

Software Engineering Technology (SET)

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The Software Engineering Technology degree program focuses on the design, development, implementation, and maintenance of software used in industry. Along with core math and science classes, students gain knowledge of computer operating systems and software development using various programming languages.

Graduates earn an Associate of Applied Science degree and are prepared to enter the workforce as skilled computer programmers and systems integrators, or to continue their education in a bachelor's degree program in engineering, engineering technology, or computer science.

Although some required courses are available through evening and/or online classes, most of the Software Engineering Technology required technical courses are scheduled on Monday through Friday between 8 a.m. and 5 p.m.

For more information, please contact the Center for Innovative Technologies at (513) 569-1743.

Software Engineering Technology (SET)

Semester 1		Lec	Lab	Credits
IT 101	.NET Programming 1 (B)	2	3	3
IT 111	Database Design and SQL 1 (B)	2	3	3
FYE 1XX First Year Experience Elective (B)		1	0	1
SET 110	HTML for Programmers (B)	2	3	3
MAT 126	Functions and Calculus (G)	3	2	4
ENG 101	English Composition 1 (G)	3	0	3
Semester 2				
SET 151	C Programming 1 (B)	2	3	3
IT 112	Database Design and SQL 2 (T)	2	3	3
IT 102	.NET Programming 2 (T)	2	3	3
ENG 10X English Composition Elective (G)		3	0	3
CIT 190	Career Preparation: Engineering and Information Technologies (B)	1	0	1
Semester 3				
SET 291	Full-Time Cooperative Education 1: Software Engineering Technology (T)	1	40	2
Semester 4				
IT 103	.NET Programming 3 (T)	2	3	3
IT 161	Java Programming 1 (T)	2	3	3
SET 252	C Programming 2 (T)	2	3	3
PHY 151	Physics 1: Algebra and Trigonometry-Based (G)	3	3	4
COMM 1XX Communication Elective (B)		3	0	3
Semester 5				
EET 101	Electronic Fundamentals 1 (T)	2	3	3
SET 253	C Programming 3 (T)	2	3	3
SET 290	Software Engineering Technology Capstone (T)	1	4	3
ECO 1XX Economics Elective (G)		3	0	3

Semester 6

SET 292	Full-Time Cooperative Education 2: Software Engineering Technology (T)	1	40	2
Total Credits:		45	122	62

Electives**First Year Experience Elective**

FYE 100	College Survival Skills	1
FYE 105	College Success Strategies	2
FYE 110	Community College Experience	3

English Composition Elective

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

Communication Elective

COMM 105	Interpersonal Communication	3
COMM 110	Public Speaking	3

Economics Elective

ECO 105	Principles of Microeconomics	3
ECO 110	Principles of Macroeconomics	3

Faculty**Program Chair/Advisor**

Professor Robert Nields, MBA
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Co-op Coordinator

Professor Noelle Grome, ME, MA
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IT Courses**IT 100 Computer Programming Foundations****3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on fundamental concepts related to programming. Topics include: problem solving and developmental tools, design techniques such as flow charting and pseudo coding, and testing techniques used in programming.

Prerequisites: AFL 085 and AFM 092 or appropriate placement test scores

IT 101 .NET Programming 1**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

An introduction to concepts of object-oriented software development using Visual Basic .NET. Topics include: application design methods, stages of software development, interaction with the .NET framework, and modular programming concepts utilizing procedures and functions.

Prerequisites: AFL 085 and AFM 092, or equivalent placement test scores

IT 102 .NET Programming 2**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A continuation of IT 101. Topics include: object-oriented design and implementation using the .NET framework, developing class modules, and accessing and writing to external data storage and databases using ADO.NET and SQL.

Prerequisites: IT 101

IT 103 .NET Programming 3**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A continuation of IT 102. Topics include: creating, debugging, and maintaining web-based database applications using the .NET framework.

Prerequisites: IT 102 and IT 111

IT 105 Information Technology Concepts**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on information technology fundamentals. Topics include: the internet, software, hardware, input/output (I/O) and storage, operating systems, communications and networks, database management, security, system development, programming, enterprise computing, and numbering systems. The course is delivered through online instruction only.

Prerequisites: AFL 085 and AFM 092, or appropriate placement test scores

IT 110 HTML with CSS and JavaScript**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on internet programming using HTML, CSS, and JavaScript. Topics include: HTML commands, cascading style sheets, JavaScript commands, web applications (apps), and dynamic web pages.

Prerequisites: None

IT 111 Database Design and SQL 1**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on fundamentals of relational database design and implementation using Microsoft SQL Server. Topics include: SQL Enterprise Manager, fundamentals of database design and normalization, data import and export, Structured Query Language (SQL), indexes and keys, views, and stored procedures.

Prerequisites: AFL 085 and AFM 092, or appropriate placement test scores

IT 112 Database Design and SQL 2**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A continuation of IT 111. Topics include: advanced stored procedures using transact SQL, user defined functions, triggers, user defined data types, full text searching, replication, database maintenance plans, and designing data models from abstract requirements.

Prerequisites: IT 111 (minimum grade C)

IT 115 Operating Systems Administration 1**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on the Windows operating system used on PCs. Topics include Windows utilization and management, utilities, managing disks, disaster recovery, troubleshooting, user management, productivity tools, and performance issues. This course prepares students for a Microsoft Certification exam.

