Program Announcement: Undergraduate Degree Program

Form 1A

Version 2014-11-17

Before submitting a proposal for a new program leading to an undergraduate degree, a SUNY campus must submit a cover letter signed by the Chief Executive or Chief Academic Officer and a completed Program Announcement (PA) to the SUNY Provost at *program.review@.suny.edu*. The PA procedure is described at the end of this form.

Section 1. General Information		
a) Institutional Information	List each campus (and its 6-digit SED Institution Code) where the entire program will be offered: State University of New York at Canton (261000)	
b) Program Locations	List the name and address of each off-campus location (e.g., extension site or extension center) where courses (but not the entire program) will offered, **or check here [X] if not applicable.** If applicable, send documentation to show that SUNY policy on off-campus locations has been followed.	
	Will 50% or more of the program be offered at a distance? [X] Yes [ ] No	
c) Proposed Program Information	Program Title:	Electrical Engineering Technology
	Award(s) (e.g., A.A.S., B.A.):	B.S.
	Number of Required Credits:	Minimum [60] If tracks or options, largest minimum [ ]
	Proposed Program Codes:	HEGIS Code [0925] 6-digit CIP 2010 Code [15.0303]
	If the program will be accredited, list the accrediting agency and expected date of accreditation: Accreditation Board for Engineering and Technology (2021)	
	If applicable, list the New York State certificate title(s) and type(s) to which the program leads:	
	If applicable, list the New York State professional licensure title(s) to which the program leads:	
d) Campus Contact	Name and title: Michael Newtown, Dean of School of Engineering Technology Telephone: 315-386-7411 E-mail: newtownm@canton.edu	
e) Chief Executive or Chief Academic Officer Approval	**Signature affirms that the proposal has met all applicable campus administrative and shared governance procedures for consultation, and the institution's commitment to support the proposed program.** ***E-signatures are acceptable.*** Name and title: Dr. Douglas M. Scheidt, Provost/VP for Academic Affairs Signature and date:  09/05/2017	
	If the intended program will be offered jointly with one or more other institutions, provide the following information for each institution:	
	Partner institution's name and 6-digit SED Code: Name, title, and signature of partner institution's CEO (or **append** a signed letter indicating approval of this proposal):	

Section 2. Program Summary

In 300 or fewer words, describe the proposed program, including its purpose, content, structure and duration.

The online Bachelor of Science (B.S) degree in Electrical Engineering Technology is an upper division format only program, and it is being design to provide opportunity for graduates with Associate Degree or Equivalent and currently working in industry or academia. Student admitted into this program will use hardwire and software to complete laboratory projects. Equipment package from Electronix Express (Oscilloscope, Function Generator, Power Supply, and Digital Multimeter) is available for under $1200, and will be required for all students. Students who have less than 21-credit hours in liberal Arts from their AAS degree or equivalent qualification will be required to take more courses in Liberal Arts to meet SUNY requirement for (60 credit hours).

Expected Enrollment	When Program Begins	In Year 5
Full-time students	5	20
Part-time students	10	50

Section 3. Curriculum

Provide a list of all courses in the curriculum (including Liberal Arts and Sciences, SUNY General Education Requirement, Transfer Path courses) to show the entire structure and content of the program. Expand or duplicate this table as needed for tracks, concentrations and specializations.

Lower Division	
Course Title	**Credits**

Upper Division (as applicable)	
Course Title	**Credits**
AAS degree *or* Equivalent Transfer Credits	60-64
Semester 5	
SOET374 Industrial Management	3
MATH 162 Calculus II	4
MATH 141 Statistics I	3
ELEC383 Power Transmission & Distribution	3
Liberal Arts Elective	3
	16
Semester 6	
MATH 263 Calculus III	4
ELEC 343 Advanced Circuit Analysis	3
ELEC 385 Electronic Communications	3
Liberal Arts Elective (Upper Level)	3
Liberal Arts Elective (Upper Level)	3
	16
Semester 7	
ELEC 380 LAN/WAN Technology	3
MATH 364 Differential Equations	4
Liberal Arts Elective (Upper Level)	3
Liberal Arts Elective (Upper Level)	3
	13
Semester 8	
SOET 370 Engineering Economics	3
ELEC 477 Capstone Project	3
Liberal Arts Elective (Upper Level)	3
Liberal Arts Elective (Upper Level)	3
Liberal Arts Elective (Upper Level)	3

			15
Total required credits:			**60**

Optional, Illustrative Questions to Consider:
For other SUNY campuses responding to the Program Announcement

• Do you have a similar or related program? •What has been your experience with the program? •Would the introduction of this program have any effect, positive or negative, on your institution? If so, please specify. •Do you perceive a need for this kind of program? •Does the program offer an opportunity for articulation or inter-institutional cooperation?

Your response must be in writing, from your President, and addressed to the President of the proposing campus, with a copy to the SUNY Provost at *program.review@.suny.edu*.

Procedure for Program Announcements (PA)

1. SCOPE. A SUNY campus must send a PA to the SUNY Provost at *program.review@suny.edu* before submitting a proposal for a new program leading to an undergraduate degree. Unless requested by the SUNY Provost, a PA is not required for a program leading to an undergraduate certificate, for a new program being created by combining existing registered programs (e.g., multi-award programs and/or multi-institution programs), or for a new program being created from a track, specialization, or concentration in a registered program.

2. SUNY PROVOST'S REVIEW. The SUNY Provost's Office reviews each PA for accuracy and completeness as well as for substantive issues, such as alignment with campus mission and SUNY policy, and requests changes when needed.

3. PUBLICATION FOR COMMENTS. Once a PA is acceptable to the SUNY Provost, it is announced on the SUNY Program Review listserv in a weekly *Program Review Update,* which starts a 30-day intra-SUNY comment period. The listserv includes all campus presidents, chief academic officers, and others upon request. The PA enables other SUNY campuses – particularly those with experience with related programs – to provide information to the proposing campus that can be used to construct a sound program proposal.

4. COMMENTS FROM OTHER CAMPUSES. The President of each interested campus must send comments within 30 days of a PA's publication in the *Program Review Update* to the President of the proposing campus, with a copy to the Provost at *program.review@suny.edu*. Comments may include advice and suggestions about possible articulation opportunities, enrollment trends in related programs, and opportunities for cooperation, as well as concerns or objections.

5. FOLLOWING THE COMMENT PERIOD. Once the 30-day comment period for a PA ends, and any concerns and/or objections have been resolved, the campus may prepare a full proposal for the SUNY Provost and, when required, begin the external evaluation process.

6. EXPIRATION. A PA expires one year after its publication in the *Program Review Update.* If the proposing campus does not submit a program proposal to the SUNY Provost before a PA expires, the campus must submit another PA to start the process again.

New Program Proposal: Undergraduate Degree Program

Form 2A

Version 2017-08-28

This form should be used to seek SUNY's approval and New York State Education Department's (SED) registration of a proposed new academic program leading to an associate and/or bachelor's degree. Approval and registration are both required before a proposed program can be promoted or advertised, or can enroll students. The campus Chief Executive or Chief Academic Officer should send a signed cover letter and this completed form (unless a different form applies[1]), which should include appended items that may be required for Sections 1 through 6, 9 and 10 and MPA-1 of this form, to the SUNY Provost at *program.review@suny.edu*. The completed form and appended items should be sent as a single, continuously paginated document.[2] If Sections 7 and 8 of this form apply, External Evaluation Reports and a single Institutional Response should also be sent, but in a separate electronic document. Guidance on academic program planning is available here.

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NOTE: Please update this Table of Contents automatically after the form has been completed. *To do this, put the cursor anywhere over the Table of Contents, right click, and, on the pop-up menus, select "Update Field" and then "Update Page Numbers Only." The last item in the Table of Contents is the List of Appended and/or Accompanying Items, but the actual appended items should continue the pagination.*

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[1] Use a **different form** if the proposed new program will lead to a graduate degree or any credit-bearing certificate; be a combination of existing registered programs (i.e. for a multi-award or multi-institution program); be a breakout of a registered track or option in an existing registered program; or **lead to certification as a classroom teacher, school or district leader, or pupil personnel services professional** (e.g., school counselor).

[2] This email address limits attachments to 25 MB. If a file with the proposal and appended materials exceeds that limit, it should be emailed in parts.

tion 1. General Information

nstitutional Information	*Date of Proposal:*	November 29, 2017
	Institution's 6-digit SED Code: -	261000
	Institution's Name:	State University of New York at Canton
	Address:	34 Cornell Drive, Canton New York 13617
	Dept of Labor/Regent's Region:	
b) Program Locations	*List each campus where the entire program will be offered (with each institutional or branch campus 6-digit SED Code):26000*	
	List the name and address of off-campus locations (i.e., extension sites or extension centers) where courses will offered, ***or check here [X] if not applicable:***	
roposed Program Information	*Program Title:*	Bachelor of Science in Electrical Engineering Technology
	Award(s) (e.g., A.A., B.S.):	B.S.
	Number of Required Credits:	*imum [60] If tracks or options, largest minimum [ ]*
	Proposed HEGIS Code:	0925
	Proposed 6-digit CIP 2010 Code:	15.0303
	If the program will be accredited, list the accrediting agency and expected date of accreditation: Accreditation Board for Engineering and Technology (ABET) - 2021	
	If applicable, list the SED professional licensure title(s)[3] to which the program leads:	
npus Contact	*Name and title: Michael J. Newtown, P.E. Dean, Canino School of Engineering Technology* *Telephone: 315-386-7411 E-mail: newtownm@canton.edu*	
ef Executive or Chief Academic icer Approval	***Signature affirms that the proposal has met all applicable campus administrative and shared governance procedures for consultation, and the institution's commitment to support the proposed program.*** ***E-signatures are acceptable*** Name and title: Douglas M. Scheidt, Ph.D., Provost and Vice President of Academic Affairs Signature and date: 5.31.18	
	If the program will be registered jointly[4] with one or more other institutions, provide the following information for <u>each</u> institution:	
	Partner institution's name and 6-digit SED Code: *Name, title, and signature of partner institution's CEO (or* ***append*** *a signed letter indicating approval of this proposal):*	

[3] If the proposed program leads to a professional license, a specialized form for the specific profession may need to accompany this proposal.

[4] If the partner institution is non-degree-granting, see SED's CEO Memo 94-04.

Attestation and Assurances

On behalf of the institution, I hereby attest to the following:

That all educational activities offered as part of this proposed curriculum are aligned with the institutions' goals and objectives and meet all statutory and regulatory requirements, including but not limited to Parts 50, 52, 53 and 54 of the Rules of the Board of Regents and the following specific requirements:

That credit for study in the proposed program will be granted consistent with the requirements in §50.1(o).

That, consistent with §52.1(b)(3), a reviewing system has been devised to estimate the success of students and faculty in achieving the goals and objectives of the program, including the use of data to inform program improvements.[5]

That, consistent with §52.2(a), the institution possesses the financial resources necessary to accomplish its mission and the purposes of each registered program, provides classrooms and other necessary facilities and equipment as described in §52.2(a)(2) and (3), sufficient for the programs dependent on their use, and provides libraries and library resources and maintains collections sufficient to support the institution and each registered curriculum as provided in §52.2(a)(4), including for the program proposed in this application.

That, consistent with 52.2(b), the information provided in this application demonstrates that the institution is in compliance with the requirements of §52.2(b), relating to faculty.

That all curriculum and courses are offered and all credits are awarded, consistent with the requirements of §52.2(c).

That admissions decisions are made consistent with the requirements of §52.2(d)(1) and (2) of the Regulations of the Commissioner of Education.

That, consistent with §52.2(e) of the Regulations of the Commissioner of Education: overall educational policy and its implementation are the responsibility of the institution's faculty and academic officers, that the institution establishes, publishes and enforces explicit policies as required by §52.2(e)(3), that academic policies applicable to each course as required by §52.2(e)(4), including learning objectives and methods of assessing student achievement, are made explicit by the instructor at the beginning of each term; that the institution provides academic advice to students as required by §52.2(e)(5), that the institution maintains and provides student records as required by §52.2(e)(6).

That, consistent with §52.2(f)(2) of the Regulations of the Commissioner of Education, the institution provides adequate academic support services and that all educational activities offered as part of a registered curriculum meet the requirements established by state, the Rules of the Board of Regents and Part 52 of the Commissioner's regulations.

CHIEF ADMINISTRATIVE or ACADEMIC OFFICER/ PROVOST	
Signature	Date
Douglas M. Scheidt	*5.31.18*
Type or print the name and title of signatory:	Phone Number
Douglas M. Scheidt, Ph.D., Provost and Vice President for Academic Affairs	315-386-7202

[5] The NY State Education Department reserves the right to request this data at any time and to use such data as part of its evaluation of future program registration applications submitted by the institution.

Section 2. Program Information

2.1. Program Format

Check all SED-defined formats, mode and other program features that apply to the **entire program**.

a) Format(s): [X]Day [X]Evening [X]Weekend [ ]Evening/Weekend [ ]Not Full-Time

b) Modes: [ ]Standard [ ]Independent Study [ ]External [ ]Accelerated [X]Distance Education
NOTE: If the program is designed to enable students to complete 50% or more of the course requirements through distance education, check Distance Education, see Section 10, and ***append*** *a Distance Education Format Proposal.*

c) Other: [ ] Bilingual [ ] Language Other Than English [X] Upper Division [ ] Cooperative [ ] 4.5 year [ ] 5 year

2.2. Related Degree Program

NOTE: *This section is not applicable to a program leading to an associate's or a bachelor's degree.*

2.3. Program Description, Purposes and Planning

a) What is the description of the program as it will appear in the institution's catalog?

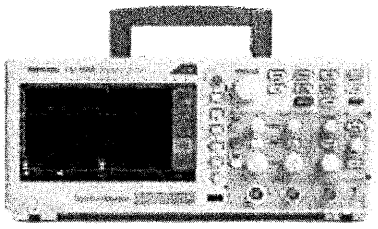
The online Bachelor of Science (B.S.) degree in Electrical Engineering Technology provides opportunity for graduates with Associate of Applied Science (A.A.S) degree or international equivalent qualification in Electrical Engineering/Technology, and currently working in industry or academia to complete their B.S. degree through online course offerings. Student admitted into the program with less than 21-credit hours in liberal Arts from their A.A.S. degree or equivalent qualification will be required to take more courses in liberal Arts to meet SUNY graduation requirement (60 credit hours for liberal Arts).
Student will be required to purchase equipment in order to complete this degree program. A complete list will be available on the program website. The website will state the following: In order to meet Accreditation Board for Engineering Technology (ABET) Student Outcomes, the program will require each student to have access to one of following laboratory tool:

(1) Purchase Digilent Analog Discovery 2 USB Oscilloscope and multi-function instrument that allows student to measure, visualize, generate, record, and control mixed-signal circuits of all types.

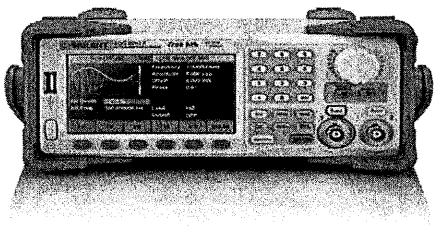
Analog Discovery 2: 100MS/s USB Oscilloscope, Logic Analyzer and Variable Power Supply

(2) Purchase laboratory equipment such as Oscilloscope, Function Generator, Power Supply, and Digital Multimeter.

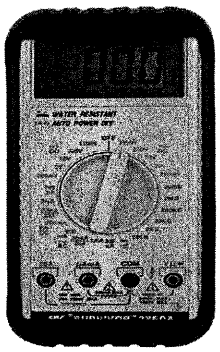
Tektronix Digital Storage Scope 50MHZ ($550)



Siglent Technologies SDG2042X Arbitrary Waveform Function-Generators, 40 MHz ($499)



BK Precision 2860A 1500V Handheld



Ruggedized Digital Multimeter ($100)

Tekpower TP3005D-3 Digital Variable Triple Outputs Linear-type DC Power Supply, 0-30 Volts @ 0-5 Amps ($299)

(3) Student has access to Electrical Engineering Technology laboratory at institution, or workplace to complete all course projects.

- ELEC 380 LAN/WAN Technology course will provide students access to laboratory Ethernet Switches and Routers from off –campus for laboratory projects.
- ELEC 383 Power Transmission & Distribution course will use simulation software for laboratory projects.

