



**Switched-On**  
SCHOOLHOUSE

# Course Catalog

Career and Technical Education Series:  
Software Development Tools

**Table of Contents**

COURSE OVERVIEW ..... 1  
UNIT 1: INTRODUCTION TO SOFTWARE DEVELOPMENT TOOLS ..... 1  
UNIT 2: SOFTWARE DEVELOPMENT ..... 1  
UNIT 3: DEBUGGING ..... 2  
UNIT 4: SOFTWARE CONFIGURATION MANAGEMENT ..... 2  
UNIT 5: OBJECT MODELING UML AND SOFTWARE TESTING ..... 2  
UNIT 6: COURSE PROJECT, REVIEW AND EXAM ..... 2

COURSE OVERVIEW

This course introduces students to the variety of careers related to programming and software development. Students will gather and analyze customer software needs and requirements, learn core principles of programming, develop software specifications, and use appropriate reference tools to evaluate new and emerging software. Students will produce IT-based strategies and a project plan to solve specific problems, and define and analyze system and software requirements.

Objectives

- Understand the development of the computer.
- Be able to describe the organization of the Central Processing Unit.
- Demonstrate knowledge of widely used software applications (e.g., word processing, database management, spreadsheet development).
- Identity three levels of programming languages.
- Identity execution differences between interpreted, translated, and compiled languages.
- Describe how computers address data in memory.
- Design structures, classes, and objects that include variables and methods.
- Summarize how data is organized in software development.
- Understand the standard primitive types and operations of the java programming language.
- Define and initialize Java arrays.
- Demonstrate knowledge of the basics of structured, object-oriented language.
- Write software applications using while, do while, for, for-each loops.
- Define logic statements using if, else if, else and switch statements.
- Develop an application using conditional statements.
- Demonstrate knowledge of key constructs and commands specific to a language.
- Develop an application that responds to user input.
- Develop a web application that responds to user input.

UNIT 1: INTRODUCTION TO SOFTWARE DEVELOPMENT TOOLS	
SOFTWARE DEVELOPMENT TOOLS	<b>Assignment Titles</b>
	1. Course Overview
	2. Coding Standards and Conventions
	3. Software Processes and Methodology
	4. Project: Grades Projection IPO
	5. Software Types and Elements
	6. Project: Software Types and Elements
	7. Quiz 1: Computer History, Computer Hardware, Software, and Organization
8. Multimedia and Graphics Software Applications	
9. Web-Based Software Applications	
10. Project: Multimedia and Web Design Careers	
11. Software Design Principles and Tools	
12. Project: Software Design Principles Table	
13. Quiz 2: Central Processing Unit Operations	
14. Project: Special Project*	
15. Unit 1 Test	
16. Glossary and Credits	

UNIT 2: SOFTWARE DEVELOPMENT	
SOFTWARE DEVELOPMENT TOOLS	<b>Assignment Titles</b>
	1. Personal Information Management (PIM) Tools
	2. Project: My Mind-Mapping
	3. Computer Security Application Tools
	4. Individual Programming Development Tools
	5. Project: Assessment of Competitive Office Suites
	6. Quiz 1: Different Language Abstraction Layers
7. Database Software Development Tools	
8. Web Design Software Development Tools	
9. Project: My Personal Website	
10. Integrated Development Environments (IDEs)	
11. Project: My Text Editor IDE Evaluation	
12. Quiz 2: Building Blocks of Programs	
13. Project: Special Project*	
14. Unit 2 Test	
15. Glossary and Credits	

UNIT 3: DEBUGGING	
SOFTWARE DEVELOPMENT TOOLS	<b>Assignment Titles</b>
	1. Download, Install, Explore IntelliJ IDEA
	2. Download, Install, Explore NetBeans
	3. Project: MY IntelliJ NetBeans IDE Evaluation
	4. Download, Install, Explore Eclipse
	5. Project: MY IntelliJ NetBeans Eclipse IDE Evaluation
	6. Quiz 1: Basic Java Applications
	7. Exceptions
8. Project: Best Practices in Exception Handling in Java Programming	
9. STDIN and STDOUT	
10. File Input, Output, and Network Input, Output	
11. Project: Concepts of File I/O and Network I/O	
12. Quiz 2: Text Input, Output, and Exceptions	
13. Project: Special Project*	
14. Unit 3 Test	
15. Glossary and Credits	

UNIT 4: SOFTWARE CONFIGURATION MANAGEMENT	
SOFTWARE DEVELOPMENT TOOLS	<b>Assignment Titles</b>
	1. Code Blocks
	2. Project: Concepts of Programming Code Structure in Java
	3. Iterative Loops
	4. For-Each Loops
	5. Project: Computing Class Grades
	6. Quiz 1: While, Do, While, For, Statements
	7. Java Logic
8. If, Else If, Else	
9. Project: Write an IF...ELSE Program that Computes the New Salary for the CIO	
10. Switch Statements	
11. Project: Write a Program Using a SWITCH Statement	
12. Quiz 2: If, Then, and Switch Statements	
13. Project: Special Project*	
14. Unit 4 Test	
15. Glossary and Credits	

UNIT 5: OBJECT MODELING UML AND SOFTWARE TESTING	
SOFTWARE DEVELOPMENT TOOLS	<b>Assignment Titles</b>
	1. Swing and AWT
	2. Creating Frames and Dialog Boxes, Components, Form Fields, Panels, Buttons
	3. Project: Building Better Java using GUI Applications, Frames, Containers, and Dialogs
	4. HTML and Web Pages
	5. Project: Creating a Web Page
	6. Quiz 1: GUI Programming
	7. Business Information System Trends, Applications, and eCommerce
8. Project: Social Media on Campus	
9. Application Servers and JavaServer Pages (JSP)	
10. JavaServer Faces and Future Trends in Programming	
11. Project: Create a Simple Java Server Page	
12. Quiz 2: The Future of Programming	
13. Project: Special Project*	
14. Unit 5 Test	
15. Glossary and Credits	

UNIT 6: COURSE PROJECT, REVIEW AND EXAM	
SOFTWARE DEVELOPMENT TOOLS	<b>Assignment Titles</b>
	1. Course Project: The Design Team: Creating a Tablet GUI*
	2. Review
	3. Exam

(\*) Indicates alternate assignment