

# SOFTWARE DEVELOPMENT - MINOR

College of Applied and Technical Studies  
www.kent.edu/cats

## About This Program

The Software Development minor is designed to complement a wide range of majors. The curriculum focuses on web scripting, Java, Python, C#, database and mobile device programming. The minor provides students with hands-on experience and a robust understanding of software development principles across various platforms and languages, preparing them for roles in information technology, programming and systems development.

## Contact Information

- **Shelley Marshall** | skmarsha@kent.edu | 440-964-4348
- Speak with an Advisor
  - Ashtabula Campus
  - East Liverpool Campus
  - Geauga Campus
  - Salem Campus
  - Stark Campus
  - Trumbull Campus
  - Tuscarawas Campus
  - Online (any campus above)

## Program Delivery

- **Delivery:**
  - Fully online

## Admission Requirements

Admission to a minor is open to students declared in a bachelor's degree, the A.A.B. or A.A.S. degree or the A.T.S. degree (not Individualized Program major). Students declared only in the A.A. or A.S. degree or the A.T.S. degree in Individualized Program may not declare a minor. Students may not pursue a minor and a major in the same discipline.

## Program Requirements

### Minor Requirements

Code	Title	Credit Hours
<b>Minor Requirements</b>		
IT 15000	FUNDAMENTALS OF PROGRAMMING FOR INFORMATION TECHNOLOGY	3
IT 21006	DATABASE PROGRAMMING	3
IT 21037	WEB SCRIPTING	3
IT 30000	PYTHON PROGRAMMING IN INFORMATION TECHNOLOGY	3
IT 36305	C# PROGRAMMING	3
IT 36306	JAVA PROGRAMMING	3

IT 36309	PROGRAMMING MOBILE APPLICATIONS	3
<b>Minimum Total Credit Hours:</b>		<b>21</b>

## Graduation Requirements

<b>Minimum Minor GPA</b>	<b>Minimum Overall GPA</b>
2.000	2.000

- Minimum 6 credit hours in the minor must be upper-division coursework (30000 and 40000 level).
- Minimum 6 credit hours in the minor must be outside of the course requirements for any major or other minor the student is pursuing.
- Minimum 50 percent of the total credit hours for the minor must be taken at Kent State (in residence).

## Program Learning Outcomes

Graduates of this program will be able to:

1. Demonstrate understanding of core programming principles, including data types, variables, control structures and problem-solving strategies.
2. Write and debug basic software applications across multiple programming languages.
3. Apply best practices for database optimization, normalization and secure data handling.
4. Create and maintain dynamic web applications through scripting technologies that combine client-side and server-side development.
5. Integrate web-based solutions with back-end databases and application programming interface (API) to enable user interactivity and data processing.
6. Utilize Python, Java and C# effectively to develop diverse applications, applying language-specific strengths to problem-solving.
7. Leverage object-oriented programming and reusable code structures for efficient and scalable solutions.
8. Design, implement, and deploy mobile applications tailored to user needs and compatible with multiple platforms (e.g., iOS, Android).
9. Integrate mobile applications with external API and services to extend functionality.
10. Apply secure coding principles to mitigate vulnerabilities across software development projects.
11. Optimize code for performance, scalability and maintainability.