- Note: Students who are currently enrolled in a four year Engineering Technology or similar program within SUNY are not qualified for admission into this online (B.S.) program.

b) What are the program's educational and, if appropriate, career objectives, and the program's primary student learning outcomes (SLOs)? ***NOTE:*** *SLOs are defined by the Middle States Commission on Higher Education in the Characteristics of Excellence in Higher Education (2006) as "clearly articulated written statements, expressed in observable terms, of key learning outcomes: the knowledge, skills and competencies that students are expected to exhibit upon completion of the program."*

Program Educational Objectives:

The program educational objectives for the Bachelor of Science degree in Electrical Engineering Technology. Online format is to prepare graduates to advance their careers in engineering technology.

Student Learning Outcomes:

a. An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures;
c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
d. An ability to design systems, components, or processes for broadly-defined engineering technology

programs appropriate to program educational objectives;
e. An ability to function effectively as a member or leader on a technical team;
f. An ability to identify, analyze, and solve broadly-defined engineering technology problems;
g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and ability to identify and use appropriate technical literature;
h. An understanding of the need for and an ability to engage in self-directed continuing professional development;
i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
j A knowledge of the impact of engineering technology solutions in a societal and global context; and
k. A commitment to qualify, timeliness, and continuous improvement.

c) How does the program relate to the institution's and SUNY's mission and strategic goals and priorities? What is the program's importance to the institution, and its relationship to existing and/or projected programs and its expected impact on them? As applicable, how does the program reflect diversity and/or international perspectives? For doctoral programs, what is this program's potential to achieve national and/or international prominence and distinction?

(1) The mission statement at SUNY Canton states "SUNY Canton is dedicated to providing a progression of accessible, affordable, high quality applied programs that enable students in the North Country, New York State, and beyond to achieve their highest potential both personally and professionally". This online program is related to the institution's mission.
(2) The expansion of high quality online degree program is related to SUNY's strategic goals.
(3) The online program will provide opportunity for educational advancement to students with diverse background from around the world.

d) How were faculty involved in the program's design? Describe input by external partners, if any (e.g., employers and institutions offering further education?

All the faculty members in the Electrical Engineering Technology and Engineering Science department participated in the discussions and course development of the (B.S.) online program. Also, department chairs from Mechanical, Civil & environmental, Mathematics, and Graphic & Multimedia had the opportunity to review the program.

e) How did input, if any, from external partners (e.g., educational institutions and employers) or standards influence the program's design? If the program is designed to meet specialized accreditation or other external standards, such as the educational requirements in Commissioner's Regulations for the Profession, **append** a side-by-side chart to show how the program's components meet those external standards. If SED's Office of the Professions requires a specialized form for the profession to which the proposed program leads, **append** a completed form at the end of this document.

(1) The proposal received complete support from Industry Advisory Board (IAB) during 2017 board meeting.
(2) The program is designed to meet Accreditation Board for Engineering and Technology (ABET) standard by using ABET Student Outcomes (a-k) as indicated above.

f) Enter anticipated enrollments for Years 1 through 5 in the table below. How were they determined, and what assumptions were used? What contingencies exist if anticipated enrollments are not achieved?

Past graduates from our Electrical Engineering Technology A.A.S were surveyed to generate an estimate of enrollment. These graduates have been asking for a method to complete a bachelor degree once completed an A.A.S program then working full-time in industry.

As this program utilizes current faculty member of the Electrical Engineering Technology program here at SUNY Canton, any enrollment shortfalls will be absorbed in our traditional class loading. In addition, our campus is utilizing lecture capture for online delivery and this tool will allow lectures to become live, online synchronous or asynchronous allowing students to access these courses to fit their ability to work and attend classes.

Year	Anticipated Headcount Enrollment			Estimated FTE
	Full-time	Part-time	Total	
1	5	5	10	10
2	5	5	10	20
3	5	5	10	30
4	5	5	10	40
5	5	5	10	40

g) Outline all curricular requirements for the proposed program, including prerequisite, core, specialization (track, concentration), internship, capstone, and any other relevant component requirements, but do not list each General Education course.

Course Title	redits
Associate of Applied Science	
or International Equivalent	
is Required for Admission.	

Course Title	redits
Semester 1	
SOET 374 Industrial Management	3
MATH 162 Calculus II	4
MATH 141 Statistics 1	3
ELEC 383 Power Transmission &	3
Liberal Arts Elective	3
	16
Semester 2	
MATH 263 Calculus III	4
ELEC343 Advanced Circuit	3
ELEC385 Electronic	3
Liberal Arts Elective (upper level)	3
Liberal Arts Elective (upper level)	3
	16
Semester 3	
Elec380 LAN/WAN Technology	3
MATH364 Differential Equations	4
Liberal Arts Elective (upper level)	3
Liberal Arts Elective (upper level)	3
	13
Semester 4	
ELEC379 Digital Signal Processing	3
ELEC477 Capstone Project	3
Liberal Arts Elective (upper level)	3
Liberal Arts Elective (upper level)	3
Liberal Arts Elective (upper level)	3
	15
Total required credits: 60	

h) Program Impact on SUNY and New York State

h)(1) ***Need:*** What is the need for the proposed program in terms of the clientele it will serve and the educational and/or economic needs of the area and New York State? How was need determined? Why are similar programs, if any, not meeting the need?

The B.S. degree online program is being design for those already working as Electrical/Electronic Technicians, or similar titles, and with Associate degree in Electrical Engineering Technology or equivalent. The graduates from SUNY Canton AAS degree program in Electrical Engineering Technology, and currently working in industries in New York State and out of sate have expressed their interest in the B.S. online degree program. There aren't many such online programs within the State University of New York. As such, there is a need to provide such engineering technology education to current working technicians to advance in their profession.

h)(2) ***Employment:*** For programs designed to prepare graduates for immediate employment, use the table below to list potential employers of graduates that have requested establishment of the program and state their specific number of positions needed. If letters from employers support the program, they may be **appended** at the end of this form.

Employer	*Need: Projected positions*	
	In initial year	**In fifth year**

This program is designed for graduates who are already working in Electrical Engineering related field for advancement.

h)(3) ***Similar Programs:*** Use the table below to list similar programs at other institutions, public and independent, in the service area, region and state, as appropriate. Expand the table as needed. ***NOTE:*** *Detailed program-level information for SUNY institutions is available in the Academic Program Enterprise System (APES) or Academic Program Dashboards. Institutional research and information security officers at your campus should be able to help provide access to these password-protected sites. For non-SUNY programs, program titles and degree information – but no enrollment data – is available from SED's Inventory of Registered Programs.*

Institution	Program Title	Degree	Enrollment
Excelsior College	Electrical Engineering	B.S.	899
Stony Brook	Electrical Engineering	BSE	34
DeVry University	Electronic Engineering	B.S.	758

h)(4) ***Collaboration:*** Did this program's design benefit from consultation with other SUNY campuses? If so, what was that consultation and its result?

The consultation of the program with other SUNY campuses was beneficial in the sense that one institution needed clarification on admissions requirements.

h)(5) ***Concerns or Objections:*** If concerns and/or objections were raised by other SUNY campuses, how were they resolved?

There was a concern from one SUNY Institution about the possibility of attracting students who are currently in a bachelor's degree program. This concern was resolved by making sure the admission requirement is clearly stated as Associate Degree in Electrical Engineering Technology or closely related field, or international qualification equivalent to Associate Degree in Electrical Engineering Technology.

h)(6) ***Undergraduate Transfer:*** The State University views as one of its highest priorities the facilitation of transfer for undergraduate students. To demonstrate adequate planning for transfer under SUNY's student mobility policy, **Section 9** of this form on **SUNY Undergraduate Transfer** must be completed for programs leading to Associate in Arts (A.A.) and Associate in Science (A.S.) and for baccalaureate programs anticipating transfer enrollment.

The online B.S. degree in Electrical Engineering Technology is not a transfer program.

2.4. Admissions

a) What are all admission requirements for students in this program? Please note those that differ from the institution's minimum admissions requirements and explain why they differ.

The admissions requirements for the online Bachelor of Science in Electrical Engineering Technology are the following:

1. Associate of Applied Science (AAS) degree in Electrical Engineering Technology or closely related field.

OR

2. International Qualifications Equivalent to Associate of Applied Science degree in Electrical Engineering Technology or related field.
3. Students are required to purchase Digilent Analog Discovery USB tool, or purchase laboratory equipment such as Oscilloscope, Function Generator, Power Supply, and Digital-Multimeter, or have access to Electrical Engineering Technology laboratory at institution, or workplace to complete all hands-on projects.

b) What is the process for evaluating exceptions to those requirements?

Program director will evaluate candidate on case-by-case by considering his/her engineering profession, college courses completed, and the ability to complete the program.

c) How will the institution encourage enrollment in this program by persons from groups historically underrepresented in the institution, discipline or occupation?

Faculty will work with admissions office and Industry Advisory Board (IAB) for Electrical Engineering Technology program to encourage qualified candidates to apply for admission. The admissions office will send regular program information to historically underrepresented groups and organizations.

2.5. Academic and Other Support Services

Summarize the academic advising and support services available to help students succeed in the program.

(1) Each student admitted in the program will have a faculty advisor from the Electrical Engineering Technology department, and the student will have access to faculty advisor via email, skype, and phone.

(2) Student will have access to the school of engineering technology tutoring center via email and phone.

(3) Student will have access to course instructor and laboratory technician to respond to questions via email, and phone.

(4) Student will have access to the Secretary of the Dean of Engineering Technology for administrative questions.

(5) Student will have access to SUNY Canton library resources.

(6) Student will have access to SUNY Canton bookstore

2.6. Prior Learning Assessment

If this program will grant credit based on Prior Learning Assessment, describe the methods of evaluating the learning and the maximum number of credits allowed, **or check here [ ] if not applicable.**

Prior learning assessment will be based on courses taking from other institutions of higher learning, and the method of evaluating will be the course content to determine credit. In a special case, a student may take a test in the subject area to determine the skills or knowledge level for prior learning assessment.

2.7. Program Assessment and Improvement

Describe how this program's achievement of its objectives will be assessed, in accordance with *SUNY policy*, including the date of the program's initial assessment and the length (in years) of the assessment cycle. Explain plans for assessing achievement of students learning outcomes during the program and success after completion of the program. **Append** at the end of this form, **a plan or curriculum map** showing the courses in which the program's educational and, if appropriate, career objectives – from Item 2.3(b) of this form – will be taught and assessed. ***NOTE:*** *The University Faculty Senate's Guide for the Evaluation of Undergraduate Programs is a helpful reference.*

The assessment of the program objectives will be based on the following:

(1)Accreditation for Engineering and Technology (ABET) standards by using Criterion 3 –Student Outcomes (a-k)
(2)Employer survey
(3)Graduate survey
(4)Feedback from faculty teaching course in the program
(5)The program will apply for ABET accreditation after graduating the first group of students which is expected in 2021
(6)The initial program assessment will be in 2021, and thereafter will follow 6-year cycle.

Program Educational Objectives:

The program educational objectives for the Bachelor of Science degree in Electrical Engineering Technology. Online format is to prepare graduates to advance their careers in engineering technology.

Student Learning Outcomes:

a) An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
b) An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures;
c) An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
d) An ability to design systems, components, or processes for broadly-defined engineering technology programs appropriate to program educational objectives;
e) An ability to function effectively as a member or leader on a technical team;
f) An ability to identify, analyze, and solve broadly-defined engineering technology problems;
g) An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and ability to identify and use appropriate technical literature;
h) An understanding of the need for and an ability to engage in self-directed continuing professional development;
i) An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
j) j A knowledge of the impact of engineering technology solutions in a societal and global context; and
k) A commitment to qualify, timeliness, and continuous improvement.

Section 3. Program Schedule and Curriculum

Complete the **SUNY Undergraduate Program Schedule** to show how a typical student may progress through the program. This is the registered curriculum, so please be precise. Enter required courses where applicable, and enter generic course types for electives or options. Either complete the blank Schedule that appears in this section, or complete an Excel equivalent that computes all sums for you, and can be found here. Rows for terms that are not required can be deleted.

NOTES: *The **Undergraduate Schedule** must show **all curricular requirements** and demonstrate that the program conforms to SUNY's and SED's policies.*

- *It must show how a student can complete all program requirements within SUNY credit limits, unless a longer period is selected as a format in Item 2.1(c): two years of full-time study (or the equivalent) and 64 credits for an associate degree, or four years of full-time study (or the equivalent) and 126 credits for a bachelor's degree. Bachelor's degree programs should have at least 45 credits of upper division study, with 24 in the major.*
- *It must show how students in A.A., A.S. and bachelor's programs can complete, within the first two years of full-time study (or 60 credits), no fewer than 30 credits in approved SUNY GER courses in the categories of Basic Communication and Mathematics, and in at least 5 of the following 8 categories: Natural Science, Social Science, American History, Western Civilization, Other World Civilizations, Humanities, the Arts and Foreign Languages*
- *It must show how students can complete Liberal Arts and Sciences (LAS) credits appropriate for the degree.*
- *When a SUNY Transfer Path applies to the program, it must show how students can complete the number of SUNY Transfer Path courses shown in the Transfer Path Requirement Summary within the first two years of full-time study (or 60 credits), consistent with SUNY's Student Seamless Transfer policy and MTP 2013-03.*
- *Requests for a program-level waiver of SUNY credit limits, SUNY GER and/or a SUNY Transfer Path require the campus to submit a Waiver Request –with compelling justification(s).*

EXAMPLE FOR ONE TERM: Undergraduate Program Schedule

n 2: Fall 20xx	Credits per classification						
rse Number & Title		R	S		th		requisite(s)
101 Principles of Accounting	4			4	4		
111 College Mathematics	3	M	3	3			110
101 Introduction to Computers	3						
110 Speech	3	BC	3			X	
113 English 102	3	BC	3				
Term credit total:	16	6	9	7	4		

Special Cases for the Program Schedules:

- *For a program with multiple tracks or with multiple schedule options (such as full-time and part-time options), use one Program Schedule for each track or schedule option. Note that licensure qualifying and non-licensure qualifying options cannot be tracks; they must be separate programs.*
- *When this form is used for a multi-award and/or multi-institution program that is not based entirely on existing programs, use the schedule to show how a sample student can complete the proposed program. **NOTE:** Form 3A, Changes to an Existing Program, should be used for new multi-award and/or multi-institution programs that are based entirely on existing programs.*
- *SUNY policy governs the awarding of two degrees at the same level.*
- *Minors require neither SUNY approval nor SED registration.*

a) If the program will be offered through a nontraditional schedule (i.e., not on a semester calendar), what is the schedule and how does it impact financial aid eligibility? ***NOTE:*** *Consult with your campus financial aid administrator for information about nontraditional schedules and financial aid eligibility.*

b) For **each existing course** that is part of the proposed undergraduate major (including cognates and restricted electives, but not including general education), **append a catalog description** at the end of this document,.

c) For **each new course** in the undergraduate program, **append a syllabus** at the end of this document. **NOTE:** Syllabi for all courses should be available upon request. Each syllabus should show that all work for credit is college level and of the appropriate rigor. Syllabi generally include a course description, prerequisites and corequisites, the number of lecture and/or other contact hours per week, credits allocated (consistent with *SUNY policy on credit/contact hours*), general course requirements, and expected student learning outcomes.

New course outlines for each new course is at the end of this document.

d) If the program requires external instruction, such as clinical or field experience, agency placement, an internship, fieldwork, or cooperative education, **append** a completed External Instruction form at the end of this document.
No external instruction will be necessary.

