

Coding Technology Mississippi Curriculum Framework

CIP: 11.0202 Computer Programming, Specific Applications.

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The Office of Curriculum and Instruction (OCI) was founded in 2013 under the Division of Workforce, Career, and Technical Education at the Mississippi Community College Board (MCCB). The office is funded through a partnership with The Mississippi Department of Education (MDE), who serves as Mississippi's fiscal agent for state and federal Career and Technical Education (CTE) Funds. The OCI is tasked with developing statewide CTE curriculum, programming, and professional development designed to meet the local and statewide economic demand.

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National Certification Standards

Industry certifications listed within this program framework are recommended but not required for degree completion.

Local institutions may choose to offer, prepare students for, or require specific certifications based on regional workforce needs, employer input, or available resources.

Please check with your local community college for additional certifications.

The Coding Technology content is aligned to introductory certifications for individuals considering a career in technology. These certifications address a wide spectrum of fundamental technical concepts, assesses and validates your core technical knowledge, and enhances your technical credibility.

A variety of widely recognized industry certifications, including but not limited to:

- **Microsoft Certifications**
General Certification Catalog: [Microsoft Certifications](#)
- **Amazon Web Services (AWS) Certifications**
General Certification Catalog: [Amazon Certification](#)
- **CompTIA Certifications**
General Certification Catalog: [CompTIA Certifications](#)
- **Cisco Certifications**
General Certification Catalog: [Cisco Training Certifications](#)
- **Google Career Certificates / Google Cloud Certifications**
General Certification Catalog: [Google Certification](#)
- **Oracle Certifications**
General Certification Catalog: [Oracle Certification](#)
- **PCEP/PCAP** from python institute: [Python Institute Website](#)

Industry Job Projection Data

A summary of occupational data is available from the Mississippi Department of Employment Security.

[MDES Labor Market Information](#)

Articulation

Check with the local community college CTE administration for articulation agreements.

Industry Credentials, Certifications, and Professional Licensure

As curricula are revised or developed for Career Technical Education (for credit) programs at Mississippi's community colleges, appropriate industry credentials/certifications/professional licensure are identified (where applicable).

Each community college cooperating with businesses/industries in their college district determines if and when industry credentials/certifications/professional licensure are warranted. Contact each community college for more information.

Dual Enrollment

See the "Procedures Manual for Dual Enrollment and Accelerated Programs"

[Mississippi Dual Enrollment](#)

Research Abstract

In the spring of 2025, the Office of Curriculum and Instruction (OCI) met with the different industry members, State agencies, and community colleges in an effort to give insight on the importance and necessity of this program. The committee members collaborated together in determining the structure of the program and its courses. An industry questionnaire was used to gather feedback concerning the trends and needs, both current and future, of their field. Program faculty, administrators, and industry members were consulted regarding industry workforce needs and trends.

Industry advisory team members from the college involved with this program were asked to give input related to the creation of this curriculum framework.

A curriculum writing meeting was convened in February 2025 and attended by faculty, administrators, and industry members. During the writing meeting, the curriculum was aligned to the 30/45/60 model allowing for a stackable credentials model whereby Students can earn a career certificate, technical certificate, and an Associate of Applied Science degree.

Revision History:

2019 Mississippi Community College Board
2026 Mississippi Community College Board

Program Description

The computer coding/software development curriculum is a two-year program of study designed to train students to be software developers. Students will work with real world technologies to learn the fundamentals of coding, app development, web applications, and the life leadership skills needed to be successful in their careers and be competitive in the job market. The Coding Technology curriculum is aligned to a skillset that enables students to learn and enhance skills as they relate to: HTML and CSS, Database Fundamentals, Python, and JavaScript.

Suggested Course Sequence-Coding

Accelerated Integrated Career Pathway

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
IST 1724	Python Programming	4	2	4	90			
IST 1513	SQL Programming	3	2	2	60			
IST 1154 OR IST 1433	Web & Programming Concepts OR Web Development	3-4	2	4	90			
IST 1414	Client-Side Programming	4	2	4	90			
	Total	15						

Career Certificate Required Courses

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
IST 1724	Programming in Python	4	2	4	90			
IST 1513	SQL Programming	3	2	2	60			
IST 1154 OR IST 1433	Web & Programming Concepts OR Web Development	3-4	2	4	90			
IST 1414	Client-Side Programming	4	2	4	90			
	Electives	15-16						
	Total	30						

Technical Certificate Required Courses

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
	Electives	15						
	Total	15						

General Education Core Courses

To receive the Associate of Applied Science degree, a student must complete all of the required coursework found in the Career Certificate option, Technical Certificate option, and a minimum of 15 semester hours of General Education core. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester or provided primarily within the last semester. Each community college will specify the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science degree at their college. The Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) Section 9 Standard 3 of the *Principles of Accreditation: Foundations for Quality Enhancement*¹ describes the general education core.

Section 9 Standard 3:

3. The institution requires the successful completion of a general education component at the undergraduate level that
 - a) is based on a coherent rationale.
 - b) is a substantial component of each undergraduate degree program. For degree completion in associate programs, the component constitutes a minimum of 15 semester hours of the equivalent; for baccalaureate programs, a minimum of 30 semester hours or the equivalent.
 - c) ensures breadth of knowledge. These credit hours include at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics. These courses do not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession.

