ELECTRONICS TECHNOLOGY – Associate in Applied Science (AAS) (2018-2019 Catalog)

Electronics Technology – Specialized Diploma (SD)

Student Name: _____

Advisor Name: _____

Developmental Education Courses *(if required)*

	English Placement			Math Placement	
☐	ACLS025	Academic Reading and Writing Skills I	☐	MATH 020	Pre-Algebra
☐	ACLS026	Academic Reading and Writing Skills II	☐	MATH 022	Elementary Algebra
☐	ACLS050	Introduction to Academic Literacy	☐	MATH 026	Intermediate Algebra
☐	ENGL027	Writing Skills Workshop			

SEMESTER-BY-SEMESTER PROGRAM MAP FOR FULL-TIME STUDENTS

Courses are listed in preferred order of completion

Plans can be modified to fit the needs of part-time students by adding more semesters

Choose your courses with your Success Navigator or Faculty Advisor.

Complete	**Semester 1**						
	Course #	Course Title	Credits	Applies to	Gen Ed	Term/Location Offered (Fall, Winter, Spring, Summer) (Bethlehem, Monroe, Fowler, Online)	Pre-requisites / Co-requisites (PRE / CO)
☐	COLS101	College Success	1	AAS, SD		FA, SP, SU; BETH, MROE, DIST	
☐	ELEC101	DC/AC Circuit Analysis I	4	AAS, SD		FA; BETH, MROE	PRE: MATH026 or placement
☐	ELEC121	Technical Computer Applications	2	AAS, SD		FA; BETH	
☐	ELEC177	Electronics Manufacturing I	2	AAS, SD		FA; BETH	
☐	ENGL101	English I	3	AAS	Communication	FA, SP, SU; BETH, MROE, DIST	PRE: ENGL Placement Policy
☐	MATH140	College Algebra	3	AAS, SD	QL	FA, SP, SU; BETH, MROE, DIST	PRE: MATH026 or MATH Placement
☐		AH, SIT, or SSHB General Education Elective	3	AAS		FA, SP, SU; BETH, MROE, DIST	
		Total Semester Credits:	18				
Complete	**Semester 2**						
	Course #	Course Title	Credits	Applies to	Gen Ed	Term/Location Offered	Pre-requisites/Co-requisites
☐	CMTH102	Speech Communication	3	AAS	Communication	FA, SP, SU; BETH, MROE, DIST	
☐	ELEC126	Digital Electronics I	3	AAS ,SD		SP; BETH	PRE: ELEC101
☐	ELEC151	DC/AC Circuit Analysis II	4	AAS, SD		SP; BETH	PRE: ELEC101 PRE or CO: MATH140
☐	ELEC155	Introduction to Solid State Devices	2	AAS, SD		SP; BETH	PRE: ELEC101 PRE or CO: EMEC115
☐	EMEC115	Mechanical Skills for Technicians	1	AAS, SD		SP; BETH	
☐	ENGL151T	English II (Technical Writing)	3	AAS	Communication	FA, SP, SU; BETH, MROE, DIST	PRE: ENGL101
		Total Semester Credits	16				
Complete	**Semester 3**						
	Course #	Course Title	Credits	Applies to	Gen Ed	Term/Location Offered	Pre-requisites/Co-requisites
☐	ELEC207	Solid State Circuits	4	AAS		FA; BETH	PRE: ELEC155
☐	ELEC208	Digital Electronics II	3	AAS		FA; BETH	PRE: ELEC126
☐	ENGG100	Engineering Graphics	3	AAS		FA, SU; BETH	
☐	PHYS101 or CHEM120	Physics I or General Chemistry I	4	AAS	Science	FA, SP, SU; BETH, MROE, DIST	PRE: MATH140 with C or better PRE: MATH022 or placement; 1 yr HS Chemistry (or CHEM011), English I eligibility
		Total Semester Credits	14				
Complete	**Semester 4**						
	Course #	Course Title	Credits	Applies to	Gen Ed	Term/Location Offered	Pre-requisites/Co-requisites
☐	ELEC226	Microprocessors I	3	AAS		SP; BETH	PRE: ELEC208
☐	ELEC230	Team Project	2	AAS		SP; BETH	PRE or CO: ELEC177, 232, & 226; ENGL151
☐	ELEC232	Linear Integrated Circuits	4	AAS		SP; BETH	PRE: ELEC207
☐		AH, SIT, or SSHB General Education Elective	3	AAS	AH, SIT, or SSHB	FA, SP, SU; BETH, MROE, DIST	
☐		Elective	3	AAS		FA, SP, SU; BETH, MROE, DIST	
		Total Semester Credits:	15				