NOTE: The University Faculty Senate's *Internships and Co-ops, A Guide for Planning, Implementation and Assessment* is a helpful reference: http://www.system.suny.edu/media/suny/content-assets/documents/faculty-senate/Internship-Guide--update-10.19.16.pdf

SUNY Undergraduate Sample Program Schedule (*OPTION: You can paste an Excel version of this schedule AFTER this line, and delete the rest of this page.)*
Program/Track Title and Award: Electrical Engineering Technology, B.S.

a) Indicate **academic calendar type:** [x] Semester [ ] Quarter [ ] Trimester [ ] Other (describe):
b) **Label each term in sequence**, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)
c) **Name of SUNY Transfer Path, if one exists: Engineering Technology: Electrical**
d) Use the table to show **how a typical student may progress through the program**; copy/expand the table as needed. **Complete all columns that apply to a course.**

Term 1: Fall 1	See KEY.						
Course Number & Title	Cr	GER	LAS	Maj	TP	New	Co/Prerequisites
Term credit totals:							

Term 2: Spring 1	See KEY.						
Course Number & Title	Cr	GER	LAS	Maj	TP	New	Co/Prerequisites
Term credit totals:							

Term 3: Fall 2	See KEY.						
Course Number & Title	Cr	GER	LAS	Maj	TP	New	Co/Prerequisites
Term credit totals:							

Term 4: Spring 2	See KEY.						
Course Number & Title	Cr	GER	LAS	Maj	TP	New	Co/Prerequisites
Term credit totals:							

Term 5: Fall 3	See KEY.						
Course Number & Title	Cr	GER	LAS	Maj	TP	New	Co/Prerequisites
SOET 374 Industrial Management	3			3			
MATH 162 Calculus II	4	M	4				MATH 161 Calculus I
MATH 141 Statistic I	3	M	3				MATH 121 College Algebra
ELEC 383 Power Transmission & Distribution	3			3			ELEC 215 Power Generation
Liberal Arts Elective (upper level)	3	AH	3				
Term credit totals:	16	10	10	6			

Term 6: Spring 3	See KEY.						
Course Number & Title	Cr	GER	LAS	Maj	TP	New	Co/Prerequisites
MATH 263 Calculus III	4	M	4				MATH 162 Calculus II
ELEC 343 Advanced Circuit Analysis	3			3			ELEC 102 and 109
ELEC 385 Electronic Communication I	3			3			ELEC 225
Liberal Arts Elective (upper level)	3	OW	3				
Liberal Arts Elective (upper level)	3		3				
Term credit totals:	16	7	10	6			

Term 7: Fall 4	See KEY.						
Course Number & Title	Cr	GER	LAS	Maj	TP	New	Co/Prerequisites
ELEC 380 LAN/WAN Technology	3			3			ELEC 225
MATH 364 Differential Equations	4	M	4				MATH 162
Liberal Arts Elective (upper level)	3		3				
Liberal Arts Elective (upper level)	3		3				
Term credit totals:	13	4	10	3			

Term 8: Spring 4	See KEY.						
Course Number & Title	Cr	GER	LAS	Maj	TP	New	Co/Prerequisites
ELEC 379 Digital Signal Processing	3			3			MATH 162, ENGS 102, ELEC 165
ELEC 477 Capstone Project	3			3			Senior Status
Liberal Arts Elective (upper level)	3	SS	3				
Liberal Arts Elective (upper level)	3	WC	3				
Program Elective (upper level)	3		3	3			Program Electives are SOET, ELEC, MECH, CITA, or CONS
Term credit totals:	15	6	9	9			

Program Totals (in credits):	Total Credits: 60	SUNY GER: 31	LAS: 33	Major:	Elective & Other:	Upper Division: 46	Upper Division Major: 24	Number of SUNY GER Categories: 7 total with 4 GER transferred in from AAS

KEY Cr: credits **GER:** SUNY General Education Requirement (Enter Category Abbreviation) **LAS:** Liberal Arts & Sciences (Enter credits) **Maj:** Major requirement (Enter credits) **TP:** SUNY Transfer Path Courses (Enter credits) **New:** new course (Enter X) **Co/Prerequisite(s):** list co/prerequisite(s) for the noted courses **Upper Division:** Courses intended primarily for juniors and seniors **SUNY GER Category Abbreviations (the first five listed in order of their frequency of being required by SUNY campuses):** Basic Communication (BC), Math (M), Natural Sciences (NS), Social Science (SS), Humanities (H), American History (AH), The Arts (AR), Other World Civilizations (OW), Western Civilization (WC), Foreign Language (FL).

Section 4. Faculty

a) Complete the **SUNY Faculty Table** on the next page to describe current faculty and to-be-hired (TBH) faculty.

b) **Append** at the end of this document position descriptions or announcements for each to-be-hired faculty member.

NOTE: *CVs for all faculty should be available upon request. Faculty CVs should include rank and employment status, educational and employment background, professional affiliations and activities, important awards and recognition, publications (noting refereed journal articles), and brief descriptions of research and other externally funded projects. New York State's requirements for faculty qualifications are in Regulation 52.2 http://www.highered.nysed.gov/ocue/lrp/rules.htm.*

d) What is the institution's definition of "full-time" faculty?

Full-time faculty at SUNY Canton is that faculty that teaches 12-credit hours per semester, and performs other services such as

serving on committees, attending department and school meetings, advising students, and be involved in professional activities.

SUNY Faculty Table

Provide information on current and prospective faculty members (identifying those at off-campus locations) who will be expected to teach any course in the major. Expand the table as needed. Use a separate Faculty Table for each institution if the program is a multi-institution program.

(a)	(b)	(c)	(d)	(e)	(f)
Faculty Member Name and Title/Rank (Include and identify Program Director with an asterisk.)	**% of Time Dedicated to This Program**	**Program urses Which May Be Taught (Number and Title)**	**Highest and Other Applicable Earned Degrees (include College or University)**	**Discipline(s) of Highest and Other Applicable Earned Degrees**	**Additional Qualifications: List related certifications, licenses and professional experience in field.**
PART 1. Full-Time Faculty					
Dr. Stephen Frempong Full Professor*	50	SOET379 Industrial Management ELEC385 Electronic	Ph.D. California Coast University	Ph.D. Engineering Management M.S. Telecommunications B.E.T. Electro-	P. Eng(UK), Master Eng –NARTE Industry Experience - 9Yrs Academic Experience
Dr. Rashid Aidun Associate Professor	25	ELEC383 Power Transmission & Distribution ELEC343	Ph.D. Clarkson University	**Ph.D.** Experimental Solid State Physics **M.S.** Physics **B.S.** Physics	Industry Experience – 11Yrs Consulting – 5Yrs Academic – 10Yrs
Part 2. Part-Time Faculty					
Steven Fetcie	10	ELEC380	M.S. Clarkson	M.S. Information Technology	Industry Experience – 30Yrs
David Hartle	10	ELEC379 Digital Signal Processing	M.S. Clarkson University	M.S. information Technology	Industry Experience – 10Yrs Academic Experience -20Yrs

Part 3. Faculty To-Be-Hired (List as TBH1, TBH2, etc., and provide title/rank and expected hiring date.)					
New Faculty (TBH1)	20	ELEC477 Capstone Project	Ph.D.	Ph.D. Electrical Engineering	

Section 5. Financial Resources and Instructional Facilities

a) What is the resource plan for ensuring the success of the proposed program over time? Summarize the instructional facilities and equipment committed to ensure the success of the program. Please explain new and/or reallocated resources over the first five years for operations, including faculty and other personnel, the library, equipment, laboratories, and supplies. Also include resources for capital projects and other expenses.

The following resources are planned to make the online upper division program a success:

(1) Current smart classroom will be used to allow students to have access to life course lectures as well as recorded video lectures at any time within the course offering period at any location where students have access to the internet.
(2) Current LAN/WAN (Network) laboratory will be setup to allow students to perform specific laboratory projects via the internet.
(3) All students admitted into the program are required to purchase a package of laboratory equipment at a total cost under 1300 dollars, or use any standard electrical engineering technology related laboratory that may be available to student at his/her location.
(4) Students will have access to campus library resources electronically.

b) Complete the five-year SUNY Program Expenses Table, below, consistent with the resource plan summary. Enter the anticipated academic years in the top row of this table. List all resources that will be engaged specifically as a result of the proposed program (e.g., a new faculty position or additional library resources). If they represent a continuing cost, new resources for a given year should be included in the subsequent year(s), with adjustments for inflation or negotiated compensation. Include explanatory notes as needed.

SUNY Program Expenses Table

(OPTION: You can paste an Excel version of this schedule AFTER this sentence, and delete the table below.)

SUNY Program Expenses Table			Expenses in dollars					
			Before	Academic	Academic	Academic	Academic	Academic
Program Expense Categories			Start	Year 1	Year 2	Year 3	Year 4	Year 5
a. Personnel (including			330,000	350,000	360,000	370,000	380,000	380,000
faculty and all others)								
b. Library				1000	1000	1000	1000	1000
c. Equipment			1000	2000	2000	2000	2000	2000
d. Laboratories			1000	1000	1000	1000	1000	1000
e. Supplies			1000	1500	1500	1500	1500	1500
f. Capital Expenses			0	0	0	0	0	0
g. Other (specify)								
h. Sum of Rows Above			333,000	355,500	365,500	375,500	365,500	365,500

Section 6. Library Resources

a) Summarize the analysis of library collection resources and needs *for this program* by the collection librarian and program faculty. Include an assessment of existing library resources and accessibility to those resources for students enrolled in the program in all formats, including the institution's implementation of SUNY Connect, the SUNY-wide electronic library program.

Southworth Library is located in the geographic center of the campus. Its services and resources are available on three levels, with the reference collection, reserve materials, a computer lab, offices, tutoring support services including the Writing Center, and the Information Services Help Desk on the first floor. The second level houses the book stacks, individual study carrels, group study and media-viewing rooms, and current and back-issue journals and periodicals.

The library supports a student population characterized by continual growth and diversity. The facility provides space for group discussion, quiet study and intensive tutoring, including math and accounting, writing, and computer tutoring labs. The computer lab provides space for one-on-one tutoring as well as information literacy instruction for classes. The library's collection includes approximately 35,000 print and 160,000 electronic books, extensive electronic databases, and a variety of digital media. Additionally, the college has access to all books within the SUNY system available via interlibrary loan, and SUNY Canton students, faculty and staff have borrowing privileges at all of the Associated Colleges libraries, including Clarkson, St. Lawrence University and SUNY Potsdam.

The 24/7 availability of electronic books and various databases is particularly supportive of non-resident students and online courses. For resident students, the building is equipped with wi-fi in support of mobile computing, and laptops, iPads, Kindle reading devices and other emerging technologies are available for loan as well. Ongoing innovative technology initiatives support both the learning styles and the needs of the 21st-century learner. The library also offers a highly successful, in-demand reserve textbook collection, as well as a large number of anatomical models that support hands-on learning for students in the sciences and health programs.

Professional librarians are available during library hours to assist students with a full range of library services, and a web-based chat reference service provides access to professional research assistance at any time, 24 hours a day, 7 days a week.

In response to student need, the library has extended its hours of operation and is currently open 124.5 hours a week during the regular academic term. The library will also be maintaining 24-hour/7-day accessibility for the midterm and final examination weeks.

Analysis

The library is a well-organized, responsive, user-friendly learning resource for this campus. In the most recent academic year, over 1,000 students received a formal information literacy classroom session from a librarian about the utilization of the facility and the types of materials available. The library reserve program allows the faculty to make unique books or other materials, including

classroom textbooks and anatomical models, available to the students for curricular support or enhancement of lecture topics. The library makes available many of the textbooks for the GER or first-year required courses in the Electrical Engineering Technology programs. Electrical Engineering Technology courses that utilize the library reserves the most are Math, Physics, and Computer Information courses.

The librarians have identified over 200 titles that specifically support Electrical Engineering Technology education including books, periodicals, audiovisual material, and thousands more that support the multi-disciplinary nature of civil engineering and construction, including design, policy, geology, and science. A listing of the library holdings specific Electrical Engineering Technology is available (attached). The library has initiated a Library Liaison Program through which a professional librarian is assigned to assist specific departments in collecting materials for the library collection; a librarian is actively pursuing adding civil engineering, construction, and other related resources to the collection. The library also subscribes to many online, searchable Research Databases supportive of the Electrical Engineering Technology programs, including: Access Science, Applied Science & Technology Full-text, Computers & Applied Sciences Complete, DieselNet, and GreenFILE. These databases provide full-text access to thousands of articles, reviews, media, and other electronic resources.

Projection

The library capabilities are likely to remain advanced beyond the current demands of the Electrical Engineering Technology programs on this campus. The library subscribes to online databases, utilizes DVD and streaming-video technology, offers 24/7 availability of electronic books, and participates in interlibrary loan programs. The library is actively investigative additional print and electronic resources and further subscription databases that will support the research and information needs of the ARES program.

Library and information resources, services and support at a distance:

To support online learners at SUNY Canton, we provide reasonable and comparable administrative, cademic, and support services to distance students.

Resources and services are available online through the www.canton.edu website. The web site allows students to access program information and directly chat with or email support departments. The following are specific examples of these reasonable and comparable services:

- Academic and support services offer a substantial number of writing tutorials online as well as provide individual assistance online via the Writing Center.
- Math worksheets, resources, and tutoring are available online via the Math Tutoring Center. Additionally, tutorials, resources, and some tutoring are available online via the Science Tutoring Center.
- Accommodative Services has adapted its policies to address the needs of distance students.
- The Library offers a wide range of electronic resources for use by faculty and online students. These include electronic access to the library catalog, full-text databases, reference resources and

online tutorials related to information and literary skills. Students also have access to librarians via phone, email, sms texting, online chat and asynchronous electronic reference.

Contact information for all the areas in academic and support services is clearly and consistently presented to all students via SUNY Canton's web pages.

Journals Titles – Electrical Engineering Technology

Acta Universitatis Sapientiae - Electrical & Mechanical Engineering
Advanced Galileo and GPS Receiver Techniques: Enhanced Sensitivity and Improved Accuracy (Electrical engineering developments series)
Advanced Research on Material Engineering and Electrical Engineering
Advances in Computer Engineering
Advances in Electrical Engineering
Advances in Electrical Engineering Research
Advances in Electrical and Computer Engineering
Advances in Electrical and Electronic Engineering
AETA 2013: Recent Advances in Electrical Engineering and Related Sciences
Aging Power Delivery Infrastructures (Power engineering)
Aircraft Systems - Mechanical, Electrical and Avionics Subsystems Integration 3e
Amazing Feats of Electrical Engineering
An Introduction to Electrostatic Measurements (Electrical Engineering Developments)
Analog Circuits: Applications, Design, and Performance (Electrical Engineering Developments)
Annals of the University of Petrosani: Electrical Engineering
Archives of Electrical Engineering
Australian Journal of Electrical & Electronics Engineering
Battery Manufacturing and Electric and Hybrid Vehicles (Electrical Engineering Developments)
Bharat Heavy Electricals Limited (BHEL) SWOT Analysis
Black Book - Electrical Equipment
Capacitors: Theory, Types, and Applications (Electrical Engineering Developments)
Careers in Electrical Electronics Engineering (Institute research ; no. 37)
Carpathian Journal of Electrical Engineering
Circuit Analysis (Electrical Engineering Developments)
CMOS Technology (Electrical Engineering Developments)
Coaxial Electrical Circuits for Interference-free Measurements (IET Electrical Measurement Series)
Company Profiles: Southern Cross Electrical Engineering Limited
Computation Structures (MIT electrical engineering and computer science series)
Computational Intelligence in Electrical Engineering
Condition Monitoring of Rotating Electrical Machines (IET power and energy series ; 56)
Consolidated Electrical Distributors, Inc. SWOT Analysis
Construction Productivity: A Practical Guide for Building and Electrical Contractors
Control Engineering: Control System Power and Grounding Better Practice
Converter Applications and their Influence on Large Electrical Machines

Database of Piano Chords: An Engineering View of Harmony (SpringerBriefs in Electrical and Computer Engineering)
Digital and Analogue Instrumentation: Testing and Measurement (IEE electrical measurement series ; v. 11)
Draw the Lightning Down: Benjamin Franklin and Electrical Technology in the Age of Enlightenment
Dye-sensitized Solar Cells and Solar Cell Performance (Electrical Engineering Developments)
EC&M Electrical Construction & Maintenance
Efficient Electrical Systems Design Handbook
Electric Power Systems in Transition (Electrical and Engineering Developments)
Electrical Engineering
Electrical Engineering 101, 3rd Edition
Electrical Engineering for Non-Electrical Engineers, Second Edition
Electrical Engineering, Energy, Mechanical Engineering – EEM 2014
Electrical & Automation Technology
Electrical Applications for Air Conditioning & Refrigeration Systems
Electrical Circuit Theory and Technology
Electrical Components & Equipment Industry Profile: Global
Electrical Construction & Maintenance
Electrical Contracting Products
Electrical Design for Ocean Wave and Tidal Energy Systems
Electrical Distribution Systems
Electrical Distribution Engineering
Electrical Engineer's Reference Book (16th Edition)
Electrical Equipment Demand Forecasts
Electrical Equipment Industry Profile: Global
Electrical Machines and Drives (Third Edition)
Electrical Marketing
Electrical Marketing (Online Exclusive)
Electrical Markets of the UK
Electrical Markets of the USA
Electrical Markets of Turkey
Electrical Memory Materials and Devices
Electrical Monitor
Electrical Operation of Electrostatic Precipitators (IEE power and energy series ; 41)
Electrical Power Cable Engineering
Electrical Power Systems Technology
Electrical Power Engineering and Sustainable Development of Industry
Electrical Steels for Rotating Machines (IEE power and energy series ; 37)
Electrical Systems: A Guide for Facility Managers (facilities management library)
Electrical Technology
Electrical Transformers and Power Equipment
Electrical Wholesaling
Electrical Wholesaling (Online Exclusive)

