Optics: Splicing	1-2-2
TEL 106	Fiber Optics: Connectors	1-2-2
TEL 108	Comdial Key Systems	0-2-1
TCT 103	Installer Level 1 Cabling	1-2-2
TEL 201	Station Install/Repair	1-2-2
TEL 202	Cable Splicing	1-2-2
TEL 203	Cable Fault Location	0-2-1
TEL 205	Digital Central Office Administration	1-2-2
TEL 209	ADSL Installation	0-2-1
		9-18-18

Total Semester Hours Credit: 18

Public Service Technologies

Barbering Credential: Diploma in Barbering D55110

The Barbering Curriculum is designed to provide competency-based knowledge, scientific/artistic principles and hands-on fundamentals associated with the barbering industry. The curriculum also provides a simulated environment that enables students to develop manipulative skills. Coursework includes instruction in all phases of professional barbering, hair design, chemical processes, skin care, nail care, multi-cultural practices, business/computer principles, product knowledge and other selected topics. Graduates should qualify to sit for the State Board of Examiners. Upon successfully passing the State Board exam, graduates will be issued a license. Employment is available in barbershops and related businesses.

Program Length: 4 semesters

Career Pathway Options: Diploma in Barbering

Program Sites: West Harnett Campus - Day and Evening
Chatham Campus - Evening

Course Requirements for Barbering Diploma

A. General Education (6 SHC)	C-L-SHC
ENG 102 Applied Communication II	3-0-3
Social/Behavioral Science Elective	3-0-3

B. Required Major Core Courses (32 SHC)

BAR 111(A/B) *Barbering Concepts I	4-0-4
BAR 112(A/B) Barbering Clinic I	0-24-8
BAR 113(A/B) Barbering Concepts II	4-0-4
BAR 114(A/B) Barbering Clinic II	0-24-8
BAR 115(A/B) Barbering Concepts III	4-0-4
BAR 116(A/B) Barbering Clinic III	0-12-4

C. Other Major Hours Required for Graduation (9 SHC)

BAR 117(A/B) Barbering Concepts IV	2-0-2
BAR 118(A/B) Clinic IV	0-21-7

*Courses divided into A/B sections for part-time day/evening students.

Total Semester Hours Credit required for graduation: 47

Semester Curriculum for Barbering Diploma

1st Semester (Fall)	C-L-SHC
BAR 111 Barbering Concepts I	4-0-4
BAR 112 Barbering Clinic I	0-24-8
	4-24-12
2nd Semester (Spring)	
BAR 113 Barbering Concepts II	4-0-4
BAR 114 Barbering Clinic II	0-24-8
	4-24-12
3rd Semester (Summer)	
BAR 115 Barbering Concepts III	4-0-4