Prerequisites: AFL 085 or appropriate placement test score

IT 116 Operating Systems Administration 2**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A continuation of IT 115. Topics include: managing software problems; managing virtualization; and client configuration, development, deployment, and security. This course prepares students for a Microsoft Certification exam.

Prerequisites: IT 115

IT 140 PHP and MySQL**4 Credits. 3 Lecture Hours. 3 Lab Hours.**

A course in PHP web programming with a MySQL database. Topics include: PHP language, syntax, variables, and forms; MySQL database design; connecting to a MySQL database using PHP; inserting, editing, and deleting MySQL data using PHP; and building dynamic web pages using PHP and MySQL.

Prerequisites: Take IT 101, IT 110 and IT 111 (minimum grade of C for all)

IT 150 Logistics and Distribution Technology**3 Credits. 2 Lecture Hours. 2 Lab Hours.**

A course on technologies and software used in supply chain management for freight, air, and maritime logistics operations. Topics include: barcodes, RFID, Wi-Fi tags, logistics and inventory software, high frequency tracking, and passive/active tracking.

Prerequisites: SCM 105

IT 161 Java Programming 1**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on fundamentals of the Java programming language. Topics include: data types, variables, basic command line input/output, decisions, loops, procedures, string manipulation, arrays, object-oriented development, event programming, and database programming.

Prerequisites: IT 101

IT 162 Java Programming 2**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A continuation of IT 161. Topics include: Java Server Pages (JSP) and complex database applications using Java and JSP.

Prerequisites: IT 161

IT 210 System Design and Implementation**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on methodologies and techniques of the system development life cycle. Topics include: system design, project management for IT, system implementation, programming design, and system testing techniques.

Prerequisites: BPA 130

IT 215 Scripting

3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on task automation and configuration management using Microsoft PowerShell programming language. Topics include: modifying existing PowerShell scripts, and creating new scripts to automate common tasks.

Prerequisites: NETB 155

IT 220 Emerging Topics in Computer Software Development

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on current topics related to Computer Software Development such as data reporting, XML, and other new concerns.

Prerequisites: IT 101, IT 110, IT 111

SET Courses

SET 110 HTML for Programmers

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on client-side web development from a programmer's perspective. Topics include: HTML, JavaScript, cascading style sheets (CSS), the document object model (DOM), dynamic HTML (DHTML), and regular expressions.

Prerequisites: None

SET 151 C Programming 1

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on fundamentals of the C computer programming language. Topics include: decision statements, loops, functions, arrays, strings, structures, pointers, and dynamic memory allocation.

Prerequisites: IT 101

SET 191 Part-Time Cooperative Education 1: Software 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

SET 192 Part-Time Cooperative Education 2: Software 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: SET 191

SET 193 Part-Time Cooperative Education 3: Software 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: SET 192

SET 194 Part-Time Cooperative Education 4: Software 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: SET 193

SET 195 Part-Time Cooperative Education 5: Software 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: SET 194

SET 196 Part-Time Cooperative Education 6: Software 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: SET 195

SET 198 First Year Special Topics in Software Engineering Technology**1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A course on selected topics related to Software Engineering Technology, which gives students opportunities to study information not currently covered in other courses. Grades issued are A, B, C, D, or F.

Prerequisites: Instructor Approval

SET 199 First Year Independent Project in Software Engineering Technology**1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A project related to Software Engineering Technology that is completed by one or more students to meet specific educational goals. Projects must have prior approval and supervision by Software Engineering Technology faculty. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: Instructor Approval

SET 252 C Programming 2**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A continuation of SET 151, using the C++ computer programming language. Topics include: classes, object-oriented programming techniques, polymorphism, inheritance, encapsulation, pointers, memory management, overloading, templates, and advanced data structures.

Prerequisites: SET 151

SET 253 C Programming 3**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A continuation of SET 252, using the C# computer programming language. Topics include: program design, database programming techniques using stored procedures, and views with SQL Server.

Prerequisites: IT 111 and SET 252

SET 290 Software Engineering Technology Capstone**3 Credits. 1 Lecture Hour. 4 Lab Hours.**

Students apply their programming and database skills to complete a software application.

Prerequisites: IT 103 and IT 111 and SET 252

SET 291 Full-Time Cooperative Education 1: Software 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

SET 292 Full-Time Cooperative Education 2: Software 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: SET 291

SET 293 Full-Time Cooperative Education 3: Software 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: SET 292

SET 294 Internship 1: Software 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

SET 295 Internship 2: Software 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: SET 294

SET 298 Second Year Special Topics in Software Engineering Technology**1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A course on selected topics related to Software Engineering Technology, which gives students opportunities to study information not currently covered in other courses. Grades issued are A, B, C, D, or F.

Prerequisites: Instructor Approval

SET 299 Second Year Independent Project in Software Engineering Technology

1-9 Credits. 0 Lecture Hour. 0 Lab Hour.

A project related to Software Engineering Technology that is completed by one or more students to meet specific educational goals. Projects must have prior approval and supervision by Software Engineering Technology faculty. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: Instructor Approval