Electrical Wholesaling Exclusive Insight
Electrical, Control and Communication Engineering
Elektrik : Turkish journal of electrical engineering & computer sciences
Encyclopedia of Electrochemistry Research (Electrical Engineering Developments)
Encyclopedia of Electrical Engineering Research (Electrical Engineering Developments)
Engineering Invention: Frank J. Sprague and the U.S. Electrical Industry
Estimator's Electrical Man-Hour Manual (Third edition)
Fundamentals of Electric Power Engineering.
Fundamentals of Electrical Control
GOME Electrical Appliances Holding Limited SWOT Analysis
Guide to Electrical Power Distribution Systems
Handbook of Electrical Design Details
Heavy Electrical Equipment Industry Profile: Global
High Voltage Engineering: Fundamentals
ICFAI University Journal of Electrical & Electronics Engineering
i-Manager's Journal on Electrical Engineering
Indonesian Journal of Electrical Engineering and Informatics
Integrated Electrical Services, Inc. SWOT Analysis
International Journal of Computer, Electrical, Automation, Control and Information Engineering
International Journal of Mathematical, Computational, Physical, Electrical and Computer Engineering
International Journal of Electrical Engineering Education
International Journal of Electrical and Computer Engineering
International Journal of Electrical and Power Engineering
International Journal of Electrical Machining
International Journal of Electrical, Computer, Energetic, Electronic and Communication Engineering
International Journal on Electrical Engineering and Informatics
Introduction to Applied Statistical Signal Analysis: Guide to Biomedical and Electrical Engineering Applications
Intrusion Detection: A Machine Learning Approach (Series in Electrical and Computer Engineering)
Iraqi Journal for Electrical & Electronic Engineering
Istanbul University Journal of Electrical and Electronics Engineering
IUP Journal of Electrical & Electronics Engineering
Journal of the Illuminating Engineering Society
Journal of Electrical Engineering
Journal of Electrical Engineering
Journal of Electrical Engineering : Theory and Application
Journal of Electrical and Computer Engineering
Journal of Electrical and Electronics Engineering
Journal of Electrical and Electronics Engineering Research
Journal of Electrical Bioimpedance
Journal of Electrical Systems
Lithium Batteries: Research, Technology, and Applications (Electrical engineering developments)
Majlesi Journal of Electrical Engineering

Mathematics for Electrical Engineering and Computing
MATLAB for Engineers - Applications in Control, Electrical Engineering, IT and Robotics
Mechatronics: Electronic Control Systems in Mechanical and Electrical Engineering
Microwave Measurements (IET electrical measurement series ; 12)
Modeling and High Performance Control of Electric Machines (IEEE Press series on power engineering)
Modular Electricity Storage: Benefits and Costs (Electrical Engineering Developments)
Nano- and Microcomposites for Electrical Engineering Applications
Net Theory and Its Applications: Flows in Networks (Series in electrical and computer engineering ; Vol. 1)
Neural Networks and Computing: Learning Algorithms and Applications (Series in Electrical and Computer Engineering)
Newnes Electrical Power Engineer's Handbook (Second Edition)
Nuclear Track Detectors: Design, Methods and Applications (Electrical Engineering Developments Series)
Periodica polytechnica: mechanical engineering
Periodica polytechnica: electrical engineering
Periodica Polytechnica: Electrical Engineering and Computer Science
Physical Separation in Science and Engineering
Piezoelectric Actuators (Electrical Engineering Developments)
Power Quality in Power Systems and Electrical Machines
Power engineering
Practical Troubleshooting of Electrical Equipment and Control Circuits (Practical professional books from Elsevier)
Practical Electrical Equipment and Installations in Hazardous Areas (Practical professional books from Elsevier)
Practical Electrical Network Automation and Communication Systems (Practical professional books from Elsevier)
Progress in Power and Electrical Engineering
Rational Function Systems and Electrical Networks with Multi-Parameters
Reference Manual for Telecommunications Engineering
Safety Factor Profile Control in a Tokamak (SpringerBriefs in Electrical and Computer Engineering)
Security Modeling and Analysis of Mobile Agent Systems (Series in electrical and computer engineering ; v. 5)
Serbian Journal of Electrical Engineering
Sourcing Electricals and Lighting
Taser Conducted Electrical Weapons: Physiology, Pathology, and Law
TELKOMNIKA : Indonesian Journal of Electrical Engineering
The Journal of International Council on Electrical Engineering
The Open Electrical & Electronic Engineering Journal
The Scientific Bulletin of Electrical Engineering Faculty
The Standard Electrical Dictionary A Popular Dictionary of Words and Terms Used in the Practice of Electrical Engineering
The Electrical Engineering Handbook
TheHandbook of Electrical Resistivity: New Materials and Pressure Effects
Thermal, Power and Electrical Engineering

Thick Films: Properties, Technology, and Applications (Electrical Engineering Developments)
TIER Industry Report - Electrical Equipment
Transactions on Environment and Electrical Engineering
Transistors: Types, Materials and Applications (Electrical engineering developments)
United States Small Electrical Appliances Manufacturing Industry Report
United States Electrical Contractors Industry Jobs & Wages Report
Vehicle, Mechanical and Electrical Engineering
Voltage Quality in Electrical Power Systems (IEE power and energy series 36)
Wiley Encyclopedia of Electrical and Electronics Engineering
Workmanship Standards Manual: Quality Assurance (Quality Assurance and Control for Electronic and Electrical Engineering)
Worldwide Electrical Contractors Industry Report

Book Titles – Electrical Engineering Technology

Author	*Title*
Ali, Mohd. Hasan.	Wind energy systems
Amann, Edmund.	Energy, bio fuels and development
Ashby, Darren.	Electrical engineering 101
Baggini, Angelo B.	Electrical energy efficiency
Baker, Thomas E.(Thomas Edward),	Electrical calculations and guidelines for generating stations and industrial plants
Barnes, Frank S.,	Large energy storage systems handbook
Bayliss, C. R.(Colin R.)	Transmission and distribution electrical engineering
Bisquert, Juan.	Nanostructured Energy Devices :
Boss, Martha J.	Electrical Safety :
Brittian, L. W.	Audel electrical trades pocket manual
Das, J. C.,	Arc flash hazard analysis and mitigation
Del Pico, Wayne J.	Electrical Estimating Methods
Dorr, Barry L.	Ten Essential Skills for Electrical Engineers
Ertan, H. Bulent.	Transformers
Grigsby, Leonard L.	The electric power engineering handbook. Power system stability and control
Grigsby, Leonard L.	The electric power engineering handbook. Electric power generation, transmission, and distribution
Grigsby, Leonard L.	The electric power engineering handbook. Power systems
Guzinski, Jaroslaw.	Variable Speed AC Drives with Inverter Output Filters
Haberlin, Heinrich.	Photovoltaics
Harlow, James H.	The electric power engineering handbook. Electric power transformer engineering
Hart, George V.	Ugly's electrical references /

Hersent, Olivier.	The Internet of Things
Jain, Rajesh Kumar.	Principles of synchronous digital hierarchy
Jeffs, Eric J.	Greener energy systems
Jha, A. R.	Next-generation batteries and fuel cells for commercial, military, and space applications
Kalsi, Swarn.	Applications of high temperature superconductors to electric power equipment
Kiank, Hartmut,	Planning guide for power distribution plants
Knauth, Philippe.	Solid State Proton Conductors
Li, Er-Ping.	Electrical Modeling and Design for 3D System Integration
Luo, Fang Lin.	Renewable energy systems
Maniktala, Sanjaya.	Switching power supplies A to Z
McDonald, John D.	The electric power engineering handbook. Electric power substations engineering
McMahon, A. Michal(Adrian Michal),	The making of a profession :
Munoz, Andres G.	Photoelectrochemical solar conversion systems
Oliphant, Wesley J.	Prestressed concrete transmission pole structures
Park, Jung-Ki.	Principles and applications of lithium secondary batteries
Perelmuter, V. M.(Viktor Moiseevich)	Electrotechnical systems
Rashid, Muhammad H.	Power electronics handbook
Rashid, Muhammad H.(Muhammad Harunur),	SPICE for power electronics and electric power
Rosenberg, Paul.	Audel questions and answers for electrician's examinations
Rosenberg, Paul.	Guide to the 2011 National Electrical Code
Sallam, A. A.(Abdelhay A.)	Electric distribution systems

Schiffer, Michael B.	Power struggles :
Sioshansi, Fereidoon P.	Smart grid
Sorensen, Bent.	Energy Intermittency.
Srensen, Bent,	Hydrogen and fuel cells
Sutherland, Peter E.	Principles of Electrical Safety
Tagare, D. M.	Electric power generation
Teodorescu, Remus.	Grid converters for photovoltaic and wind power systems
Thomsen, Kurt.	Offshore Wind
Thue, William A.	Electrical power cable engineering
Toliyat, Hamid A.	Electric machines
Wagner, Hermann-Josef,	Introduction to wind energy systems
Wang, Yinshun.	Fundamental Elements of Applied Superconductivity in Electrical Engineering
Weber, Eicke R.	Advances in photovoltaics .
Weedy, B. M.	Electric power systems
Wolf, E. L.	Nanophysics of solar and renewable energy
	Stationary engineer (electric) /

Online students have access to the following resources at Southworth Library Learning Commons at SUNY

Canon:

(1) Books and E-Books
(2) Access to a variety of databases
(3) Thousands of articles on different subjects

(4) Help from a librarian around the clock

(5) http://researchguides.canton.edu/eBooks

b) Describe the institution's response to identified collection needs and its plan for library development.

The library has annual budget to purchase some recommended books from faculty.

Section 7. External Evaluation

SUNY requires external evaluation of all proposed bachelor's degree programs, and may request an evaluation for a proposed associate degree or certificate program in a new or emerging field or for other reasons.

Is an external evaluation required? [ ] No [X] Yes

If yes, list below all SUNY-approved evaluators who conducted evaluations (adding rows as needed), and **append at the end of this document** each original, signed *External Evaluation Report.* ***NOTE:*** *To select external evaluators, a campus sends 3-5 proposed evaluators' names, titles and CVs to the assigned SUNY Program Reviewer, expresses its preferences and requests approval.*

Evaluator #1

William Hugh Blanton

Coordinator Biomedical Engineering Technology

East Tennessee University

Evaluator #2

Dr. Ali Abedi

Professor and Director

University of Maine

Section 8. Institutional Response to External Evaluator Reports

As applicable, **append** at the end of this document a single *Institutional Response* to all *External Evaluation Reports.*

Our external evaluators did have comments that require a response from the institution. These Form 2D are attached in Appendix 5 of this document.

SUNY Canton would like to thank our external evaluators for their fine work and suggestions. The response to these comments and concerns are as follows:

Evaluator #1 Dr. Blanton

Section I. 4. Discuss the relationship of this program...
Response: This is an interesting observation, but is out of control of SUNY Canton.

Section IV. 14. Comment on adequacy of physcis resources...

"There is an initial outlay of cash by the student for laboratory equipment. Pursuing an online degree requires more personal responsibility from students as they learn material and complete assignments and group work based on their own schedule. Online learners therefore need to be prepared to effectively manage their time. Though communication with instructors and students is possible through electronic means, prospective students should weigh whether they want to sacrifice face-to-face interaction with faculty and peers for the flexibility online education provides."

Response:

1. Student admitted into the B.S. Online program will be required to have completed an Associate Degree in Electrical Engineering Technology or related field, and working in industry. This means that the student already has some level of practical experience, personal responsibility, and time management. The proposal provides the following three opportunities for student to have access to laboratory equipment to complete all hands-on projects:
   a. Use laboratory equipment at workplace;
   b. Purchase Analog Discovery all –in –one USB Oscilloscope & Instrumentation System for less than $300;
   OR
   c. Purchase Oscilloscope, Function Generator, Power Supply, and Digital Multimeter for a total of about $1500 laboratory set of equipment already available in the market.

2. The traditional face-to-face education may be great for high school graduate, but not for a technician working in industry with Associate Degree who wants to continue with his/her education without having to leave the job. This program will provide the next level of technical education to such technicians, and they can still benefit with interaction with faculty and other students using the communications technology of today.

Section IV. 16 Summarize the major strengths and weakness...

"There is an initial outlay of cash by the student for laboratory equipment. Pursuing an online degree requires more personal responsibility from students as they learn material and complete assignments and group work based on their own schedule. Online learners therefore need to be prepared to effectively manage their time. Though communication with instructors and students is possible through electronic means, prospective students should weigh whether they want to sacrifice face-to-face interaction with faculty and peers for the flexibility online education provides."

Response:

This response is similar to the Section IV. 14, the students have many ways to reduce cost of the equipment from employer owned to Digilent Analog Discovery 2 USB Oscilloscope, Logic Analyzer and Power Supply that emulates all the devices virtually. We are exploring all options for the students and will find the product that reduces the cost without sacrificing quality of the experiment.

Evaluator #2 Dr. Abedi

Section I. 4. Discuss the relationship of this program...

"In these cases, students whom would have decided to leave SUNY system may be attracted to this EET program where their interest in hands on learning is addressed."

Response:

SUNY Canton will consider how to attract greater population of students, but our goal is to recruit students who are graduates of a two-year degree in Electrical Engineering Technology. Students who apply without the stated degree will have a review to ensure they will be successful and can first finish our A.A.S degree in Electrical Engineering Technology prior to admission in this new program.

Section III.11. Comment on provisions...persons form underrepresented groups

"It is noted in the proposal that faculty will work with admission office and industry advisory board to send regular program information to underrepresented and minority groups and encourage them to chose this program. In my opinion, this is standard effort that is going on with many universities and is not enough. It is recommended to think about creating new middle or high school program (summer camps) where students from historically underserved communities are invited to attend and learn from EET students. Making this a community engaged course for EET students can enrich their education as well. Another approach is to send faculty or students to schools to make presentations about the program. In summary, a more proactive recruitment effort is recommended."

Response:
SUNY Canton is currently sending faculty into the local high schools to recruit by using demonstrations. Dr. Abedi may not been aware of this during his review. His suggestions are useful for Electrical Engineering Technology with a summer camp program. We have done this successfully with our Mechanical Engineering Technology program for three summers. We will work on this for our other programs such as Electrical Engineering Technology.

Section III. 13. Discuss the prospects for graduates'...
"The program goals cover individual technical abilities as well as team work, communication and problem solving skills which are important requirements for job advancements. The full support from

industry advisory board can be translated to identifying jobs and may be in future adding some internships to the program."

Response:
The comment about internships seems fruitless as these students are very likely working for an employer and desire to expand on their education background. Consideration may be given at some time in the future if evidences shows cause.

Section IV. 14. Comments on adequacy of physical resources...
"It is not clear whether the students who are off campus have access to online journals and subscriptions at the library or not, but it is quite possible that is the case."
Response:
Our students do have access to online journal through our library.

Section IV. 15. Institutional commitment...
Major part of the budget seems to be devoted to the personnel, which indicates the institutions commitment to faculty and the proposed new hire."

Response:

A faculty search in underway and candidates are scheduled for campus interviews. This search will likely successfully conclude by June.

Section IV. 16. Summarize the major strengths and weakness...

"The only weakness is lack of innovative plan for attracting minorities (which standard plan is in place)."

Response:

The focus of the B.S. online program is career advancement for Electrical Engineering Technicians who may be working in electronics, power, controls, instrumentations, or communications. Upper division Technical and Liberal Arts courses will prepare technicians to move up in their engineering career.

As indicated in the proposal section 2.4 – Admissions: Faculty will work with admissions office and Industry Advisory Board (IAB) for Electrical Engineering Technology program to encourage qualified candidates to apply for admission. The admissions office will send regular program information to historically underrepresented groups and organizations. As the program designed for Technicians advancement, working with high school students will not help attract minorities, but rather we need to reach out to minorities who are already in engineering profession and looking for opportunity for educational advancement.