	Total Degree Credits:	63 (AAS) 22 (SD)

Notes:

- For the General Education Electives, students must select one course from the list of approved courses in two of the following categories: Arts & Humanities (AH), Social Science: Societies & Institutions over Time (SIT); Social Science: Scientific Study of Human Behavior (SSHB). **One general education elective (AH, SIT, SSHB) must be taken in a Writing Intensive (WI) section.** Writing Intensive courses end in "G" (e.g. PSYC103G). **One course should be designated as Diversity and Global Awareness (D)**. These can be taken during the summer or winter terms to lighten fall and/or spring workload.
- ENGL151T Technical Writing (Semester 2) is recommended but any ENGL151 option is acceptable.
- The Science (SCI) requirement (Semester 3) can be met with PHYS101 Physics I, CHEM120 General Chemistry I, or BIOS204 Anatomy & Physiology I.
    - Physics is recommended for general Electronics Technology preparation (including transfer).
    - Chemistry is required of students intending to participate in the PSU Nanofabrication capstone semester.
    - Biology is recommended for students who are interested in pursuing a career in the biomedical field.
- The Elective (Semester 4) is any 100 or 200 level course, except EARL221 & 222.
- Students who plan to transfer should work closely with their transfer institution and program advisor to optimize preparation for transfer in meeting their degree requirements.
- Computer competencies are included in various course in this program. Thus, completing the program automatically satisfies the computing requirement for this program.

Program Narrative:

- Today's high technology companies want to hire well-rounded electronics technicians who can help their businesses grow profitably. Northampton's Electronics Technology program integrates comprehensive electronic circuit theory with practical hands-on lab work. Students develop solid troubleshooting skills using modern industry-quality instruments.
- Northampton graduates are employed in areas such as manufacturing, installation, repair, operation, and product design. Other graduates choose power generation, industrial control, or sales. Employers value Northampton graduates because they are well-trained and can step right in to resolve many design and application problems.
- Our program is based on continuous industry input and evaluation of electronics programs nationwide. The result is a practical curriculum that emphasizes a strong foundation in electronics fundamentals while developing skills critical to success in the field. Your studies will include:
    - Core Coursework: Two semesters of DC/AC circuit analysis, digital electronics, and solid state devices; one semester of linear integrated circuits and microprocessors.
    - Mechanical Skills: Courses include Electronics Manufacturing, Mechanical Skills, and Team Projects.
    - Computer Skills: We emphasize applications such as Multisim, MS Word, Excel, PowerPoint, and SolidWorks.
    - Communication Skills: Your reading, writing, and presentation skills, as applied to technical topics, will be developed over the course of the program.
    - Project Work: Integrated into all semesters.
- Upon graduation, you will be well prepared to enter and advance in the workforce, or you may choose to continue your education toward a four-year Bachelor of Science Degree in Electronics Engineering Technology (BSEET). We have relationships that can create smooth transitions at institutions such as Bloomsburg University (BS in Electrical and Electronic Technology), Pennsylvania State University (Harrisburg Campus), Pennsylvania College of Technology (Williamsport), New Jersey Institute of Technology (Newark, NJ), Rochester Institute of Technology (Rochester, NY), or at many other colleges and universities.
- Students completing this program may also complete their Bachelor of Science degree in Applied Management through Franklin University by completing approximately 24 additional course credits at NCC and an additional 40 course credits through Franklin University's online courses. Check with your advisor for more information and options in course selection.
- We carefully schedule the program's courses so that you can earn the A.A.S. degree in two years of full-time study. Students generally begin the program in August. You can also complete your degree in four years through evening part-time study. An attractive option for many students is to complete the A.A.S. degree through part-time evening study, with employers supporting the continuing education through tuition reimbursement.

