

Work-Based Learning - CD

Level: 4

Career Cluster: Digital Technology

Program: Information Technology

Pathway(s): Coding

Course Catalog Description

This advanced course gives students the opportunity to apply coding knowledge in authentic, career-connected learning experiences. Through projects, collaboration, and workplace-focused practice, students build technical skills, professional habits, and readiness for postsecondary and career pathways in software development and information technology.

Summary

Course that provides students with opportunities to apply technical knowledge and professional skills in authentic, career-connected learning experiences. Through client-based projects, collaborative software development, coding challenges, and real or simulated workplace experiences, students strengthen their abilities in programming, testing, debugging, documentation, communication, and project management. The course emphasizes industry readiness by helping students practice workplace expectations, follow structured development processes, solve real-world problems, and build a professional portfolio that demonstrates technical growth and specialization. Students also explore postsecondary and career pathways in software development and related technology fields while developing the confidence, adaptability, and employability skills needed for success in college, training, certifications, and the workforce.

Notes

Compared with the previous generic course, this revised course has been significantly updated to align specifically to the Coding pathway and to provide a stronger focus on authentic software development experiences. The older version emphasized broad employability tasks such as developing a training plan, documenting hours, completing supervisor evaluations, and reflecting on career goals, with examples that could apply across many CTE programs such as social media, graphic design, childcare, or human services. In contrast, the new course is intentionally centered on coding and information technology, with expanded student learning outcomes related to client-based software development, programming, testing and debugging, data and systems applications, portfolio development, and a comprehensive software project. It also adds clearer industry-aligned language, stronger emphasis on professional workflows and collaboration, and more specific real-world experience options such as version control, agile team simulations, automation tools, and internship-style coding assignments. Overall, the revised course moves from a broad work-based learning framework to a more rigorous, pathway-specific advanced course that better reflects current software development practices and postsecondary or career readiness in information technology.

Student Learning Outcomes

1. Career Launch & Industry Preparation

Objective: Explore career pathways in coding and prepare for meaningful work-based learning experiences.

- Analyze careers in software development, IT, and related fields
- Identify areas of interest (web dev, apps, data, automation, etc.)
- Develop resume, GitHub portfolio, and coding profile
- Create a Work-Based Learning Plan with goals and expectations
- Demonstrate understanding of workplace expectations in IT environments

Real-World Experience Ideas

- Job shadow a software developer or IT specialist
- Attend a local tech career panel or industry talk
- Interview an IT professional about workplace expectations
- Create a career plan based on a target coding role

2. Professional Practice & Software Development Workflow

Objective: Strengthen professional habits, collaboration skills, and understanding of software development workflows used in industry.

- Apply structured development processes (design → code → test → revise)
- Demonstrate collaboration in team-based coding environments
- Follow timelines, requirements, and technical specifications
- Communicate effectively in technical and professional contexts

Real-World Experience Ideas

- Participate in an agile team sprint simulation
- Use version control in a shared coding project
- Write task updates for a mock development team
- Practice code review with peers

3. Client-Based Software Development

Objective: Apply technical knowledge and problem-solving skills to develop software solutions for authentic client needs.

- Develop software solutions for real clients
- Analyze user needs and define project requirements
- Design and build functional programs or applications
- Present and justify coding decisions

Real-World Experience Ideas

- Web application for a school or business

- Data tracking or automation tool
- Mobile app prototype
- Interactive coding project for a client

4. Programming, Testing, and Debugging

Objective: Build advanced programming skills by writing, testing, debugging, and refining efficient software solutions.

- Write and refine complex code using appropriate structures
- Test and debug programs to improve accuracy and performance
- Analyze program efficiency and functionality
- Implement revisions based on feedback and testing

Real-World Experience Ideas

- Debug a client or class project with test cases
- Run usability testing on a coded solution
- Track and fix bugs in an issue log
- Improve code based on mentor feedback

5. Data, Systems, and Applied Coding

Objective: Use coding to manage data, support systems, and solve practical information technology challenges.

- Apply coding in data, automation, or system-related contexts
- Manage data and files within programming environments
- Develop solutions for real-world IT challenges
- Analyze how coding supports broader IT systems and workflows

Real-World Experience Ideas

- Build a script to organize or process data
- Create an automation tool for a routine task
- Use code to solve a school or business problem
- Connect a program to files or datasets

6. Advanced Work-Based Learning (Toward Industry Readiness)

Objective: Demonstrate industry readiness through independent work, professionalism, and effective problem-solving in real or simulated workplace settings.

- Demonstrate independence and initiative in development tasks
- Meet professional expectations for quality and deadlines
- Apply problem-solving and adaptability in coding challenges
- Evaluate readiness for postsecondary or employment pathways

Real-World Experience Ideas

- Complete an internship-style coding assignment
- Manage a project deadline with minimal supervision
- Respond to client or mentor revision requests
- Present work readiness goals to a mentor

7. Portfolio Development & Professional Identity

Objective: *Build a professional identity by curating a strong portfolio and reflecting on growth, strengths, and career goals.*

- Develop and refine a coding portfolio (GitHub, projects, apps)
- Document projects with clear explanations and technical detail
- Present coding work professionally
- Reflect on strengths, growth, and specialization

8. Software Project

Objective: *Synthesize learning through a comprehensive software project that demonstrates technical skill, decision-making, and readiness for future pathways.*

- Complete a comprehensive software development project
- Apply full development lifecycle (analysis → deployment)
- Present and defend technical decisions
- Reflect on learning, challenges, and future goals

Additional Information

WBL Experience Options (Learning THROUGH → AT Work)

- Client-based software or web development projects
- Internship with IT, software, or business team
- Industry mentorship for a collaborative coding project
- School-based enterprise (app/web dev for school/community)
- Open-source or community development contributions
- Supervised freelance or entrepreneurship (apps, websites, tools)

End-of-Course Outcomes

- Apply advanced coding and software development skills in real-world contexts
- Design, develop, test, and refine software solutions using structured workflows
- Demonstrate proficiency in programming concepts, debugging, and algorithm design
- Collaborate effectively in team-based development environments
- Communicate technical information clearly through documentation and presentations
- Demonstrate professional workplace behaviors including time management and accountability
- Develop a professional coding portfolio or project repository
- Evaluate postsecondary and career pathways in information technology

Assessment Structure

- Work-Based Learning Plan
- Client Project Deliverables
- Weekly Reflection Logs
- Code Documentation & Repository
- Mentor / Employer Feedback
- Portfolio Review (GitHub or equivalent)
- Project & Presentation