

ESF Minor Curriculum Change Proposal Form

Committee on Curriculum - ESF Faculty Governance Office of Instruction & Graduate Studies

Date:	2023.12.18
Department:	Division of Engineering
Curriculum Title:	Computer and Information Technology Minor

### For Minor Changes in existing curriculum (check all that apply):

⊠ revised courses	change in total cr. hrs.
new course sequence	new program objectives*
⊠ new courses added	new accreditation/assessment requirements
*See SUNY Guidelines	

## **1. Rationale for Change**

Please provide an explanatory narrative outlining the rationale for the change, and the impacts of this change on the learning outcomes of the curriculum:

The course list has been updated to reflect changes in the course offerings at ESF and SU. Elective list expanded to reflect new courses being offered.

### 2. Institutional Impact:

#### Changes from existing condition:

Anticipated Enrollment or Enrollment Change: 5

Faculty or Staffing Requirements: no additional requirements.

Technology, Computing Resources, and Classroom Resource Demands: no additional requirements

Change in Accreditation Requirements: N/A

Changes to Assessment Plan: none

Library Resource Requirements: no additional requirements

### 3. Catalog Narrative:

Please attach to this proposal form a copy of the current catalog description in MS Word format, with revisions shown in "track changes".

#### **Current Catalog Description**

Coordinator: Dr. Gary Scott

The computer and information technology minor is available to all ESF undergraduates who want to develop greater skill in computer science and information technology applications. By understanding the basic principles behind software development, students can more effectively use these tools in their chosen fields. To be eligible for this minor, a student must have a cumulative grade point average of 2.700 or better by the end of the sophomore year. Interested students must submit a petition form and plan sheet, with courses listed, to their academic advisor and undergraduate coordinator, with final approval from the Dean of Instruction and Graduate Studies. Eighteen credit hours (6 courses) in computer science and information technology courses are required to complete the minor.

#### 1. .. .

Require	d Courses (12 credits)				
GNE 160	Computing Methods for Engineers	and Phys	sical Scie	ntists 3	
OR					
APM 360	) Introduction to Computer Program	nming 3			
OR					
ERE 335	Numerical and Computing Method	s 3			
ESF 200	Information Literacy	1			
CIS 252	Introduction to Computer Science		4		
CIS 351	Data Structures 4				
Elective	Courses (6 credits)				
CME 410	) Computer -Aided Design a	nd Drafti	ing		3
ERE 445	Hydrologic Modeling	3			
ERE 622	Digital Image Analysis	3			
ESF 300	Introduction to Geospatial Informa	tion Tech	nologies		3
CIS 3xx	Any CIS course offered at the 300,	400, and	500 ;eve	;	
CSE 282	Systems Software Design	3			
CSE 283	Introduction to Object-Oriented De	esign		3	
CSE 351	Mathematical Analysis of Digital Sy	stems		3	
CSE 458	Data Networks: Basic Principles				
CSE 464	Introduction to VLSI Design		3		
CSE 471	Introduction to Embedded System	Design		3	
CSE 482	Principles of Software Engineering		3		
CSE 483	C# and Windows Programming		3		
CSE 484	Introduction to Computer and Net	work Sec	urity		3
CSE 486	Design of Operating Systems		3		
CSE 561	Digital Machine Design	3			
CSE 565	Introduction to VLSI Testing and Ve	erificatior	า	3	
CSE 571	Switching Theory 3				
CSE 581	Introduction to Database Manager	nent Syst	ems		3
CSE 588	Translator Design 3				

### <u>New Catalog Description</u> Coordinator: Dr. Gary Scott

The computer and information technology minor is available to all ESF undergraduates who want to develop greater skill in computer science and information technology applications. By understanding the basic principles behind software development, students can more effectively use these tools in their chosen fields. To be eligible for this minor, a student must have a cumulative grade point average of 2.700 or better by the end of the sophomore year. Interested students must submit a petition form and plan sheet, with courses listed, to their academic advisor and undergraduate coordinator, with final approval from the Dean of Instruction and Graduate Studies.

Seventeen credit hours (6 courses) in computer science courses, information technology courses, and other strongly computer-based and analysis courses are required to complete the minor.