Section 9. SUNY Undergraduate Transfer

The State University views as one of its highest priorities the facilitation of transfer.

a) For a **proposed Associate in Arts (A.A.) or an Associate in Science (A.S.) degree,** demonstrate that the program's graduates will be able to transfer into at least two parallel SUNY baccalaureate programs and complete them within two additional years of full-time study, per SUNY policy, by listing the transfer institutions below and **appending** at the end of this document:

- two completed *SUNY Transfer Course Equivalency Tables*, one for each transfer institution; and
- a letter from the Chief Academic Officer of each transfer institution asserting acceptance of the completed Transfer Course Equivalency Table.

Program proposals must include two articulation agreements with parallel programs. Every effort should be made to obtain two SUNY articulation agreements for this requirement. In the event that such articulations are not possible, campuses are encouraged to work with their campus reviewer to find appropriate alternatives.

Baccalaureate Degree Institution	Baccalaureate Program SED Code and Title	Degree

b) For a **proposed baccalaureate program,** document articulation with at least two parallel SUNY associate degree programs for seamless transfer, by **appending documentation of articulation,** such as *SUNY Transfer Course Equivalency Tables* and/or letters of support from Chief Academic Officers at associate degree institutions or their designees. **If transfer does not apply to this program, please explain why.**

Associate Degree Institution	Associate Program SED Code and Title	Degree
Alfred State	00305 Electrical Engineering Technology	AAS
SUNY Canton	00446 Electrical Engineering Technology	AAS
Corning Community College	00584 Electrical Technology-Electronics	AAS

NOTE: *Transfer course equivalency tables are needed, despite SUNY Transfer Paths, to ensure that all courses in an A.A. or A.S. program will be accepted for transfer. Official SED program titles and codes can be found on NYSED's Inventory of Registered Programs here.*

Transfer does not apply to this program because it is online upper division designed for working Engineering Technology Professionals with Associate Degree in Electrical Engineering Technology or Equivalent.

Section 10. Application for Distance Education

a) Does the program's design enable students to complete 50% or more of the course requirements through distance education? [ ] No [X] Yes. If yes, **append** a completed *SUNY Distance Education Format Proposal* at the end of this proposal to apply for the program to be registered for the distance education format.

b) Does the program's design enable students to complete 100% of the course requirements through distance education? [ ] No [X] Yes

Section MPA-1. Need for Master Plan Amendment and/or Degree Authorization

a) Based on guidance on Master Plan Amendments, please indicate if this proposal requires a Master Plan Amendment.
[X] No [ ] Yes, a completed *Master Plan Amendment Form* is **appended** at the end of this proposal.

b) Based on *SUNY Guidance on Degree Authorizations* (below), please indicate if this proposal requires degree authorization.

[ ] No [X] Yes, once the program is approved by the SUNY Provost, the campus will work with its Campus Reviewer to draft a resolution that the SUNY Chancellor will recommend to the SUNY Board of Trustees.

SUNY Guidance on Degree Authorization. *Degree authorization is required when a proposed program will lead to a new degree (e.g., B.F.A., M.P.H.) at an existing level of study (i.e., associate, baccalaureate, first-professional, master's, and doctoral) in an existing disciplinary area at an institution. Disciplinary areas are defined by the New York State Taxonomy of Academic Programs. Degree authorization requires approval by the SUNY Provost, the SUNY Board of Trustees and the Board of Regents.*

List of Appended and/or Accompanying Items

a) **Appended Items:** If materials required in selected items in Sections 1 through 4 and Sections 9, 10 and MPA-1 of this form apply to this proposal, they should be appended as part of this document, after this page, with continued pagination. In the first column of the chart below, please number the appended items, and append them in number order.

Number	Appended Items	Reference Items
	For multi-institution programs, a letter of approval from partner institution(s)	Section 1, Item (e)
	For programs leading to professional licensure, a side-by-side chart showing how the program's components meet the requirements of specialized accreditation, Commissioner' s Regulations for the Profession, or other applicable external standards	Section 2.3, Item (e)
	For programs leading to licensure in selected professions for which the SED Office of Professions (OP) requires a specialized form, a completed version of that form	Section 2.3, Item (e)
	OPTIONAL: For programs leading directly to employment, letters of support from employers, if available	Section 2, Item 2.3 (h)(2)
1	*For all programs*, a plan or curriculum map showing the courses in which the program's educational and (if appropriate) career objectives will be taught and assessed	Section 2, Item 7
2	*For all programs*, a catalog description for each existing course that is part of the proposed undergraduate major (including cognates and restricted electives)	Section 3, Item (b)
3	*For all programs with new courses in the major*, syllabi for all new courses in a proposed undergraduate major	Section 3, Item (c)
	For programs requiring external instruction, a completed *External Instruction Form* and documentation required on that form	Section 3, Item (d)
	For programs that will depend on new faculty, position descriptions or announcements for faculty to-be-hired	Section 4, Item (b)
	For all A.A. and A.S. programs, Transfer Equivalency Tables and letters of support from at least two SUNY baccalaureate institutions; *for baccalaureate programs that anticipate transfer student enrollment*, documentation of seamless transfer with at least two SUNY two-year programs	Section 9
4	*For programs designed to enable students to complete at least 50% of the course requirements at a distance*, a *Distance Education Format Proposal*	Section 10
	For programs requiring an MPA, a *Master Plan Amendment Form*	Section MPA-1

b) **Accompanying Items - External Evaluations and Institutional Response:** If Sections 7 and 8 of this form indicate that external evaluation is required as part of this proposal, please send a separate electronic document to *program.review@suny.edu* that contains the original, signed *External Evaluation Reports* and a single *Institutional Response* to all reports. The file name should indicate the campus, program title, award and content of the file (e.g., BuffaloU-English-PhD-ExEval).

Appendix 1 – Course Mapping

Appendix 2 – Course Syllabi

STATE UNIVERSITY OF NEW YORK

COLLEGE OF TECHNOLOGY

CANTON, NEW YORK

COURSE OUTLINE

ELEC 379 – Digital Signal Processing Applications

Prepared By: David Hartle

CANINO SCHOOL OF ENGINEERING TECHNOLOGY

ELECTRICAL ENGINEERING TECHNOLOGY

OCTOBER 2018

A. **TITLE**: Digital Signal Processing Applications

B. **COURSE NUMBER:** ELEC 379

C. **CREDIT HOURS:** 3

D. **WRITING INTENSIVE COURSE**: No

E. **COURSE LENGTH:** 15 weeks

F. **SEMESTER(S) OFFERED:** Fall and Spring

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**

3 lecture hours per week

H. CATALOG DESCRIPTION: This course will introduce the basic concepts and techniques for processing discrete-time signal on a computer using software. Digital Signal Processing (DSP) is concerned with the representation, transformation and manipulation of signals on a computer. DSP has become an important field, and has penetrated a wide range of application systems, such as consumer electronics, digital communications, medical imaging and so on. By the end of this course, the students should be able to understand the most important principles in digital signal processing (DSP). The course emphasizes understanding and implementations of theoretical concepts, methods and algorithms.

I. **PRE-REQUISITES/CO-REQUISITES:**

a. Pre-requisite(s): MATH162, ENGS102, ELEC165 (or permission by program director)

J. **GOALS (STUDENT LEARNING OUTCOMES):**

Course Objective	*Institutional Student Learning Outcomes*	*ABET Student Outcomes*
a. Develop DSP models using equation solving software	3. Prof. Competence	b, f
b. Implement analysis in time and frequency domain	2. Crit. Thinking 3. Prof. Competence	b, f
c. Illustrate results with graphs and plots	3. Prof. Competence	

		b, f
d. Apply programming to manipulate discrete signals	3. Prof. Competence	b, f

K. TEXTS:

Ingle, V.K and Proakis, J.G. (2012). *Digital Signal Processing Using MATLAB®, Third Edition.* Cengage Learning.

L. REFERENCES:

M. EQUIPMENT: Computer and software

N. GRADING METHOD: A-F

O. MEASUREMENT CRITERIA/METHODS:

- Exams
- Quizzes
- Programs
- Participation

P. DETAILED COURSE OUTLINE:

I. Periodic Signals
   A. Generation of Periodic Signals
   B. Operations with Signals
   C. Harmonics. Fourier
   D. Sampling Frequency

II. Discrete-Time Fourier Analysis
   A. The Discrete-Time Fourier Transform (DTFT)
   B. The Frequency Domain
   C. Sampling and Reconstruction of Analog Signals

III. The z-Transform
   A. Bilateral z-Transform
   B. Inversion of the z-Transform
   C. System Representation in the z-Domain
   D. Solutions of the Difference Equations
   E.

IV. The Discrete Fourier Transform
   A. Sampling and Reconstruction in the z-Domain
   B. The Discrete Fourier Transform
   C. Linear Convolution Using the DFT
   D. The Fast Fourier Transform

V. Implementation and Design of Discrete-time Filters
   A. IIR Filter Structures
   B. FIR Filer Structures
   C. Lattice Filter Structures

VI. Sampling Rate Conversion
   A. Decimation by a Factor D
   B. Interpolation by a Factor I
   C. Sampling Rate Conversion by a Rational Factor I/D
   D. Filter Designs and Structures

VII. Round-Off Effects in Digital Filters
   A. Analysis of A/D Quantization Noise
   B. Round-off Effects in IIR and FIR Digital Filters

VIII. Applications in Adaptive Filtering
   A. Suppression of Narrowband Interference in a Wideband Signal
   B. Adaptive Channel Equalization

IX. Applications in Communications
   A. Pulse-Code Modulation (PCM)
   B. Linear Predictive Coding (LPC) of Speech
   C. Dual-tone Multifrequency (DTMF) Signals
   D. Spread-Spectrum Communications

Q. **LABORATORY OUTLINE:** No Laboratory

STATE UNIVERSITY OF NEW YORK

COLLEGE OF TECHNOLOGY

CANTON, NEW YORK

COURSE OUTLINE

ELEC 380 – LAN/WAN Technology

Prepared By: Stephen E. Frempong

SCHOOL OF ENGINEERING TECHNOLOGY

ENGINEERING SCIENCE & ELECTRICAL ENGINEERING

TECHNOLOGY DEPARTMENT

SPRING 2015

A. TITLE : LAN/WAN Technology

B. COURSE NUMBER: ELEC 380

C. CREDIT HOURS: 3

D. WRITING INTENSIVE COURSE: NO

E. WEEKS PER SEMESTER: 15

F. SEMESTER OFFERED: SPRING

G. HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY: 2 hours lecture and 2 hours laboratory per week

H. CATALOG DESCRIPTION: This course will cover topics include: Network topologies and connectivity devices, TCP/IP protocol suite and internet protocol addressing, networks and sub-networks, network-layer protocols, internet control message protocol, transport layer protocol, internet protocol version 6, configuration and domain name protocols, wireless networking and network security

I. PRE-REQUISITES/CO-COURSES: ELEC 225 [Telecommunications], or permission of program director.

J. GOALS (STUDENT LEARNING OUTCOMES)

Course Objectives	Institutional Learning Outcomes (SLO)	ABET Student Outcomes (a-k)
Understand the fundamental terminology used in data communications and computer networking.	2. Professional Competence	j

Understand the basic standards and protocols of computer networking.	2. Professional Competence	j
Explain the basic architecture and implementations of Local Area Networks(LANs) and Wide Area Networks (WAN's)	2. Critical Thinking	a, f
Apply the knowledge to properly manage the basic functions of Cisco Ethernet switches and routers	2. Critical Thinking 3. Professional Competence	a, f

K. TEXTS:

Jeffrey S. Beasley, Piyasat Nilkaew, Networking Essentials, 4th Edition, Indianapolis, Indiana, Pearson Education. Inc., 2016

. OR, as determined by instructor.

L. REFERENCE:

Patrick Regan, Local Area Networks, 1st Edition, Upper Saddle River, New

Jersey: Prentice Hall, 2004.

M. EQUIPMENT: Will use Network Laboratory Equipment

N. GRADING METHOD: A-F

O. MEASUREMENT CRITERIA/METHODS: Examination performance, Laboratory project, Class Participation, and Assignment.

P. P. DETAILED TOPICAL OUTLINE:

1. Introduction to Computer Networks

    a. Network Topologies
    b. The OSI Model
    c. The Ethernet LAN

2. Physical Layer Cabling: Twisted Pair

    a. Structured Cabling
    b. Unshielded Twisted Pair Cable
    c. Terminating UTP Cables
    d. Cable Testing and Certification
    e. Troubleshooting Cabling Systems

3. Physical Layer Cabling: fiber Optics

    a. The nature of light
    b. Fiber attenuation and dispersion
    c. Optical Components
    d. Optical Networking
    e. Safety

4. Wireless Networking

    a. The IEEE 802.11 Wireless LAN Standard
    b. 802.11 Wireless Networking
    c. Other types of Wireless Networking
    d. Securing Wireless Networks

5. Interconnecting the LANs
6.
    a. The Network Bridge
    b. The Network Switch
    c. The Router
    d. Interconnecting LANs with the Router

7. TCP/IP

    a. The TCP/IP Layers
    b. Number Conversion
    c. IPv4 Addressing
    d. Subnet Masks
    e. CIDR Blocks
    f. IPv6 Addressing

8. Routing Protocols

    a. Static routing
    b. Dynamic Routing Protocols
    c. Distance Vector Protocols
    d. Link State Protocols
    e. Hybrid Protocols

9. WAN Technologies and Network Services

    a. Digital Line Connections (T-carriers)
    b. Cable Modems and xDSL
    c. Metro Ethernet/Carrier Ethernet
    d. Internet Routing - BGP
    e. Network Services: DHCP and DNS

10. Network Security

    a. Intrusion
    b. Denial of Service
    c. Security Software and Hardware
    d. Introduction to Virtual Private Networks

Q. LABORATORY OUTLINE:

    1. Overview of structured cabling and construct/test patch cable
    2. Introduction to the Cisco Catalyst 2950 Ethernet Switch
    3. Working with VLANs and configuration backup/restore
    4. Routing between VLANs
    5. Connecting two routers with a T-1 circuit
    6. Static and dynamic routing using RIP
    7. IP access lists

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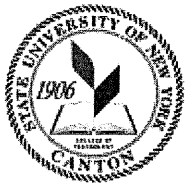


COURSE OUTLINE

ELEC 477 – Capstone Project

Prepared By: Stephen E. Frempong

SCHOOL OF ENGINEERING TECHNOLOGY

ENGINEERING SCIENCE & ELECTRICAL ENGINEERING

TECHNOLOGY DEPARTMENT

SPRING 2018

A. TITLE : Capstone Project

B. COURSE NUMBER: ELEC 477

C. CREDIT HOURS: 3

D. WRITING INTENSIVE COURSE: YES

E. WEEKS PER SEMESTER: 15

F. SEMESTER OFFERED: SPRING

G. HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY: Independent Project

H. CATALOG DESCRIPTION: A learning experience by allowing students to propose, design and implement a project. This could be a study of a problem and solution of specific equipment, new product design, improvement of an existing product (re-engineering). All projects must be approved by course faculty or capstone committee. As part of this course, all students must take the exit examination before graduation.

I. PRE-REQUISITES/CO-COURSES: Completion of seven semester coursework or permission of program director.

J. GOALS (STUDENT LEARNING OUTCOMES)

Course Learning Outcomes	**Institutional Student Learning Outcomes (ISLO)**	**ABET Student Outcomes (a-k)**
Research, design, build, test, and present a working system with some level of engineering difficulty.	• **Critical Thinking (ISLO #2)** • **Professional Competence (ISLO #3)**	**a, b, c, d**

Prepare a standard project report, and demonstrate classroom PowerPoint presentation.	• **Communication Skills (ISLO #1)**	**g**

K. TEXTS: N/A

L. EQUIPMENT: EET laboratory is used. Students are responsible for materials or components that may be needed to complete an approved project.

