



Lawrence Technological University offers a 20-credit hour undergraduate certificate in Cybersecurity beginning in the Fall 2023 semester. Students who want to pursue this certificate will take one course per semester.

Certificate in Cybersecurity

The Computer Science Cybersecurity Certificate provides students with the opportunity to gain a technical understanding of computing system security from software, hardware, and communications perspectives.

MCS 1514 Computer Science I - 4 credits

Introduction to programming with C++. Binary, two's complement, decimal, hex, and octal representations. Variable types. Simple, iterative, and conditional statements. Procedure and functions with parameters by value and reference with or without a returning value. Arrays and vectors, multidimensional arrays, bubble and selection sorts, linear and binary search. Pointer and dynamic memory allocation, character and C-strings, file input/output (sequential). Classes, friends, array of objects, and operators' overloading. Inheritance, polymorphism, virtual function, and recursion.

MCS 2514 Computer Science 2 – 4 credits

Records, advanced file input/output (random access), dynamic memory allocation. Static and dynamic implementation of stacks, linked lists (ordered and unordered), queue (regular and priority), circular queues.

MC S3543 Intro to Database Systems – 3 credits

Organization of database systems. Data definition, retrieval, manipulation. Relational databases, SQL. Practice using standard databases.

MCS 5013 Web Server Programming – 3 credits

Introduction to the Web-server basis; Web authoring using HTML; advanced Web authoring with dynamic HTML, XML; JavaScript programming; CGI programming in C, C++ and PERL. Introduction to ASP to the middle tier.

INT 4023 Cybersecurity – 3 credits

As networks continue to grow and as computing becomes more and more ubiquitous, today's IT Managers need to have a thorough understanding of security and the risks associated when inappropriate security exists. Students will explore basic security concepts, principles and strategy, how to develop and manage IT security program and how to strategize and plan an IT architecture. Students will also discuss other IT security issues as it relates to current market trends.

MCS 5813 Intro to Computer Security– 3 credits

Security measures are associated with various types of computing systems. An introduction to network security fundamentals, including compliance and operational security; threats and vulnerabilities; application, data, and host security; access control and identity management; and cryptography. New topics in network security, including psychological approaches to social engineering attacks, web application attacks, penetration testing, data loss prevention, cloud computing security, and application programming security.