Program Learning Outcomes:

- Prototype, evaluate, and assist in the design of electronic circuits using fundamental analog and digital concepts.
- Fabricate electronic circuit layouts and electromechanical prototypes.
- Use computer technology to conduct research, analyze data, simulate circuit performance, design circuits, program microprocessors, and document findings.
- Select and operate electronic test equipment such as digital multimeters, oscilloscopes, power supplies, and function generators to test and troubleshoot analog and digital circuits.
- Apply mathematics and reasoning to predict electronic circuit performance and to analyze data.
- Effectively speak, write, and graphically illustrate the discourse of electronics technology.
- Work both independently and as a contributing member of an effective team.
- Use applied research, critical thinking, and problem solving skills to support lifelong professional development.

Transfer Information:

- Students in sending school districts who attend vocational institutes (BAVTS, MCTI, or CIT) should ask about articulation agreements.
- The program is designed to transfer to BSEET programs where the first two years of the transfer program align closely with the AAS.
    - Pennsylvania State University (Wilkes-Barre, Harrisburg, & Penn College of Technology campuses)
    - Drexel University
    - Temple
    - California University of PA
    - See https://www.universities.com/find/pennsylvania/best/engineering-technology-degrees
- Graduates of this program can transfer their coursework towards one of these online Bachelor's degrees:
    - Bachelor of Science in Applied Management through Franklin University.
    - Bachelor of Applied Science in Technical Leadership through Bloomsburg University. (All Bloomsburg courses are taught at Northampton Community College.)
- Students planning to transfer should consult with the program advisor and the 4-year institution for guidance in course selection.

Career Information:

- Fields that employ electronic technicians include
    - Manufacturing
    - Telecommunications
    - Broadcast and Audio Engineering
    - Biomedical Technology
- See https://northampton.emsicc.com/programs/electronics-technology-aas/214379 for information on career options for electronics technicians.

