Coding: Scope & Sequence

Year 1, Semester 1
C101 - Coding I
Object Based Programming
(88 days)

District Pre-Assessment

Unit Name: (1) Introduction to West-MEC coding (5 Days)
- Expectations, rule, culture
- W3C Style and Guidelines
- IDEs, Terminal, Chrome Dev Tools
- Hardware and Software
Technical Standards: 10.1, 10.3, 12.1, 16.1, 16.2
ELA Standards: RI.2, RI.3

Unit Name: (2) JavaScript Fundamentals (20 days)
- Using numbers, variables, and operators
- String manipulation
- bit vs byte math conversions
- Version control
- Decimal to hexadecimal to binary
Technical Standards: 1.0, 4.0, 8.1, 8.5, 5.0, 10.2, 11.4, 15.0
Math Standards: NF.B.3, .6, RP.A.3
DE Standards:
CIS 166 - I.C

Unit Name: (3) Web Design Fundamentals (20 Days)
- HTML Basics
- CSS Basics
- Principles of good web design
- System software
- Application software
- Networks and security
- History of the Internet
- Communication through the web
Technical Standards: 3.1, 16.0
Professional Standards: 7.0
DE Standards: CIS 105 - II.0, III.0, IV.0, IX.0
CIS 133 - I.0, II.0, III.0, IV.0, V.0, VI.0, VII.0, VIII.0, IX.0, X

CTSO FLEX Conference

Unit Name: (4) Flow Control (10 Days)
- Comparisons
- Conditionals
- Loops
- Functions
Technical Standards: 6.0, 7.0, 12.10, 12.11
Math Standards: A-CED
DE Standards:

Unit Name: (5) Coder Etiquette and Best Practices (15 Days)
- Debugging
- SDLC + Agile (Figma)
- Color Theory
- JS Docs
- DRY code
- Design Principles
- Information Systems Role in Business
- Purchasing and upgrading microcomputers
Technical Standards: 1.3, 1.4, 2.0, 11.0, 12.7, 12.9, 13.0, 19.0
Professional Standards: 4.0
Academic Standards (ELA): SL.3, RI.2, L.4, SL.4, W.2
DE Standards: CIS 105 - VI.A, VI.B, VII.A-VII.G, CIS 133 - XI.0, CIS 166 - I.D

CTSO (10 Days throughout semester)
- General meetings
- Leadership Academy
- Online Testing
Professional Standards: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0
Academic Standards: ELA.11-12.SL.1-6, W.7-W.9, L.6

Capstone / Midterm (5 Days)
Professional Standards: 1.0, 2.0
Academic Standards: ELA.11.12.W.7 - W.9, SL.1 - SL.3
Year 1, Semester 2
C102 Coding II
Object Oriented Programming
(92 days)

CTSO Regionals & Online Testing

Unit Name: (6) Object Based Programming (15 Days)
  ● Objects and object methods
  ● OBP vs. OOP languages
  ● Events
  ● Classes
  ● DOM
Technical Standards: 4.6, 8.3, 12.0, 18.0
Math Standards: A-CED, S-CP

Unit Name: (7) Advanced Web Design (15 Days)
  ● JQuery
  ● SASS
  ● Bootstrap
  ● Dictionaries
  ● Portfolio/Resume
Technical Standards: 11.1-11.4, 16.0
Academic Standards: ELA.11-12.RI.10, W.4-5
DE Standards: CIS 166 - II.0, III.0

Unit Name: (8) Advanced Data Types/Functional JS (25 Days)
  ● Primitive Variable Methods
  ● Array Methods
  ● Dictionaries
  ● JSON
  ● Scheduling timed events
  ● Sorting Algorithms
  ● Big O Notation
Technical Standards: 8.2, 8.4, 8.6, 8.7, 12.2
Professional Standards: 3.0, 5.0
ELA Standards: RI.10
Math Standards: RP.A.3, EE.A.2, B.3
DE Standards:
  CIS 105 - II.a-f, II.a-e.

