

# Computer Network Engineering Technology - Cyber-Security Major (NETCCS)

## Computer Network Engineering Technology - Cyber-Security Major (NETCCS)

The Computer Network Engineering Technology - Cyber-Security Major combines technical knowledge and skills with understanding of security planning, risk mitigation, and related documentation requirements.

Graduates earn an Associate of Applied Science degree and are prepared to assist organizations that must comply with federal or state government regulations related to information security, or must meet payment card industry requirements to safeguard customer information or other sensitive data.

For more information, please contact the Engineering and Information Technologies Division at (513) 569-1743.

To apply for this program at Cincinnati State, visit the Admissions (<http://www.cincinnati.edu/academics/admission/>) section of the College website.

## Computer Network Engineering Technology - Cyber-Security Major (NETCCS)

Semester 1		Lec	Lab	Credits
NETC 121	Network Communications 1 ( <b>B</b> )	3	2	3
MAT 131	Statistics 1 ( <b>G</b> )	2	2	3
ENG 101	English Composition 1 ( <b>G</b> )	3	0	3
MGT 130	Project Management ( <b>B</b> )	3	0	3
FYE 1XX	First Year Experience Elective ( <b>B</b> )	1	0	1
XXX 190	Career Preparation Elective ( <b>B</b> )	1	0	1
Semester 2				
NETC 122	Network Communications 2 ( <b>T</b> )	2	2	3
NETC 170	Governance and Management of IT ( <b>B</b> )	3	3	4

XXX XXX	Arts/ Humanities or Social/ Behavioral Science Elective ( <b>G</b> )	3	0	3
NETC 130	Introduction to Cybersecurity ( <b>B</b> )	2	2	3
Semester 3				
Cooperative Education or Transfer Elective 1 ( <b>T</b> )		1	40	2
NETA 155	Server Administration 1 ( <b>B</b> )	3	2	4
Semester 4				
NETC 180	Information Risk Management ( <b>T</b> )	3	3	4
NETC 230	Network Security Design ( <b>T</b> )	2	2	3
COMM 110	Public Speaking ( <b>B</b> )	3	0	3
ENG 10X	English Composition Elective ( <b>G</b> )	3	0	3
XXX XXX	Natural/ Physical Science Elective ( <b>G</b> )	2	2	3
Semester 5				
NETC 240	Emerging Topics in Computer Network Engineering Technology ( <b>T</b> )	2	3	3
NETC 280	IT Documentation ( <b>T</b> )	3	3	4
NETC 290	Computer Network Engineering Technology Capstone Project ( <b>T</b> )	2	2	3
IT 215	Scripting ( <b>T</b> )	2	2	3
Semester 6				
Cooperative Education or Transfer Elective 2 ( <b>T</b> )		1	40	2
<b>Total Credits:</b>		<b>50</b>	<b>110</b>	<b>64</b>

### Electives

#### First Year Experience Elective

FYE 100	Essentials for College Success	1
FYE 105	Skills for Academic and Personal Success	2
FYE 110	Intensive College Success Strategies	3

#### Career Preparation Elective

CIT 190	Career Preparation: Engineering and Information Technologies	1
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MID 190	Career Preparation: Multimedia Information Design	2
CPDM 190	Cooperative Education Preparation: Computer Programming and Database Management	1
<b>Arts/Humanities or Social/Behavioral Science Elective</b>		
PHI 110	Ethics	3
ECO 105	Principles of Microeconomics	3
PSY 110	Introduction to Psychology	3
SOC 105	Introduction to Sociology	3
<b>English Composition Elective</b>		
ENG 102	English Composition 2: Contemporary Issues	3
ENG 103	English Composition 2: Writing about Literature	3
ENG 104	English Composition 2: Technical Communication	3
ENG 105	English Composition 2: Business Communication	3
<b>Natural/Physical Science Elective</b>		
Any course from BIO, CHE, EVS, PHY, PSC		3
<b>Cooperative Education or Transfer Electives *</b>		
NETC 291	Full-Time Cooperative Education 1: Computer Network Engineering Technology	2
NETC 292	Full-Time Cooperative Education 2: Computer Network Engineering Technology	2
IT 101	Programming 1	3
IT 110	HTML with CSS and JavaScript	3
IT 111	Database Design and SQL 1	3
IT 115	Operating Systems Administration 1	3
IT 161	Java Programming 1	3

\* Program Chair approval is required for students planning to take a Transfer Elective course rather than participate in cooperative education.

Some courses are offered in alternative versions identified with a letter after the course number-- for example, ENG 101 and ENG 101A.

- This curriculum displays only course numbers without the added letter.
- The alternative version, when available, meets the requirements of the course version without the added letter.

The letters G, B, and T (displayed after course titles or elective descriptions) identify types of courses required by the Ohio Department of Higher Education as part of an associate's degree curriculum.