M. GRADING METHOD: A-F

N. MEASUREMENT CRITERIA/METHODS: Project level of difficulty, Final report, and Presentation skills.

O. DETAILED TOPICAL OUTLINE:

11. Project Proposal
    a. Team or individual
    b. Must meet a standard established by faculty (must have engineering component)
    c. Should be submitted within the first two weeks of classes
    d. Two weeks extra time given to rejected proposal for resubmission

12. Project Update
    a. Individual or team project updates every month

13. Project Report

    f. Single spaced and 10 pages minimum
    g. Must include design, data, and diagrams
    h. Solution of the problem

14. Presentation
    e. Individual/group project PowerPoint presentation
    f. Public speaking/dress code
    g. Project demonstration
    h. Q&A from students, faculty and staff

STATE UNIVERSITY OF NEW YORK

COLLEGE OF TECHNOLOGY

CANTON, NEW YORK

COURSE OUTLINE

ELEC 343 – Advanced Circuit Analysis

Prepared By: Stephen E. Frempong

SCHOOL OF ENGINEERING TECHNOLOGY

ENGINEERING SCIENCE & ELECTRICAL ENGINEERING

TECHNOLOGY DEPARTMENT

SPRING 2018

A. TITLE : Advanced Circuit Analysis

B. COURSE NUMBER: ELEC 343

C. CREDIT HOURS: 3

D.WRITING INTENSIVE COURSE: NO

E. WEEKS PER SEMESTER: 15

F. SEMESTER OFFERED: SPRING

G. HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY: 3- hours lecture per week

H. CATALOG DESCRIPTION: An advanced course designed to give students upper level circuit analysis experience. Topics include: Resistive Circuits, Nodal and Loop Analysis, Two-Port Networks, Application of Laplace Transform, Variable-Frequency Network Performance, Polyphase Circuits, and AC Steady-State Analysis.

I. PRE-REQUISITES/CO-COURSES: ELEC102/129 [Electric Circuits II/lab] and MATH 261[Differential Equations], or permission of instructor.

J. GOALS (STUDENT LEARNING OUTCOMES)

Course Objectives	Institutional SLO	Student Outcomes (ABET-a-k)
a. Develop skills to solve more complex circuit problems	2. Critical Thinking	b
b. Analyze first and second-order circuits	2. Critical Thinking	b
c. Apply different techniques to circuits containing a single or more sources	3. Professional Competence	b, f

d. Apply differential and integral calculus to capacitive and inductive circuits	2. Critical Thinking	b, f
e. Solve problems in magnetically coupled networks	2. Critical Thinking 3. Professional Competence	b
f. Analyze variable frequency network performance	2. Critical Thinking 3. Professional Competence	b, f
g. Perform Laplace Transform calculations	2. Critical Thinking	b
h. Apply the experience from Laplace Transform to circuit analysis	2. Critical Thinking	b, f
i. Perform basic circuit design	2. Critical Thinking 3. Professional Competence	b, d

K. TEXTS:

David J. Irwin and Mark R. Nelms, Basic Engineering Circuit Analysis,

10th Edition, 111 River Street, Hoboken, NJ 07030: John Wiley & Sons, Inc. 20016.

L. EQUIPMENT: None

M. GRADING METHOD: A-F

O. MEASUREMENT CRITERIA/METHODS: Examination performance and Class Participation.

Q. DETAILED TOPICAL OUTLINE:

15. Review of resistive circuits

    a. Single-Loop Circuits
    b. Single-Node-Pair Circuits
    c. Circuits with Dependent Sources
    d. Design Examples

16. Nodal and Loop Analysis

    a. Nodal Analysis
    b. Loop Analysis
    c. Application Examples
    d. Design Examples

17. First-and Second-Order Transient Circuits

    a. Introduction
    b. First-Order Circuits
    c. Second-Order Circuits
    d. Application Examples
    e. Design Examples

18. Magnetically Coupled Networks

    a. Mutual Inductance
    b. Energy Analysis
    c. The Ideal Transformer
    d. Application Examples
    e. Design Examples

19. The Laplace Transform

    a. Two Important Singularity Functions
    b. Transform Pairs
    c. Properties of the Transform
    d. Performing the Inverse Transform
    e. Convolution Integral
    f. Initial-Value and Final-Value Theorems

20. Application of Laplace Transform to Circuit Analysis

    a. Laplace Circuit Solutions
    b. Circuit Element Models
    c. Analysis Techniques
    d. Transfer Function
    e. Application Example
    f. Design Examples

21. Variable-Frequency Network Performance

    a. Variable-Frequency Response Analysis
    b. Sinusoidal Frequency Analysis
    c. Resonant Circuits
    d. Scaling
    e. Application Examples
    f. Design Examples

STATE UNIVERSITY OF NEW YORK

COLLEGE OF TECHNOLOGY

CANTON, NEW YORK

COURSE OUTLINE

ELEC 383– Power Transmission and Distributions

Prepared By: Stephen E. Frempong

SCHOOL OF ENGINEERING TECHNOLOGY

ENGINEERING SCIENCE & ELECTRICAL ENGINEERING

TECHNOLOGY DEPARTMENT

SPRING 2018

A. TITLE : Power Transmission and Distributions

B. COURSE NUMBER: ELEC 383

C. CREDIT HOURS: 3

D. WRITING INTENSIVE COURSE: NO

E. WEEKS PER SEMESTER: 15

F. SEMESTER OFFERED: SPRING

G. HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY: 2 hours of lecture and 2 hours of lab per week.

H. CATALOG DESCRIPTION: This course in electrical power generation and transmission will emphasis on those aspects that concern engineers and technologists in the performance of their tasks. Topics covered include: Hydropower, Thermal, Nuclear, and Wind Power Generating Stations, Transmission and Distribution of Electrical Energy, Direct Current Transmission, HVDC Light Transmission System, Power Stability, and Cost of Electricity.

I. PRE-REQUISITES/CO-COURSES: ELEC 215 [Electrical Energy Conversion], or permission of instructor.

J. GOALS (STUDENT LEARNING OUTCOMES)

Course Objectives	Institutional Student Learning Outcomes (ISLO)	ABET Student Outcome (a-k)
a. Perform power-flow analysis	2. Critical Analysis	a, b, c
b. Analyze transmission line voltages	2. Critical Analysis	

		a, b, c
c. Apply critical thinking to solving electrical power problems	2. Critical Thinking	a, b
d. Evaluate circuit interrupting devices	3. Professional Competence	c, f
e. Perform pseudo-steady-state analysis	2. Critical Thinking	b
f. Perform transmission line calculations	2. Critical Thinking	b
g. Differentiate Nuclear, Hydroelectric, and Wind Power	3. Professional Competence	f
h. Perform transmission line simulation	3. Professional Competence	a, c

K. TEXTS:

1. Theodore Wildi, Electrical Machines, Drives, and Power Systems,

6th Edition, Upper Saddle River, New Jersey 07458: Prentice Hall, 2006.

OR, as determined by instructor.

L. REFERENCES:

Arthur R. Bergen and Vijay Vittal, Power Systems Analysis, 2nd Edition,

Upper Saddle River, New Jersey 07458: Prentice Hall, 2000.

M. EQUIPMENT: Power laboratory equipment plus simulation software will be used for the lab exercises.

N. GRADING METHOD: A-F

O. MEASUREMENT CRITERIA/METHODS: Examination performance, Laboratory project, and Assignment.

P. DETAILED TOPICAL OUTLINE:

1. Hydropower Generating Station

   a. Available hydro power
   b. Types of hydropower stations
   c. Makeup of a hydropower plant
   d. Pumped-storage installations

2. Thermal Generating Stations

   a. Makeup of a thermal generating station
   b. Turbines
   c. Condenser
   d. Cooling towers
   e. Boiler-feed pump
   f. Energy flow diagram for a steam plant
   g. Thermal stations and the environment

3. Nuclear Generating Stations

   a. Composition of an atomic nucleus isotopes
   b. The source of uranium
   c. Energy released by atomic fission
   d. Chain reaction
   e. Types of nuclear reactors
   f. Example of a light-water reactor
   g. Example of heavy water reactor

h. Principles of the fast breeder reactor
i. Nuclear fusion

4. Transmission of Electrical Energy

a. Principal components of a power distribution system
b. Types of power lines
c. Standard voltages
d. Components of a HV transmission line
e. Construction of a line
f. Galloping lines
g. Corona effect – radio interference
h. Pollution
i. Lighting
j. Impulse insulation
k. Ground wires
l. Tower grounding
m. Equivalent circuit of a line
n. Typical impedance values
o. Voltage regulation and power transmission capability of transmission lines
p. Resistive/inductive lines
q. Choosing the line voltage
r. Methods of increasing power capacity
s. Extra-high power lines

5. Distribution of Electrical Energy

a. Substation equipment
b. Circuit Breakers
c. Air-break switches
d. Grounding switches
e. Surge arresters
f. Current-limiting reactors
g. Grounding Transformer
h. Medium/Low voltage distribution

6. HVDC Light Transmission System
7. The Cost of Electricity

Q. <u>LABORATORY OUTLINE</u>:

1. Transformers

2. Ground fault troubleshooting
3. Switches and Circuit Breakers
4. High Voltage Line Simulation
5. Testing Power Control Devices
6. Power Converter
7. Loading
8. Wind Station Testing
9. Group Power Design Project

STATE UNIVERSITY OF NEW YORK

COLLEGE OF TECHNOLOGY

CANTON, NEW YORK

COURSE OUTLINE

ELEC 385 – Electronic Communications (I)

Prepared By: Stephen E. Frempong

SCHOOL OF ENGINEERING TECHNOLOGY

ENGINEERING SCIENCE & ELECTRICAL ENGINEERING

TECHNOLOGY DEPARTMENT

Fall 2017

A. TITLE : Electronic Communications (I)

B. COURSE NUMBER: ELEC 385

C. CREDIT HOURS: 3

D. WRITING INTENSIVE COURSE: NO

E. WEEKS PER SEMESTER: 15

F. SEMESTER OFFERED: SPRING

G. HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY: 2 hours lecture and 2 hours laboratory per week

H. CATALOG DESCRIPTION: The first of a two series of courses to prepare students for modern telecommunications industry. Topics covered include Electronic Communication Fundamentals, Amplitude Modulations and Frequency Modulations, Communication Receivers/Transmitters, Digital Communication, Multiplexing and De-multiplexing.

I. PRE-REQUISITES/CO-COURSES: ELEC225 [Telecommunications], Electronic Circuits (ELEC 231), and Calculus II (MATH 162), or permission of instructor.

J. GOALS (STUDENT LEARNING OUTCOMES)

Course Objectives	***Institutional Student Learning Outcomes (ISLO)***	ABET Student Outcomes (a-k)

Determine the AM carrier power given the power in one sideband and the percent modulation.	1. Critical Thinking	b, d, f
alculate the modulation index, deviation, bandwidth using Bessel function and Carson's rule. Build, test and analyze Frequency Modulated circuits.	2. Critical Thinking 3. Professional Competence	a, b, c
Calculate bandwidth, Q-factor, shape factor of (LC) tuned circuit.	1. Critical Thinking	b, f
Design build and test (L) and (T) impedance matching network.	1. Critical Thinking 2. Professional Competence	a, b, c, d

K. TEXTS:
Louis E. Frenzel, Principles of Electronic Communication Systems, 4th Edition, 8787 Orion Place, Columbus, OH 43240: Glencoe/McGraw-Hill, 2017.

L. REFERENCES:

1. Gary M. Miller, Modern Electronic Communication, 6th Edition, Upper Saddle River, New Jersey: Prentice Hall, 2004.
2. Wayne Tomasi, Electronic Communications Systems, 5th Edition, Upper Saddle River, New Jersey: Prentice Hall, 2004.

M. EQUIPMENT: Students are required to purchase laboratory components.

N. GRADING METHOD: A-F

O. MEASUREMENT CRITERIA/METHODS: Examination performance, Assignment, and Laboratory project.

P. DETAILED TOPICAL OUTLINE:

1. Introduction to Electronic Communications
    a. Power Measurements
    b. Electronic Communications Systems
    c. Electromagnetic Frequency Spectrum
    d. Noise Analysis
2. Signal Analysis and Mixing
    a. Complex Waves
    b. Frequency Spectrum and Bandwidth
    c. Fourier Series for a Rectangular Waveform
3. Coding Techniques
    a. Introduction
    b. Coding
    c. Alphanumeric Codes
    d. Digital Signal Encoding Formats
    e. Code Error Detection and Correction
    f. PCM Analysis
    g. Delta Modulation
    h. PCM/TDM Repeaters
4. Single-Sideband Communications Systems
    a. Single-Sideband Systems
    b. Comparison of Single-Sideband Transmission to Conventional AM
    c. Mathematical Analysis of Suppressed Carrier AM
    d. Single-Sideband Transmitters/Receivers
    e. Double-Sideband Suppressed Carrier and Quadrature Multiplexing
    f. Single-Sideband Measurements
5. Digital Modulation
    a.Information Capacity (bits, bit rate and baud)
    b. Amplitude Shift Keying
    C. Frequency Shift Keying
    D. Phase Shift Keying
    e. Quadrature Amplitude Modulation
    f.Bandwidth Efficiency
    g.Carrier Recovery
    h. Differential Phase Shift Keying
    i. Trellis Code Modulation
    j. JPCM
6. Digital T-Carriers and Multiplexing
    a. T1 Digital Carrier
    b. Digital Carrier Line Encoding
    c. T Carrier Systems
    d. European Digital Carrier System
    e .Statistical Time Division Multiplexing
    f. AT&T's FDM Hierarchy
    g. Composite Baseband Signal
    h.Wavelength Division Multiplexing

Q. LABORATORY OUTLINE:

1. Oscillator Circuit
2. AM Modulator Circuit Design
3. FM Modulator Circuit Design
4. Demodulator Circuits (AM, FM)
5. Single Sideband Circuit Design and Measurements
6. FDM Circuit Design
7. AD/DA Convertors
8. Pulse Width Modulator
9. Frequency Multiplier
10. Frequency Demodulation
11. Final Project

Appendix 3 – Distance Education

SUNY The State University of New York

Distance Education Format Proposal

For A Proposed or Registered Program

Form 4

Version 2014-11-17

When a new or existing program is designed for a distance education format, a campus Chief Executive Officer or Chief Academic Officer should submit a signed cover letter and this completed form to the SUNY Provost at *program.review@suny.edu*. According to MSCHE, the 50% standard includes only courses offered in their entirety via distance education, not courses utilizing mixed delivery methods. Also, MSCHE requires that the first two programs for which 50% or more is offered through distance education be submitted for Commission review and prior approval of a substantive change.

- All campuses must complete the following sections: Sections 1 - 3, and Part B: Program Specific Issues.

- Part A must be completed if the proposing campus has not previously submitted this form with a completed Part A: Institution-wide Issues, or has made significant changes to its institution-wide distance education operations since last completing Part A. This applies even if the institution has programs registered to be delivered at a distance.

Section 1. General Information		
a) Institutional Information	Institution's 6-digit SED Code:	
	Institution's Name:	State University of New York at Canton
	Address:	*34 Cornell Drive, Canton New York 13617*
b) Registered or	Program Title:	Electrical Engineering Technology
	SED Program Code	261000

Proposed Program	Award(s) (e.g., A.A., B.S.):	B.S.
	Number of Required Credits:	Minimum [60] If tracks or options, largest minimum [ ]
	HEGIS Code:	0925
	CIP 2010 Code:	15.0303
c) Distance Education Contact	me and title: Molly Mott, Ph.D., Associate Provost and Dean of Academic Support Technologies ephone: (315) 386-7425 E-mail: mottma@canton.edu	
d) Chief Executive or Chief Academic Officer Approval	**Signature affirms that the proposal has met all applicable campus administrative and shared governance procedures for consultation, and the institution's commitment to support the proposed program.** ***E-signatures are acceptable.*** Name and title: Dougal M. Scheidt, Ph.D., Provost and Vice President for Academic Affairs Signature and date:	
	If the program will be registered jointly[1] with one or more other institutions, provide the following information for each institution:	
	Partner institution's name and 6-digit SED Code: Name, title, and signature of partner institution's CEO (or **append** a signed letter indicating approval of this proposal):	

[1] If the partner institution is non-degree-granting, see SED's CEO Memo 94-04.

Section 2: Enrollment

Year	Anticipated Headcount Enrollment			Estimated FTE
	Full-time	Part-time	Total	
1	5	15	20	
2	10	20	30	
3	15	25	40	
4	20	30	50	
5	30	45	75	

Section 3: Program Information

a) ***Term length*** (in weeks) for the distance program: 15 weeks

b) Is this the same as term length for classroom program? [ ] No [X] Yes

c) How much "***instructional time***" is required per week per credit for a distance course in this program? (Do not include time spent on activities that would be done outside "class time," such as research, writing assignments, or chat rooms.) ***NOTE:*** *See SUNY policy on credit/contact hours and SED guidance.*

Same as traditional classroom instructional time, which is measured by the description of the content covered, course objectives, and expected learning outcomes. Same content and course outline are used for both delivery methods.

d) What proportion or percentage of the program will be offered in Distance Education format? Will students be able to complete 100 percent of the program online? If not, what proportion will be able to be completed online?