General Education Courses

			SCH Breakdown			Contact Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
	Humanities/Fine Arts	3						
	Social/Behavioral Sciences	3						

	Math/Science	3						
	Academic electives	6						

¹ Southern Association of Colleges and Schools Commission on Colleges. (2024). *The Principles of Accreditation: Foundations for Quality Enhancement*. Retrieved [SACSCOC 2024 Principles of Accreditation](#)

Elective Courses

			SCH Breakdown				Clock Hour Breakdown		
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Clinical/ Internship	Total Clock Hours	Lecture	Lab	Clinical/ Internship
IST 1523	SQL Programming II								
IST 1764	Programming in Python II								
IST 1714	Java Programming								
IST 2814	Full-Stack Web Development								
IST 2884	Full-Stack Web Application								
IST 2954	Capstone Coding Project								
SSP 1002	Smart Start								
Any other elective that supports the students pathway and approved by the Instructor									

Coding Technology Courses

Student learning outcomes and other course information for IST classes can be found at: [MCCB Website](#)

Appendix A: Recommended Tools and Equipment

Capitalized Items

1. Computer or notebook work centers with multimedia support (camera, audio)
2. Peripherals and access:
 - a. Color laser printer (1 per classroom)
 - b. Laser printer (1 per lab)
 - c. Scanner, color page (1 per lab)
3. Multimedia presentation system (1 per lab)
4. Teacher workstation or notebook with printer, scanner, and Internet access

Non-Capitalized Items

Recommended Instructional Aides

1. Microsoft© Office software or equivalent productivity, latest version
2. Windows, latest version
3. Spring Framework (open source) with documentation (latest edition)
4. Django Framework (open source) with documentation (latest edition)
 - a. Internet access

Classroom set up: desk and chair (1 per student)

Appendix B: Curriculum Definitions and Terms

- Course Name – A common name that will be used by all community colleges in reporting Students
- Course Abbreviation – A common abbreviation that will be used by all community and junior colleges in reporting students
- Classification – Courses may be classified as the following:
 - Career Certificate Required Course – A required course for all students completing a career certificate.
 - Technical Certificate Required Course – A required course for all students completing a technical certificate.
 - Technical Elective – Elective courses that are available for colleges to offer to students.
- Description – A short narrative that includes the major purpose(s) of the course
- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course
- Corequisites – A listing of courses that may be taken while enrolled in the course
- Student Learning Outcomes – A listing of the student outcomes (major concepts and performances) that will enable students to demonstrate mastery of these competencies

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75% of the time allocated to each course. The remaining 25% of each course should be developed at the local district level and may reflect the following:
 - Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district
 - Activities that develop a higher level of mastery on the existing competencies and suggested objectives
 - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
 - Activities that include integration of academic and career–

technical skills and course work, school- to-work transition activities, and articulation of secondary and postsecondary career–technical programs

- Individualized learning activities, including work-site learning activities, to better prepare individuals in the courses for their chosen occupational areas
- Sequencing of the course within a program is left to the discretion of the local college. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors. Programs that offer an Associate of Applied Science Degree must include all of the required Career Certificate courses, Technical Certificate courses **AND** a minimum of 15 semester hours of General Education Core Courses. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester. Each community college specifies the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college.
- In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:
 - Adding new student learning outcomes to complement the existing competencies and suggested objectives in the program framework
 - Revising or extending the student learning outcomes
 - Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the Mississippi Community College Board [MCCB] of the change)

Appendix C: Recommended Resources/Textbook List

Coding Technology CIP: -11.0202		
Book Title	Author (s)	ISBN
Practical Programming: An Introduction to Computer Science Using Python 3, 2 nd Ed.	Gries, Paul, Campbell, Jennifer, Montojo, Jason	978-1937785451
Two Scoops of Django	Daniel Roy Greenfield and Audrey Roy Greenfield	978-0981467344
Head First Java	Kathy Sierra & Bert Bates	978-1491910771
HTML & CSS: Design and Build Websites	Duckett, Jon	978-1118008188
JavaScript and jQuery: Interactive Front-End Web Development	Duckett, Jon	978-1118531648
• For Java, we have a heavy emphasis on an introduction to the Java IDE (Integrated Development Environment). We use IntelliJ IDEA (Jetbrains) as our IDE, and it is worth having an introduction to this for the students because the workflow for writing a Java application can be quite different from the other languages we use. • For JavaScript, programs can use JQuery • Might also be interested in: ○ Vanilla JS for DOM manipulation. ○ Fetch for AJAX (asynchronous) requests. • To prepare for the transition to Django, might have a higher emphasis on templating during our Front End Web section. Use a JavaScript library called Handlebars (Handlebars JavaScript.) to work on creating the templates. Might also emphasize using a design library (like Bootstrap Bootstrap) to make responsive design easier. This helps the website format better for large (computer) and small (phone) screens.		

DJANGO DOCUMENTATION. DJANGO SOFTWARE FOUNDATION, 2017, [DJANGO PROJECT Webpage](#)