G = General Education course in this curriculum

B = Basic Skills course in this curriculum

T = Technical course in this curriculum

## Computer Network Engineering Technology - Cyber-Security Major (NETCCS)

- Utilize technical, ethical, and interpersonal skills to effectively work in a team.
- Configure and troubleshoot network systems.

- Develop and implement solutions for networking and security problems, balancing business concerns, technical issues, and security.
- Demonstrate a commitment to timeliness, quality, and continuous improvement.
- Explain networking protocols and their hierarchical relationship in both hardware and software.
- Compare protocol models and select appropriate protocols for a particular design.
- Demonstrate adequate preparation for career employment and/or pursuit of a baccalaureate degree.
- Effectively communicate technical information verbally, in writing, and in presentations.
- Document network systems.
- Explain concepts and theories of networking and apply them to various situations: classifying networks, analyzing performance, and implementing new technologies.

## Courses

### NETC 121 Network Communications 1 4 Credits. 3 Lecture Hours. 2 Lab Hours.

A course on computer networks and network operating systems. Topics include: network topology, local and wide area networks, connecting devices to networks, basic network software and file sharing, and problem solving. This course helps students prepare for the CompTIA Network+ exam.

Prerequisites: FYE 120 or placement into ENG 101 MAT 093 (minimum grade C) or appropriate Math placement

### NETC 122 Network Communications 2 3 Credits. 2 Lecture Hours. 2 Lab Hours.

A continuation of NETC 121. Topics include: access control lists, routing protocols, spanning tree, VLANs and network security, and network address translation.

Prerequisites: NETC 121

### NETC 130 Introduction to Cybersecurity 3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on fundamental concepts, principles, and practices of cybersecurity. Topics include: threats, risks, and vulnerabilities that exist in today's digital landscape; and how to protect computer systems, networks, and data from unauthorized access, attacks, and exploitation.

Prerequisites: NETC 121 and ENG 101

### NETC 170 Governance and Management of IT 3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on frameworks for organizational governance of information technology. Topics include: IT portfolio management, risk and compliance, and business continuity planning and impact analysis.

Prerequisites: FYE 120 or placement into ENG 101

### NETC 180 Information Risk Management 3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on methods for analyzing and classifying organizational data to maintain information security. Topics include: information ownership; information threats, vulnerabilities, and exposure; and investigating and assessing risk.

Prerequisites: NETC 122 and NETA 155

**NETC 191 Part-Time Cooperative Education 1: Computer Network Engineering Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their first part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: None

**NETC 192 Part-Time Cooperative Education 2: Computer Network Engineering Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their second part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: NETC 191

**NETC 193 Part-Time Cooperative Education 3: Computer Network Engineering Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their third part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: NETC 192

**NETC 194 Part-Time Cooperative Education 4: Computer Network Engineering Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their fourth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: NETC 193

**NETC 195 Part-Time Cooperative Education 5: Computer Network Engineering Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their fifth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: NETC 194

**NETC 196 Part-Time Cooperative Education 6: Computer Network Engineering Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their sixth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: NETC 195

**NETC 230 Network Security Design****3 Credits. 2 Lecture Hours. 2 Lab Hours.**

A course on developing security to protect business systems. Topics include: design and testing of various layered network security software and hardware.

Prerequisites: NETA 155 and NETC 121

Corequisites: NETC 122

**NETC 240 Emerging Topics in Computer Network Engineering Technology****3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on current industry needs related to Computer Network Engineering Technology. Topics include: voice-over-internet protocol (VoIP), cloud computing, and Linux.

Prerequisites: NETC 122 and NETA 155

**NETC 280 IT Documentation****3 Credits. 2 Lecture Hours. 2 Lab Hours.**

A course on documentation of IT systems focusing on general regulatory compliance requirements. Students use Microsoft Visio for laboratory activities.

Prerequisites: NETC 170 and ENG 101 and NETA 155

**NETC 290 Computer Network Engineering Technology Capstone Project****3 Credits. 2 Lecture Hours. 2 Lab Hours.**

Students work in teams to design and build network solutions while demonstrating knowledge and skills gained in the Computer Network Engineering Technology program.

Prerequisites: NETC 122 and NETC 230 and NETA 155 and 6 credits of English Composition

**NETC 291 Full-Time Cooperative Education 1: Computer Network Engineering Technology****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their first full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: None

**NETC 292 Full-Time Cooperative Education 2: Computer Network Engineering Technology****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their second full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: NETC 291

**NETC 293 Full-Time Cooperative Education 3: Computer Network Engineering Technology****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their third full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: NETC 292

**NETC 294 Internship 1: Computer Network Engineering  
Technology**

**2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their first unpaid field learning experience related to their degree. Students must follow applicable policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: CIT 190

**NETC 295 Internship 2: Computer Network Engineering  
Technology**

**2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their second unpaid field learning experience related to their degree. Students must follow applicable policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: NETC 294