Arts & Humanities (AH) Electives	Societies & Institutions over Time (SIT) Electives	Diversity (D) Electives
ARTA 100 Art and Visual Thinking	CMTH 221 History of Broadcasting	BIOS 126 Environmental Science
ARTA 101 Art History Survey	GEOG 101 World Geography	BIOS 210 Environmental Biology
CMTH 110 Introduction to the Theatre	GEOG 151 Geography of the U.S. and Canada (G-WI)	BUSA 115 Intro to International Business
CMTH 111 Acting I	GLBL 130 Intro to Global Studies	CJST 250 Contemporary Issues in Criminal Justice
CMTH 115 Technical Theatre	GLBL 160 Field Experience & Acad Research in GS	CMTH 126 The Communication Arts
CMTH 117 Stagecraft	GLBL 230 Global Studies Capstone	CMTH 211 Plays: Classical to Contemporary
CMTH 126 The Communication Arts	HIST 103 Ancient and Medieval History	CMTH 215 Intercultural Communication
CMTH 189 Stage Voice and Movement	HIST 113 American History I (G-WI)	DANC 101 Dance History
CMTH 190 Stage Production	HIST 121 The Black Experience (G-WI)	ENGL 151L English II (Literature)
CMTH 206 Directing	HIST 123 African Civilization	ENGL 205 American Literature I
CMTH 211 Plays: Classical to Contemporary (G-WI)	HIST 140 Modern Chinese History	ENGL 211 Plays: Classical to Contemporary
CMTH 212 Acting II	HIST 153 Found of Mod Euro History, 1300-1815 (G-WI)	ENGL 215 Multicultural Adolescent Literature
CMTH 218 Theatre Portfolio	HIST 163 American History II	ENGL 250 Latin American Literature
CMTH 220 Introduction to Film	HIST 165 The American Experience of Warfare	ENGL 251 British Literature II
DANC 101 Dance History	HIST 166 Civil War and Reconstruction (G-WI)	ENGL 253 Creative Writing
DANC 110 Ballet I	HIST 168 History of the Middle East (G-WI)	ENGL 255 American Literature II
DANC 120 Modern Dance I	HIST 173 Mod European History, 1815 to Present (G-WI)	ENGL 256 Modern Poetry
DANC 130 Jazz I	HIST 210 History of Mod Science, 1859 to Present	ENGL 257 20th Century Lit by Women
DANC 210 Ballet II	HIST 211 History of Pennsylvania	ENGL 260 Contemporary Literature
DANC 220 Modern Dance II	INTS 202 The Architecture of the City: Classic to Contemporary	ENGL 264 Irish Literature
DANC 230 Jazz II	POLS 101 Introduction to Political Science	ENGL 265 African-American Literature
ENGL 201 British Literature I (G-WI)	POLS 105 American Constitutional Law (G-WI)	ENGL 267 Poetry Writing
ENGL 203 Shakespeare (G-WI)	POLS 110 American National Government (G-WI)	GEOG 101 World Geography
ENGL 205 American Literature I (G-WI)	POLS 150 Peace Studies & Conflict Resolution (Study Abroad)	GEOG 121 Environmental Sustainability
ENGL 211 Plays: Classical to Contemporary (G-WI)	POLS 170 Politics of Modern Turkey (Study Abroad)	GEOG 151 Geography of the U.S. and Canada
ENGL 215 Multicultural Adolescent Literature (G-WI)	POLS 202 International Relations	GEOG 210 Weather and Climate
ENGL 250 Latin American Literature (G-WI)	POLS 205 Women and Politics (G-WI)	GLBL 130 Intro to Global Studies
ENGL 251 British Literature II (G-WI)	POLS 251 State and Local Government (G-WI)	GLBL 160 Field Experience & Acad Research in GS
ENGL 253 Creative Writing	SOCA 102 Cultural Anthropology (G-WI)	GLBL 230 Global Studies Capstone
ENGL 255 American Literature II (G-WI)	SOCA 105 American Ethnicity	HIST 113 American History I
ENGL 256 Modern Poetry (G-WI)	SOCA 160 Issues in Contemporary Genocide & Mass Violence	HIST 121 The Black Experience
ENGL 257 20th Century Lit by Women (G-WI)		HIST 140 Modern Chinese History
ENGL258 Fiction Writing		HIST 165 The American Experience of Warfare
ENGL 260 Contemporary Literature (G-WI)		HIST 166 Civil War & Reconstruction
ENGL 264 Irish Literature (G-WI)	**Scientific Study of Human Behavior (SSHB) Electives**	HIST 168 History of the Middle East
ENGL 265 African-American Literature (G-WI)	ECON 201 Macroeconomics	HIST 173 Mod Euro History: 1815-Present
ENGL 267 Poetry Writing	GEOG 121 Environmental Sustainability (G-WI))	HUMA 121 American Work Experience
HUMA 121 The American Work Experience (G-WI)	GEOG 140 Investigating Climate Change	HUMA 140 Intro to Women and Gender Studies
HUMA 140 Intro to Women and Gender Studies (G-WI)	GEOG 271 Intro to Geographic Info Systems	HUMA 150 Nature of the Environment
HUMA210 Creativity and the Origin of Ideas	HUMA 250 Research Methods in Social Sciences (G-WI)	HUMA210 Creativity and The Origin of Ideas
JOUR 101 Journalism and Society	INTS 250 Study Abroad	INTS 201 Implement Sustain Energy Sys in Dev Com
Modern Language - All MDLA Courses	PSYC 103 Introduction to Psychology (G-WI)	Modern Language - All MDLA Courses
MUSC 101 Introduction to Music	PSYC 230 Introduction to Health Psychology	PHIL111 On Death and Dying
PHIL 111 On Death and Dying (G-WI)	PSYC 235 Dev Child Psychopathology	PHIL 121 World Religions
PHIL 121 World Religions	PSYC 245 Cognitive Psychology	PHIL 204 Asian Philosophies
PHIL 201 Introduction to Philosophy	PSYC 255 Abnormal Psychology	POLS 101 Introduction to Political Science
PHIL 202 Ethics and Moral Problems (G-WI)	PSYC 258 Developmental Psychology (G-WI)	POLS 105G American Constitutional Law
PHIL 204 Asian Philosophies	PSYC 265 Psychology of Sex and Gender	POLS 150 Peace Studies & Conflict Resolution (Study Abroad)
PHIL 211 Ancient Philosophy	SOCA 103 Principles of Sociology (G-WI)	POLS 202 International Relations
PHIL 215 Modern Philosophy	SOCA 125 Sociology of Families (G-WI)	POLS205 Women & Politics
PHIL 225 What is Freedom?	SOCA 210 Sociology of Gender	POLS 251 State & Local Government
		PSYC 258 Developmental Psychology
		SOCA 102 Cultural Anthropology
		SOCA103 Principles of Sociology
		SOCA 105 American Ethnicity
Electives: All courses except: OXX-level courses; EARL 221, EARL 222.		SOCA 150 Deviance
		SOCA160 Issues in Cont Genocide & Mass Violence
		SOCA204 Social Problems

Note: General Education courses offered as writing intensive are noted with a G-WI