

**New Undergraduate Program (Majors, Minors, Sequences) Proposal
Illinois State University - University Curriculum Committee**

Program Department School of Information Technology **Submission Date** Friday, March 04, 2016
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Version 3
Title of New Program Major in Cybersecurity **Proposed Starting Catalog Year** 2017-2018

Associated Course Proposals

Associated Course Proposal(s):

New Course proposal IT 355 titled *Secure Software Development*
 Revise Course proposal IT 357 titled *Tools and Techniques in Defensive Security*
 New Course proposal IT 359 titled *Tools and Techniques in Penetration Testing*
 New Course proposal IT 360 titled *Security Incident and Event Management and Forensics*

1. Proposed Action

✓ New Major **Major CIP Code** 11.1003
 New Minor
 New Sequence
 More than 50% of courses in this program are Distance Education

Is this program an Integrated Bachelors/Masters degree program? No

Degree Type(s) Bachelor of Science

2. Provide Undergraduate Catalog copy for new program.

MAJOR IN CYBERSECURITY

Degree offered: B.S.

The cybersecurity major is designed to give students the knowledge and tools necessary for protecting information and information systems. The major provides education for protecting the confidentiality, availability, and integrity of information using technology, people, and policy. A minor is not required.

- 80 total hours required.
- 56 hours in Information Technology required.
- Required courses (44 hours): IT 168, 170 or 178 or 179, 191, 214, 225 or 254, 250, 261, 262, 276, 351, 357, 359, 360, 377, 378.
- Professional Practice (6 hours): IT 398.
- 2 courses from: IT 353, 355, 368, 370, 376, 381
- Supporting requirements (24 hours):
 - Mathematics and Statistics (11 hours): MAT 120 or 145; MAT 160; 1 course from: ECO 138; GEO 138; PSY 138; MQM 100.
 - Communication and Organization (13 hours): COM 223; ECO 105; MQM 220; ENG 249.

ALLOWABLE SUBSTITUTIONS FOR REQUIRED COURSES:

- Acceptable substitution for 3 hours of IT 398 is 3 hours of IT 391.

— Acceptable substitution for 6 hours of IT 398 is 3 hours of IT 391 and 3 hours from IT 353, 355, 363, 368, 370, 376, 381 (if not used to satisfy other requirements)

3. Provide a description for the proposed program.

Prepares individuals to assess the security needs of computer and network systems, recommend safeguard solutions, and manage the implementation and maintenance of security devices, systems, and procedures. Includes instruction in computer architecture, programming, and systems analysis; networking; telecommunications; cryptography; security system design; applicable law and regulations; risk assessment and policy analysis; contingency planning; user access issues; investigation techniques; and troubleshooting.

4. Provide a rationale of proposed program.

Computer security is an increasing need in today's interconnected world, and the market for information security professionals is also increasing. The School of Information Technology's Business and Industry Advisory Council has expressed a deep need for information security professionals, and this major will enable the school to meet some of that need. State Farm Insurance is providing financial and other support to help build ISU's information security program because of their need for graduates in this area. ISU is currently considered a Center of Academic Excellence in Information Assurance/Cyber Defense Education by the National Security Agency and Department of Homeland Security. Based on the NSA/DHS program's changing criteria, a major in information assurance and security would help us maintain this certification.

5. Describe the expected effects of the proposed program on existing campus programs (if applicable).

The proposed program would replace the Information Assurance and Security sequence in the Information Systems B.S. program. This will allow the major to offer more security-specific courses and provide curricular flexibility for this new and very dynamic area.

6. Provide a sample four year plan of study demonstrating that a student could realistically complete the program requirements in a specific number of semesters.