This is 100% online upper division (B.S.) program.

e) What is the maximum number of students who would be enrolled in an online course section?

Class size is determined through a consultative process that includes Deans, department chairs, and faculty. Class sizes are revised on a case-by-case basis following experience with course delivery.

Part A: Institution-wide Issues: Submit Part A only for the **first** Distance Education program proposed by your institution using this form. SUNY and the State Education Department will keep this in a master file so that your institution will not need to resubmit it for each new proposed online program, **unless there are significant changes, such as a new platform.**

Part A.1. Organizational Commitment

a) Describe your institution's planning process for Distance Education, including how the need for distance access was identified, the nature and size of the intended audiences, and the provisions for serving those audiences, including how each student's identity will be verified. (On file)

b) Describe your institution's resources for distance learning programs and its student and technical support services to ensure their effectiveness. What course management system does your institution use? (On file)

c) Describe how the institution trains faculty and supports them in developing and teaching online courses, including the pedagogical and communication strategies to function effectively. Describe the qualifications of those who train and/or assist faculty, or are otherwise responsible for online education. (On file)

d) If your institution uses courses or academic support services from ***another provider***, describe the process used (with faculty participation) to evaluate their quality, academic rigor, and suitability for the award of college credit and a degree or certificate. (On file)

e) Does your institution have a clear ***policy on ownership of course materials*** developed for its distance education courses? How is this policy shared with faculty and staff? ***NOTE:*** *You may refer to SUNY's statement on copyright and faculty ownership of instructional content, and/or faculty contract provisions.* (On file)

Part A.2. Learner Support

a) Describe how your institution provides distance students with ***clear information*** on: (On file)
   - Program completion requirements
   - The nature of the learning experience
   - Any specific student background, knowledge, or technical skills needed
   - Expectations of student participation and learning
   - The nature of interactions among faculty and students in the courses.
   - Any technical equipment or software required or recommended.

b) Describe how your institution provides distance learners with adequate ***academic and administrative support***, including academic advisement, technical support, library and information services, and other student support services normally available on campus. Do program materials clearly define how students can access these support services? (On file)

c) Describe how ***administrative processes*** such as admissions and registration are made available to distance students, and how program materials inform students how to access these services. (On file)

d) What ***orientation*** opportunities and resources are available for students of distance learning? (On file)

Part B: Program-Specific Issues: Submit Part B for each new request to add Distance Education Format to a proposed or registered program.

Part B.1. Learning Design

a) How does your institution ensure that the ***same academic standards and requirements*** are applied to the program on campus and through distance learning? If the curriculum in the Distance Education program differs from that of the on-ground program, please identify the differences.

Academic policy guidelines articulated in the SUNY Canton College Catalog apply to both on-campus and distance education courses. Course syllabi, regardless of the delivery medium, detail policies and requirements. However, we recognize the need for online courses to include specific course requirements as they relate to the use of technology in the learning environment. As a result, we have developed and approved an Online Syllabus. While closely aligned with the requirements of the on-campus syllabus, the Online Syllabus communicates information to students on course requirements specific to an online environment. 4 of 6 Courses approved for online delivery undergo the same governance process as campus-based courses. Additionally, online courses undergo quality control via the course review process. Each course presently scheduled for online delivery on this program has completed the course review process*(see below) Additionally, the curriculum for the distance education program does not differ in content from the currently registered program and the faculty who will teach in the distance education program do not differ from the faculty who teach in the traditional classroom program.

All of our online courses undergo a rigorous course review process before they are offered online. Courses are reviewed based on the standards of good practice detailed in a course review rubric. Review teams are comprised of faculty volunteers trained in evaluating online courses.

b) Are the courses that make up the distance learning program offered in a sequence or configuration that allows ***timely completion of requirements***?

The same schedule and term length is used for the distance education program as the currently registered program. The School Dean in collaboration with the Department Chair is responsible for planning and coordinating the online courses in this program.

c) How do faculty and others ensure that ***the technological tools*** used in the program are appropriate for the content and intended learning outcomes?

The General Review Standard VI, Course Technology, of the course review rubric addresses this criterion. The goal of the standard on course technology is to enhance student learning, enrich instruction, and foster learner interactivity. In particular, the standard evaluates the accessibility and usability of technological tools and their relationship to the course content.

d) How does the program provide for appropriate and flexible interaction between faculty and students, and among students?

Once again, the course review process provides a mechanism for addressing this criterion. The General Review Standard V, Learner Interaction, focuses on the effective design of instructor-learner interaction. Discussion is a significant component of all courses in the program.

e) How do faculty teaching online courses verify that the student who registers in a distance education course or program is the same student who participates in and completes the course or program and receives the academic credit?

Students must first login to the course management system using a unique username and personal password to gain access to the course content and testing/submission areas. The use of multiple methods of assessment reduces the opportunity for a student to submit plagiarized work by: 1) using timed, randomized, and restricted access multiple digital assessments. 2) Requiring draft/final document submission allowing for examination of digital document properties and/or database comparison using plagiarism software. 3) Group work providing a method of peer accountability within individual teams. Additionally, the instructor may choose to visually verify a student's identity utilizing webcam based interaction and requiring photo ID.

Part B.2. Outcomes and Assessment

a) Distance learning programs are expected to produce the ***same learning outcomes*** as comparable classroom-based programs. How are these learning outcomes identified – in terms of knowledge, skills, or credentials – in course and program materials?

In terms of student competencies, all of our online courses in our academic programs are designed to produce the same learning outcomes as our on-campus courses. Programs are assessed every five years through SUNY's program evaluation. We continue to use this evaluation and the assessment plan for the program approved. On a course level, learning outcomes are articulated in course syllabi. Moreover, the General Review Standard III, Assessment and Measurement, in our course review rubric assesses the ability of an online course to provide assessment strategies that enhance student learning outcomes.

b) Describe how the ***means chosen for assessing student learning*** in this program are appropriate to the content, learning design, technologies, and characteristics of the learners.

Since student learning outcomes for a course are expected to be the same regardless of delivery mode, different tools or methodology for program evaluation or outcomes assessment should not be necessary. Outcomes assessment tools (e.g. written assessments) used for any course are adaptable to all delivery modes. This parallels the policy that all courses are approved through the curriculum committee in which the mode of delivery is transparent in the course approval process.

Part B.3. Program Evaluation

a) What process is in place to monitor and ***evaluate the effectiveness*** of this particular distance education program on a regular basis?

Regardless of the delivery mode, all programs use the same methods to monitor and evaluate their effectiveness. Methods to evaluate program effectiveness include: Student Course Comments, approved by our governance body, allow all, including online students in this program, to assess their academic experience. Other assessments include yearly review of student learning outcomes and regular review by accrediting agencies such as Middle States Association. The periodic assessment and length of assessment cycle is the same for the currently registered program and the distance education program.

The program will seek Accreditation for Engineering and Technology (ABET) after the first graduates, and the review circle will be every six years.

b) How will the evaluation results will be used for ***continuous program improvement***?

Feedback from the above mentioned assessments are used by the faculty and administration to improve practices and procedures associated with the instruction and delivery of online courses. Through such evaluations, faculty receives feedback on instruction, course design, course materials, and the learning environment. Faculty member teaching online in this program, as well as in other programs, are encouraged

to use this feedback to improve course design and delivery. Moreover, student learning outcomes for each course in the program, and the 'closing the loop' actions associated with them, are documented through the use of the College's assessment software system, TaskStream.

c) How will the evaluation process assure that the ***program results in learning outcomes appropriate to the rigor and breadth*** of the college degree or certificate awarded?

Faculty committees at the College (e.g. the Online Learning Advisory Committee, Academic Standards) frequently discuss the academic rigor of our online courses. It is the consensus of our experienced online faculty that the reading and writing demands of online courses significantly enhance their academic quality. This consensus is supported by current research in the field of online learning that indicates that the writing and discussion requirements of many online courses are often more substantial than their on-campus counterparts. Moreover, we believe that the "rigor and breadth" required of a college degree is considerably enhanced through our course review process that evaluates the ability of all online courses to meet expectations of quality

Part B.4. Students Residing Outside New York State

SUNY programs must comply with all "authorization to operate" regulations that are in place in other U.S. states where the institution has enrolled students or is otherwise active, based on each state's definitions.

a) What processes are in place to monitor the U.S. state of residency of students enrolled in any distance education course in this program while residing in their home state?

Each semester, the Office of Institutional Effectiveness runs enrollment counts of students who are fully online and residing outside of NYS. Additionally, SUNY Canton is a member of State Authorization Reciprocity Agreements (SARA).

b) Federal regulations require institutions delivering courses by distance education to provide students or prospective students with contact information for filing complaints with the state approval or licensing entity in the student's state of residency and any other relevant state official or agency that would appropriately handle a student's complaint. What is the URL on your institution's website where contact information for filing complaints for students in this program is posted? ***NOTE:*** *Links to information for other states can be found at here.*

http://www.canton.edu/ol/current.html

Appendix 5 –External Reviewers Form 2D

SUNY The State University of New York

External Evaluation Report

Form 2D

Version 201-08-02

The External Evaluation Report is an important component of a new academic program proposal. The external evaluator's task is to examine the program proposal and related materials, visit the campus to discuss the proposal with faculty and review related instructional resources and facilities, respond to the questions in this Report form, and submit to the institution a signed report that speaks to the quality of, and need for, the proposed program. The report should aim for completeness, accuracy and objectivity.

The institution is expected to review each External Evaluation Report it receives, prepare a single institutional response to all reports, and, as appropriate, make changes to its program proposal and plan. Each separate External Evaluation Report and the Institutional Response become part of the full program proposal that the institution submits to SUNY for approval. If an external evaluation of the proposed program is required by the New York State Education Department (SED), SUNY includes the External Evaluation Reports and Institutional Response in the full proposal that it submits to SED for registration.

Institution: SUNY Canton

Evaluator Name (Please print.): William Hugh Blanton

Evaluator Title and Institution: Coordinator Biomedical Engineering Technology, East Tennessee State University

Evaluator Signature: William H. Blanton

Proposed Program Title: Electrical Engineering Technology B.S.

Degree: B.S.

Date of evaluation:

I. Program

1. Assess the program's **purpose, structure, and requirements** as well as formal mechanisms for program **administration and evaluation.** Address the program's academic rigor and intellectual coherence.

The Electrical Engineering Technology program at SUNY Canton is seeking to start an online bachelor's degree. The Electrical Engineering Technology program at SUNY Canton is well positioned through its association with the Engineering and Technology Accreditation Board (ETAC—formally the Accreditation Board of Engineering and Technology (ABET)) to launch an online path for those students that have completed an appropriate number of college courses or completed an associate's degree and are prohibited by time, by distance, by employment, or by various family obligations from completing their bachelor's degree.

ETAC encourages each program to periodically evaluate its purpose, structure, and requirements. ETAC accreditation assures that the program is well administered and that the program is sustainable.

2. Comment on the **special focus** of this program, if any, as it relates to the discipline.

Online education has grown each year for more than a decade throughout the United States, and there is currently a wide range of online undergraduate and graduate degrees. More employers are taking these degrees – and other online credentials, like graduate certificates – seriously. (https://www.usnews.com/education/online-education, Accessed 17 Apr. 2018). Working adults looking to go back to school often consider the flexibility of online learning given their responsibilities outside the classroom. Those with full-time jobs and families might find a part-time online degree program ideal, enabling them to juggle their various daily responsibilities without commuting to a physical campus classroom. Online learning offers the ability to communicate with a professor and other students through technology such as Skype, D2L, etc.

Students can access course material on their own time and in a location of their choice. In some instances, students might attend live lectures through videoconferencing. Some programs require attending the campus during an occasional weekend during the semester or quarter.

Pursuing an online degree requires more personal responsibility from students as they learn material and complete assignments and group work based on their own schedule. Online learners therefore need to be

prepared to effectively manage their time. Though communication with instructors and students is possible through electronic means, prospective students should weigh whether they want to sacrifice face-to-face interaction for the flexibility online education provides.

Ultimately, experts say, students should choose an online degree program wisely, keeping in mind the impact it can have on a career. The American economy is expanding. To grow and expand with the economy, companies need skilled, dedicated, and reliable employees. One skilled area where there seems to be a continuous shortage of skilled, dedicated, and reliable employees is STEM (Science, Technology, Engineering, and Mathematics). SUNY Canton is proposing an innovative solution to the national shortage of STEM trained employees. (https://www.usnews.com/education/online-education, Accessed 17 Apr. 2018).

Launching the online path to graduation provides opportunities for the various constituents of SUNY Canton. Students want relevant education, preparation for life-long learning, and access to jobs. An online curriculum allows students an alternate path for graduation to fulfill these wants. Employers are seeking responsible graduates that understand the importance of teamwork, that can communicate succinctly and coherently, and that have strong work-related fundamentals. Colleges and universities seek a positive image with cutting-edge curricula that attract students. The faculty want sustainable programs in their areas of interest that have sufficient long-term funding to obtain modern new equipment and provide stimulating topics for research.

3. Comment on the plans and expectations for **self-assessment and continuous improvement.**

ETAC criteria and subsequent accreditation require detailed plans for self-assessment and continuous improvement.

4. Discuss **the relationship** of this program to other programs of the institution and collaboration with other institutions and assess available support from related programs.

SED's Inventory of Registered Programs.

Institution	*Program Title*	*Degree*	*Enrollment*
Excelsior College	*Electrical Engineering*	*B.S.*	*899*
Stony Brook	*Electrical Engineering*	*BSEE*	*34*
DeVry University	*Electronic Engineering*	*B.S.*	*758*

The consultation of the program with other SUNY campuses was beneficial because one institution needed clarification on admissions requirements.

5. What is the evidence of **need** and **demand** for the program locally, in the State, and in the field at large? What is the extent of occupational demand for graduates? What is the evidence that demand will continue?

(1) The proposal received complete support from Industry Advisory Board (IAB) during 2017 board meeting. An active IAB is generally accepted as a major contributor to the continuous improvement of technologically-based curriculum.

(2) The program is designed to meet ETAC criteria by using ETAC Student Outcomes (a-k). ETAC criteria are widely accepted standards in the engineering and engineering technology community.

(3) See Item I.2 above.

II. Faculty

6. **Evaluate the faculty**, individually and collectively, with regard to training, experience, research and publication, professional service, and recognition in the field.

The faculty seem adequate and adequately motivated to provide the related opportunities that this online service will provide those students that are hindered by distance, by time, by work, by family, etc., from obtaining their bachelor's degree. In addition, the faculty have demonstrated that they meet the ETAC faculty criteria..

7. **Assess the faculty in terms of number and qualifications** and **plans for future staffing**. Evaluate **faculty responsibilities** for the proposed program, taking into account their other institutional and programmatic commitments. Evaluate faculty **activity in generating funds** for research, training, facilities, equipment, etc. Discuss any **critical gaps and plans for addressing them**.

The SUNY Faculty Table indicates that there is a need for a new faculty member to be hired to completely cover the additional faculty responsibilities required in the proposed online option to Electrical Engineering Technology The new faculty member will be tasked 20% of their time to the proposed online curriculum. Eighty percent of their time will be tasked to other programmatic commitments. Naturally, the success of the proposed program may demand an increase in the number of faculty.

8. Evaluate credentials and involvement of **adjunct faculty** and **support personnel**.

None listed.

III. Students

9. Comment on the **student population the program seeks to serve**, and assess plans and projections for student recruitment and enrollment.

The program seeks to serve an untapped reserve of students that have achieved some degree of college success, but are limited by time, distance, family obligations, work obligations, etc.

10. What are the prospects that recruitment efforts and admissions criteria will supply **a sufficient pool of highly qualified applicants and enrollees**?