Unit Name: (9) Software (7 Days)
  ● Visual basic and Excel
  ● Word, Access, and PowerPoint
Technical Standards: 1.1-1.4, 3.1, 5.3-5.5, 11.4, 12.1-12.10, 18.1 - 18.10, 14.0, 16.0
Professional Standards: 7.0
DE Standards:
  CIS 105 - I.A-I.E, VIII.A, VIII.B

Unit Name: (10) Capstone Assignments (13 Days)
Technical Standards: 1.0, 9.1, 9.3, 18.0
Professional Standards: 1.0, 2.0, 5.0
ELA Standards: SL.1 - SL.6

District Post-Assessment

Certification Review (3 Days)
Industry Certification Exam MTA HTML5
Application Development Fundamentals Exam 98-375
(1 Day)
Year 2, Semester 1
C201 Coding III
Back-end Programming

JavaScript Pre-Assessment

Unit Name: (1) React & Fetch
(30 Days)
● React Overview
● Async/await
● Pulling Data from an API
Technical Standards: 11.3-11.4, 12.0, 14.0, 16.0
Professional Standards: 2.0
Math Standards: S-CP
DE Standards: CIS 150 AB - I, II, III, IV

Unit Name: (2) Express JS & Node JS
(20 Days)
● HTTP & Routing
● Application design with M.V.C Layout
● File system and security
● Testing with mocha
● Security threats
● OWASP
Technical Standards: 2.0, 14.0, 16.1-16.3, 9.0, 12.3 - 12.5
Professional Standards: 1.0, 9.0
ELA Standards: 11-12, SL4, SL5

Unit Name: (3) Next.JS & Typescript (25 Days)
● Types & Type checking
● Classes & Relation to OOP
● CIW Prep & Progression of JS
● Linting
● Debugging
● GRUNT/ Build systems
● Error handling
Technical Standards: 4.0, 5.0, 6.0, 7.0, 8.0, 12.6, 12.7, 13.0, 19.0
Professional Standards: 1.0
Math Standards: A-REI
ELA Standards: SL.2, SL.3
DE Standards: CIS 166AE - I, V, VII, IX

Unit Name: (4) ES6 (20 Days)
● Libraries
● NextJS vs. React
● Working with Data Structures Open Source
Technical Standards: 5.3-5.5, 9.3-9.5
Professional Standards: 7.0, 8.0, 3.0
Math Standards: A-REI
DE Standards: CIS 166AE - II, III, VI, VIII

CTSO Fall Conference

Semester Exam
CTSO Regional Conference & Online Testing

Unit Name: (1) PHP (20 Days)
- Syntax & Overview of Language
- Setup of Dev Environment
- Working with Server Side Environment
Technical Standards: 4.2, 5.3-5.5, 9.0, 10.0, 17.0
Professional Standards: 4.0, 5.0, 6.0
ELA Standards: W.7-W.9

Unit Name: (2) Databases (25 Days)
- Relational vs Non-Relational
- SQL / MySQL / MongoDB / Postgres
- IOT devices & other DB uses
- C.R.U.D Functionality
Technical Standards: 5.3-5.5, 9.3-9.5, 17.0
Professional Standards: 2.0, 7.0, 8.0
Math Standards: A-CED
ELA Standards: SL.4, L.6, RI.7
Dual Enrolment: CIS 166AE : 2,3,6,8

Unit Name: (3) Restful API (15 Days)
- Rest vs. SOAP
- Design an API
- Real World Problem Solving w/ API’s
Technical Standards: 5.0, 9.2, 10.2, 10.3, 11.0, 12.8
Professional Standards: 2.0, 5.0
ELA Standards: 11.0-12.0, W 7-9

Unit Name: (4) Mobile/Desktop App Development (15 Days)
- Cordova
- Electron
- Mobile vs. Desktop
Technical Standards: 1.0, 3.1, 5.3-5.5, 11.4, 12.0, 18.0
Professional Standards: 3.0, 5.0
Math Standards: A-CED

Unit Name: (5) Capstone Assignments (13 Days)

ADE Skill Standards Assessment

Certification Review (1 Day)

Industry Certification Exam
CIW JavaScript Specialist (1 Day)

CTSO National Conference