

Coding: Scope & Sequence

Year 1, Semester 1

C101 - Coding I

Object Based Programming

(90 days)

District Pre-Assessment &

Unit Name: (1) Introduction to West-MEC coding (8 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

Class:9 hours Lab: 10 hours

Unit Name: (2) 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

Class:24 hours Lab: 25 hours

Unit Name: (3) 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

Class: 24 hours Lab:25 hours

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:

CIS 166 - IV.0

Class:14 hours Lab: 15 hours

Unit Name: (5) Coder Etiquette and Best Practices (15 Days)

- Debugging
- SDLC + Agile (Figma)/Scrum
- 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, 12.913.0, 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

Class:18 hours Lab: 19 hours

CTSO (11 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

Class:16.5 hours Lab: 11 hours

Capstone / Midterm (10 Days)

Professional Standards: 1.0, 2.0

Academic Standards: ELA.11.12.W.7 - W.9, SL.1 - SL.3

Class: 13 hoursLab: 14 hours

Year 1, Semester 2

C102 Coding II

Object Oriented Programming

(90 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

Class: 18 hours Lab: 19 hours

Unit Name: (7) Advanced Web Design (18 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

Class:22 hours Lab: 23 hours

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.

Class:30 Lab: 32 hours

Unit Name: (9) Software (5 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

Class: 5 hours Lab: 6 hours

Unit Name: (10) Capstone Assignments (8 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

Class:9 hours Lab: 11 hours

CTSO (10 Days)

Regional Competition

State Competition

Fundraisers

Signature Event (i.e. Trunk or Treat)

Professional Standards: 1.0, 2.0, 3.0 4.0, 5.0, 6.0, 7.0, 8.0, 9.0

ELA Standards: SL.1-SL.6, W.7-W.9, L.6

District Post-Assessment

Certification Review (3 Days)

Industry Certification Exam ITS 301(1 day)

HTML and CSS

(1 Day)

Year 2, Semester 1

C201 Coding III

Back-end Programming

85 Days

JavaScript Pre-Assessment

Unit 0: Review JavaScript ES6 (2 Days)

- Arrow Function
- Asynchronous Functionality
- Promises
- Fetch

Class: 2 hours Lab: 3 hours

Unit 1: ExpressJS, NodeJS, MongoDB (18 Days)

- HTTP & Routing
- Application design with M.V.C Layout
- File system and security
- Node.js Testing with example mocha or other latest
- OWASP-Security threats
- Creating and using a MongoDB

Class: 22 hours Lab: 23 hours

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 2: React & Fetch (20 Days)

- React Overview
- Async/await
- Pulling Data from an API
- axios calls to a back end server
- using response data from MongoDB

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

Class: 24 hours Lab: 25 hours

Unit 3: Next.JS + TypeScript (20 Days)

- Converting react to Next
- Pages/ for routing
- Type Casting
- Static/Dynamic objects+variables
- getStaticProps
- CTX for state context
- api/ built in reducer

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

Class: 24 hours Lab: 25 hours

CTSO (9 Days)

- 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

ELA Standards: SL.1-SL.6, W.7-W.9, L.6

Unit Name: (4) React Native , NextJS : Projects and Portfolio Completion for Semester 1 (16 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-CED

DE Standards: CIS 166AE - II, III, VI, VIII

Class: 19 hours Lab: 21 hours

CTSO Fall Conference

Semester Exam

Year 2, Semester 2

C202 Coding IV

Emerging Technologies

95 Days

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

Class: 24 hours Lab: 25 hours

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

Class: 30 hours Lab: 32 hours

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

Class: 18 hours Lab: 19 hours

Unit Name: (4) SASS/Mobile/Desktop App Development (15 Days)

- Latest Technologies: Firebase/ Flutter/ 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

DE Standards: CIS 150AB 5.A, 5.B

Class: 18 hours Lab: 19 hours

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

ADE Skill Standards Assessment

Certification Review

Industry Certification Exam

ITS 302 - JavaScript Specialist (Day)

CTSO State and National Conference

Class: 19.5 hours Lab: 13 hours