#### **Required Courses:** (11 credits)

- Choose One:
  - o GNE 160 Computing Methods for Engineers and Physical Scientists (3)
  - ERE 335 Numerical and Computing Methods (3)
  - o CIS 151 Fundamentals of Computing and Programming
  - CPS 196 Introduction to Computer Programming
- ESF 200 Information Literacy (1)
- CIS 252 Introduction to Computer Science (4)
- CIS 351 Data Structures (3)

#### **Elective Courses: (6 credits)**

- ERE 445 Hydrologic Modeling (3)
- ERE 530 Numerical and Computing Methods (3)
- ERE 551 GIS for Engineers (3)
- ERE 533 Ecological Modeling (3)
- ERE 622 Digital Image Analysis (3)
- ESF 300 Introduction to Geospatial Information Technologies (3)
- CIS 3xx/4xx/5xx Any CIS course offered at the 300, 400, and 500 level
- CPS 234 Introduction to Computational Thinking
- CPS 333 UNIX Operating System and Internet
- CPS 335 JAVA programming for the Internet
- CPS 504 Introduction to C++
- CPS 506 Introduction to C
- CPS 551 Computer Organization & Operating System Design
- CSE 261 Digital Logic Design
- CSE 262 Digital Logic Design Laboratory
- CSE 283 Introduction to Object-Oriented Design
- CSE 381 Computer Architecture
- CSE 382 Algorithms & Data Structures
- CSE 384 Systems and Network Programming
- CSE 389 Web System Architecture and Programming
- CSE 398 Embedded and Mobile Systems Laboratory
- CSE 418 Deep Learning
- CSE 444 Mobile Application Programming
- CSE 458 Data Networks: Basic Principles

- CSE 464 Introduction to VLSI Design
- CSE 483 C# and Windows Programming
- CSE 484 Introduction to Computer and Network Security
- CSE 486 Design of Operating Systems
- CSE 487 Access Control, Security and Trust
- CSE 488 Introduction to Internet Security
- CSE 561 Digital Machine Design
- CSE 581 Introduction to Database Management Systems

### 4. Curriculum Transition Plan:

Please provide a narrative description of your plan for transitioning from your existing curriculum to the proposed new curriculum. Please provide specific dates for implementing curriculum changes, overlap periods where old and new curricula may exist simultaneously, and final phase out of old curricula. Please also include impacts and mitigating considerations for transfer students and students in mid-program during implementation, impacts of changes in semester delivery of existing courses, addition of new courses within a particular semester, etc.

Students will be able to complete either the new curriculum or the one in their catalog of record.

### 5. Approval Signatures:

Signatures below, or attached letters, indicate that the affected departments, programs or units have been notified of this proposal and have had an opportunity to assess the impact of the proposal on their respective units. If departments did not respond to your notification, you may wish to document your effort to contact them.

#### Affected Academic Department(s) or Program(s):

Division of Engineering Department/Program 1	Gary M Scott Name of Chair/Program Director	
Chair Signature	<u>2023.12.19</u> Date	Or letter attached 🗌
Environmental and Resource Engineering Department/Program 1 Lindi Quarkenbush	Lindi Quackenbush Name of Chair/Program Director	Or letter attached □
Chemical Engineering Department/Program 1	Bandaru Ramarao Name of Chair/Program Director	
BV Ramarao		Or letter attached 🗌

[if more/ess than three Departments/Programs, please add/delete lines as appropriate.

### **Other Units**

Library Director	Date	Or letter attached □
Computing and Network Services	Date	Or letter attached □
Physical Plant	Date	Or letter attached □
Forest Properties	Date	Or letter attached □
Environmental Health and Safety	Date	Or letter attached □
Admissions	Date	Or letter attached 🗌
Other	Date	Or letter attached 🗌
Otjer	Date	Or letter attached 🗌

#### Office of the Provost

Signature below, or attached letter, indicates that the Provost either a) agrees that that there is no need for additional resources from the College; or b) indicates willingness to provide the extra support to the department.

Provost Signature

Or letter attached  $\square$ 

### 6. Proposer Information and Department Chair Affirmation:

Contact Person:

 Name:
 Gary M Scott
 Department:
 Division of Engineering

 Email:
 gscott@esf.edu

 Phone:
 x6523

This proposal has been reviewed and approved by the sponsoring Department. Affected departments have been notified and given the opportunity to provide feedback. Department resources are or will be made available to support this curriculum revision, or a plan is in place to meet the resource needs as identified in the Institutional Impacts section of this proposal (see Section 2, above).

Name: C	ary M Scott, Director, Division of Engineering	Date: 2023.12.19
	Department Chair (or designated curriculum representative	)
Signature	empt	∕ Or letter attached □
0	Department Chair (or designated curriculum representative	)

# 7. Final Approvals:

Curriculum Committee	Date
Faculty Governance	Date
Provost	 Date