For the most part, the potential applicants and enrollees have shown some aptitude for the material by successfully completing an associate's degree. Since the most difficult courses in electronics are the beginning courses, most of the applicants will have had some degree of success simply by completing the early electronic courses. Electronics is a faith-based curriculum. Without any direct observation of moving parts or moving particles, the student must have

faith in the laws, theories, and results developed in class and observed in the lab and expand their knowledge based upon the combination of theoretical facts and empirical observations. This inherent faith in laws, theories, and results is anathema to most beginning college students that have been trained in K through 12 by teachers using the absolute and unquestionable nature of facts

11. Comment on provisions for encouraging participation of **persons from underrepresented groups.** Is there adequate attention to the needs of part-time, minority, or disadvantaged students?

STEM (Science, technology, engineering, and mathematics) is demographically and socially unbiased; however, STEM does discriminate on ability. With a dearth of capably trained people to choose from, companies search globally for STEM talent. Some of the most recognized STEM talent are persons from underrepresented groups.

12. Assess the system for monitoring **students' progress and performance** and for **advising students** regarding academic and career matters.

The plin put forth in form 2A seems to be adequate.

13. Discuss prospects for graduates' post-completion success, whether **employment, job advancement, future study, or other outcomes related to the program's goals.**

STEM areas have some of the lowest unemployment rates in the U.S. STEM areas typically have the most stable jobs and provide additional training that makes employees more valuable to an organization.

The major program objective of most engineering and engineering technology programs is to provide an education that leads to a job in the field within a year. Many times, students with a technology specialty have jobs waiting for them when they graduate. Another program objective of the engineering related programs is to graduate leaders in the appropriate engineering field. Graduates are expected to advance to more responsible positions in the organization and in the profession.

The half-life of technical knowledge is between 3 to 5 years. This means that every 3 and 5 years, technology is going to turn over to new technology. Thus, working in a technical area implies that a person will need to be committed to life-long learning through professional organizations, company supported programs and continuing education courses, and perhaps advanced degrees.

IV. Resources

14. Comment on the adequacy of physical **resources** and **facilities**, e.g., library, computer, and laboratory facilities; practical and internship sites or other experiential learning opportunities, such as co-ops or service learning; and support services for the program, including use of resources outside the institution.

Students are required to buy their lab equipment (one-time cost of $2,000 to $2,500). Most students should already have a personal computer. The library at SUNY Canton seems to have an adequate set of databases that students can access from home. More online books with free access and relevant technical manuals are available on the internet

I would suggest the following:

1. *Each student should have a standard set of expendable items (wires, passive components, active components) of parts that could be provided by SUNY Canton for a returnable fee when the set is returned at the end of the course.*

2. *Each student should have a standard set of software such as MS Office, LabView, MatLab, etc.*

15. What is the **institution's commitment** to the program as demonstrated by the operating budget, faculty salaries, the number of faculty lines relative to student numbers and workload, and discussions about administrative support with faculty and administrators?

The institution's financial commitment should be minimized since there are no additional facilities required and students are required to obtain and have their individual lab equipment.

V. Summary Comments and Additional Observations

16. Summarize the **major strengths and weaknesses** of the program as proposed with particular attention to feasibility of implementation and appropriateness of objectives for the degree offered.

Strengths:

Online is becoming a prevalent method of knowledge dissemination as the prospective students are looking for methods that mesh with their lifestyles. Millennials and even younger demographic groups are becoming more technologically literate and more technologically involved. More students want access to knowledge through their personal devices. Students are looking for alternatives that provide the flexibility to integrate with their responsibilities outside the classroom such as employment and family responsibilities. A bachelor's degree offers nationwide mobility and more opportunities for advancement within an organization.

Weaknesses:

There is an initial outlay of cash by the student for laboratory equipment. Pursuing an online degree requires more personal responsibility from students as they learn material and complete assignments and group work based on their own schedule. Online learners therefore need to be prepared to effectively manage their time. Though communication with instructors and students is possible through electronic means, prospective students should weigh whether they want to sacrifice face-to-face interaction with faculty and peers for the flexibility online education provides.

17. If applicable, particularly for graduate programs, comment on the ways that this program will make a **unique contribution** to the field, and its likelihood of achieving State, regional and/or national **prominence**.

Any additional access to engineering technology is good for the community, the state, and the nation. The jobs of the

future are going to require more math, more science, more computer science, and more technology. The U.S. Department of Education reports only 16 percent of American high school seniors are proficient in math and interested in a STEM (Science, Technology, Engineering, Math) career. Even among those who do go on to pursue a college major in the STEM fields, only about half choose to work in a related career. The United States is falling behind internationally, ranking 29th in math and 22nd in science among industrialized nations. A recent survey revealed that only 29 percent of Americans rated this country's K-12 education in STEM subjects as above average or the best in the world. In our competitive global economy, this situation is unacceptable. https://www.ed.gov/stem, Accessed 20 Apr. 2018.

18. Include any **further observations** important to the evaluation of this program proposal and provide any **recommendations** for the proposed program.

Online education is trending positively due to the convergence of inexpensive, accurate test equipment and demographic changes. These trends provide a unique opportunity for a successful launch of an online electrical engineering technology curriculum that builds upon an existing, successful ETAC accredited electrical engineering technology curriculum at SUNY Canton.

The demographics of students are changing again. Higher education in the United States was initially established for the clergy and as a finishing school for the gentry. The first major change in educational philosophy was ushered in by the land-grant college (Agricultural and Mining (A&M) and Technology Colleges) and the industrialization of the United States. Clergy on the college boards were replaced by the titans of industry. Another demographic transition occurred after World War II when the GI bill provided educational opportunities for those returning from the war. These returning GIs were older students who were looking for education that led to jobs, rather than education that emphasized refined living through the study of art, literature, and history.

The present transition is due to the Millennials who seek to satisfy their wants and needs on their own timetable. Millennials are comfortable with technology and are multitaskers, juggling multiple tasks and responsibilities. They are socially connected on Ttwitter, Instagram, and Facebook. Millennials seek instant gratification and recognition. They want a balance between their work and personal time and a flexible workplace. (https://business.linkedin.com/talent-solutions/blog/2013/12/8-millennials-traits-you-should-know-about-before-you-hire-them, Accessed 27 Apr. 2018).

Online education has grown each year for more than a decade throughout the United States, and there is currently a wide range of online undergraduate and graduate degrees. Pursuing an online degree requires more personal responsibility from students as they learn material and complete assignments and group work based on their own schedule. Online learners must be prepared to effectively manage their time. These online requirements are made to order for the Millennials.

Launching the online path to graduation provides opportunities for a new growing demographic, the Millennials along with various constituents of SUNY Canton. Student want relevant education,

preparation for life-long learning, and access to jobs. An online curriculum allows students an alternate path for graduation to fulfill these wants. Employers are seeking responsible graduates that understand the importance of teamwork, that can communicate succinctly and coherently, and that have strong work-related fundamentals. Universities are seeking a positive image with cutting-edge curricula that attract students. The faculty want sustainable programs in their areas of interest that have sufficient long-term funding to obtain modern new equipment and provide stimulating topics for research.

SUNY The State University of New York

External Reviewer Conflict of Interest Statement

I am providing an external review of the application submitted to the State University of New York by:

~~SUNY Canton~~

(Name of Institution or Applicant)

The application is for (circle A **or** B below) A)

(New Degree Authority

B) Registration of a new academic program by an existing institution of higher education:

Electrical Engineering Technology B.S.

(Title of Proposed Program)

I affirm that I:

1. am not a present or former employee, student, member of the governing board, owner or shareholder of, or consultant to the institution that is seeking approval for the proposed program or the entity seeking

approval for new degree authority, and that I did not consult on, or help to develop, the application;

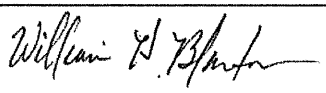
2. am not a spouse, parent, child, or sibling of any of the individuals listed above;

3. am not seeking or being sought for employment or other relationship with the institution/entity submitting the application?

4. do not have now, nor have had in the past, a relationship with the institution/entity submitting the application that might compromise my objectivity.

Name of External Reviewer (please print):

William H. Blanton

Signature 

SUNY The State University of New York

External Evaluation Report

Form 2D

Version 201-08-02

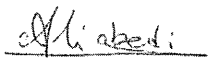
The External Evaluation Report is an important component of a new academic program proposal. The external evaluator's task is to examine the program proposal and related materials, visit the campus to discuss the proposal with faculty and review related instructional resources and facilities, respond to the questions in this Report form, and submit to the institution a signed report that speaks to the quality of, and need for, the proposed program. The report should aim for completeness, accuracy and objectivity.

The institution is expected to review each External Evaluation Report it receives, prepare a single institutional response to all reports, and, as appropriate, make changes to its program proposal and plan. Each separate External Evaluation Report and the Institutional Response become part of the full program proposal that the institution submits to SUNY for approval. If an external evaluation of the proposed program is required by the New York State Education Department (SED), SUNY includes the External Evaluation Reports and Institutional Response in the full proposal that it submits to SED for registration.

Institution: SUNY Canton

Evaluator Name (Please print.): Dr. Ali Abedi

Evaluator Title and Institution: Professor and Director, University of Maine

Evaluator Signature: 

Proposed Program Title: Electrical Engineering Technology B.S.

Degree: B.S.

Date of evaluation: 4/29/2018

I. Program

19. Assess the program's **purpose, structure, and requirements** as well as formal mechanisms for program **administration and evaluation.** Address the program's academic rigor and intellectual coherence.

The proposed BS degree in Electrical Engineering Technology (EET) covers the basics and fundamentals required by industry from graduates with similar degrees. The proposal is well developed and provides a comprehensive overview of students learning outcomes, and program educational objectives which are essential for ABET accreditation. Upon inspecting the course content from provided syllabi, and reviewing the suggested text books, I affirm that the proposed program has necessary breadth and depth required for a BS degree in EET.

20. Comment on the **special focus** of this program, if any, as it relates to the discipline.

N/A

21. Comment on the plans and expectations for **self-assessment and continuous improvement**.

The program evaluation plan includes employer and graduates surveys as well as feedback from faculty teaching courses. This is an acceptable process and is complimented by ABET formal review.

22. Discuss **the relationship** of this program to other programs of the institution and collaboration with other institutions, and assess available support from related programs.

This program can benefit from already identified feeder program Associate of Applied Science (A.A.S) degree, while it can provide additional benefit to other similar programs in the SUNY system. Programs such as Electrical Engineering often suffer from retention issues, mainly due to unpreparedness of incoming students or lack of interest in theoretical aspects of such program and higher interests in experiential hands on learning. In these cases, students whom would have decided to leave SUNY system may be attracted to this EET program where their interest in hands on learning is addressed.

23. What is the evidence of **need** and **demand** for the program locally, in the State, and in the field at large? What is the extent of occupational demand for graduates? What is the evidence that demand will continue?

According to department of labor studies, the current employment numbers for EET professionals is around 137,000 nationwide with projected growth of another 2700 new jobs added within the next 8 years. This clearly justifies the demand and need for this program nationwide. State of NY alone, currently employs

5600 EET professionals, which is also subject to the projected growth. A quick search on IEEE job site and other similar job posting websites, the demand for this program is clearly demonstrated. With explosive growth of electronic devices around homes and continued demand from industrial plants, it is expected that this demand will continue to grow at a steady rate.

II. Faculty

24. Evaluate the faculty, individually and collectively, with regard to training, experience, research and publication, professional service, and recognition in the field.

The faculty members named in the proposal have adequate experience from both technical and educational perspectives and well qualified to teach and run this program.

25. Assess the faculty in terms of number and qualifications and **plans for future staffing**. Evaluate **faculty responsibilities** for the proposed program, taking into account their other institutional and programmatic commitments. Evaluate faculty **activity in generating funds** for research, training, facilities, equipment, etc. Discuss any **critical gaps and plans for addressing them**.

The current initial phase of the program with projected 10 new students added per year can be handled by current faculty and the new hire proposed, but if the program grows and number of students increases the need to hire more lecturers and instructors becomes more important.

26. Evaluate credentials and involvement of **adjunct faculty** and **support personnel**.

The part time and adjunct faculty members named in this proposal posses necessary experience to support students, labs, and the program in general.

III. Students

27. Comment on the **student population the program seeks to serve**, and assess plans and projections for student recruitment and enrollment.

The proposed student population seems to be mainly coming from Associate of Applied Science (A.A.S) degree program to this EET program. The projected student enrollment of 10 new per year for the next five years seems reasonable and achievable. With more marketing it is quite possible to grow the program even faster.

28. What are the prospects that recruitment efforts and admissions criteria will supply **a sufficient pool of highly qualified applicants and enrollees**?

As I already stated in my response to part I.4, the prospects of getting qualified students from engineering programs in addition to the named AAS program is high. Noting the large number of students attending colleges such as Devry, which offers online programs such as this program, it is possible to attract a portion of those students as well, since they can get a SUNY degree rather than a college degree. This program addresses the hands on training and online convenience in one shot.

29. Comment on provisions for encouraging participation of **persons from underrepresented groups.** Is there adequate attention to the needs of part-time, minority, or disadvantaged students?

It is noted in the proposal that faculty will work with admission office and industry advisory board to send regular program information to underrepresented and minority groups and encourage them to chose this program. In my opinion, this is standard effort that is going on with many universities and is not enough. It is recommended to think about creating new middle or high school program (summer camps) where students from historically underserved communities are invited to attend and learn from EET students. Making this a community engaged course for EET students can enrich their education as well. Another approach is to send faculty or students to schools to make presentations about the program. In summary, a more proactive recruitment effort is recommended.

30. Assess the system for monitoring **students' progress and performance** and for **advising students** regarding academic and career matters.

Each student will be assigned a faculty advisor and have access to tutoring center as well as Dean's office admins. This is adequate advising and support system and follows the common practice.

31. Discuss prospects for graduates' post-completion success, whether **employment, job advancement, future study, or other outcomes related to the program's goals.**

The program goals cover individual technical abilities as well as team work, communication and problem solving skills which are important requirements for job advancements. The full support from industry advisory board can be translated to identifying jobs and may be in future adding some internships to the program.

IV. Resources

32. Comment on the adequacy of physical **resources** and **facilities**, e.g., library, computer, and laboratory facilities; practica and internship sites or other experiential learning opportunities, such as co-ops or service learning; and support services for the program, including use of resources outside the institution.

The physical resources such as library and laboratories are adequate. The program requirements for online students to purchase certain equipment are also acceptable. It might be worth thinking about possibility of school investing in some loaner devices for disadvantaged students or minorities. It is not clear whether the students who are off campus have access to online journals and subscriptions at the library or not, but it is quite possible that is the case.

33. What is the **institution's commitment** to the program as demonstrated by the operating budget, faculty salaries, the number of faculty lines relative to student numbers and workload, and discussions about administrative support with faculty and administrators?

Major part of the budget seems to be devoted to the personnel, which indicates the institutions commitment to faculty and the proposed new hire.

V. Summary Comments and Additional Observations

34. Summarize the **major strengths and weaknesses** of the program as proposed with particular attention to feasibility of implementation and appropriateness of objectives for the degree offered.

The major strengths of the proposed program are:

- Demand and need for the proposed degree
- Adequate faculty and facilities
- Well developed courses and program objectives

The only weakness is lack of innovative plan for attracting minorities (which standard plan is in place).

35. If applicable, particularly for graduate programs, comment on the ways that this program will make a **unique contribution** to the field, and its likelihood of achieving State, regional and/or national **prominence.**

N/A

36. Include any **further observations** important to the evaluation of this program proposal and provide any **recommendations** for the proposed program.

It is recommended to consider a more formal recruitment plan as indicated in my comments III.11. Also, it might be beneficial to invest in loaner equipment as detailed in part IV.14. Overall, this program proposal is well developed and includes all necessary components.

SUNY The State University of New York

External Reviewer Conflict of Interest Statement

I am providing an external review of the application submitted to the State University of New York by:

SUNY Canton / Dean Michael J Newtown

(Name of Institution or Applicant)

The application is for (circle A **or** B below) A)

New Degree Authority

B) Registration of a new academic program by an existing institution of higher education:

Electrical Engineering Technology B.S.

(Title of Proposed Program)

I affirm that I:

1. am not a present or former employee, student, member of the governing board, owner or shareholder of, or consultant to the institution that is seeking approval for the proposed program or the entity seeking approval for new degree authority, and that I did not consult on, or help to develop, the application;

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3. am not seeking or being sought for employment or other relationship with the institution/entity submitting the application?

4. do not have now, nor have had in the past, a relationship with the institution/entity submitting the application that might compromise my objectivity.

Name of External Reviewer (please print):

Dr. Ali Abedi

Signature:

Ali Abedi