Information Security four-year plan of study

Year 1

Fall (14 credits)

IT 168 – Structured Problem Solving Using the Computer
 MAT 120 or 145**
 ENG 101*
 Natural Sciences*

Spring (14 credits)

IT 178 – Computer Applications Programming
 MAT 160**
 ECO 105
 COM 110*

Year 2

Fall (12 credits)

IT 261 – Systems Development 1
 IT 254 – Hardware and Software Concepts
 COM 223
 ECO 138, GEO 138, PSY 138, or MQM 100**

Spring (13 credits)

IT 276 – Data Communications
 IT 262 – Project Management
 IT 191 – Introduction to IT professional Practice (1 credit)
 ENG 249
 Social Sciences*

Year 3**Fall (12 credits)**

IT 250 – Fundamentals of Information Assurance and Security
 IT 214 – Social, Legal, and Ethical Issues in IT
 MQM 220
 Individuals and Civic Life*

Spring (12 credits)

IT 351 – Practical Cryptography and Trusted Systems
 IT 377 – Practical Telecommunications Networking
 Fine Arts*
 Humanities*

Summer (6 credits)

IT 398 - Internship

Year 4**Fall (12 credits)**

IT 378 – Database Processing
 IT 357 – Techniques in Defensive Security
 IT 370 – Server Management (Elective)
 Language in the Humanities*

Spring (12 credits)

IT 359 – Techniques in Offensive Security
 IT 360 – Incident Response and Forensics
 IT 355 – Secure Software Development (Elective)
 Natural Sciences*

General Education***General Education and major**

7. Describe the expected curricular changes required, including new courses. If proposals for new courses have also been submitted, please reference those related proposals here:

IT 355 - Secure Software Development will be added as an elective
 IT 357 - Techniques in Defensive Security will be modified to mainly emphasize defense
 IT 359 - Techniques in Offensive Security will be added and offensive security content from IT 357 will be moved to this course and expanded
 IT 360 - Incident Response and Forensics will be added and current similar content from IT 357 will be moved to this course and expanded

The following courses were removed from the Information Assurance and Security sequence in the Information Systems program to allow for the courses above to be added:

ACC 131; 2 courses from ACC 132; ECO 225 or 239 or 245; FIL 185, 240; MKT 230

8. Anticipated funding needs and source of funds.

Funding for this major will come from existing variance within IT.

9. Does this program count for teacher education? No

10. Is this an Interdisciplinary Studies program? No

11. The following questions must be answered.

Have you confirmed that Milner Library has sufficient resources for the proposed program? Yes

Are more than 124 hours required to complete a degree with this major? No

Beyond General Education, does the major require more than 66 semester hours? No

Does this B.A., B.S., B.S.Ed. require more than 55 semester hours of major courses? No

Does this program stipulate specific general education courses offered in the major department/school as a part of the major requirements only if such courses serve as prerequisites for other courses required by the major? No

Is the proposed program intended to be longer than four years (as indicated by the plan of study)? No

Have letter(s) of concurrence from affected departments/schools been obtained? Yes

A departments/school is affected if it has a program with significant overlap or if it teaches a required or elective course in the program.

12.

Routing and action summary for New Program: [Proposal Routing](#)**1. School of Information Technology Department Curriculum Committee Chair**

<i>Glen Sagers (website)</i>	Glen Sagers	2/9/2016 2:20:49 PM
Signature	Print	Date

2. School of Information Technology Department Chair/School Director

<i>Mary Califf (website)</i>	Mary Califf	2/9/2016 3:55:26 PM
Signature	Print	Date

3. College of Applied Science and Technology College Curriculum Committee Chair

<i>Kevin Devine (website)</i>	Kevin Devine	3/16/2016 8:41:20 AM
Signature	Print	Date

4. College of Applied Science and Technology College Dean

<i>Todd McLoda (website)</i>	Todd McLoda	3/16/2016 4:10:39 PM
Signature	Print	Date

5. University Curriculum Committee Chair

<i>Claire Lieberman (website)</i>	Claire Lieberman	4/11/2016 4:56:42 PM
Signature	Print	Date

All new programs (majors, minors, sequences) are routed by the U.C.C. to the Academic Senate.