Name of the class: Web Application Development with Python for Beginners

Class Duration: 12 Weeks + 1 Week of Orientation + 3 Weeks of Capstone

Number of lectures: 3X/week - alternate days, 1 lecture = 1 Hour

Number of lab sessions: 3X/week, same as lecture days, 1 scheduled lab session = 1 hour

Module 0 Getting Started (1 Week)

1. Accounts setup

   Slack, Gmail, GitHub/Bitbucket, AWS Server Login, Learning Management (Canvas)

2. Skills Assessment – Pre-orientation (Quiz 1)
3. 2-3 Days of Orientation to keep everyone on same page
4. Skill Assessment – Post-orientation (Quiz 2)

Module 1 Front end fundamentals (2 Weeks)

1. HTML
2. CSS
3. JavaScript Basics
4. Bootstrap

After completing this module, students will be able to hand code a responsive website, including some core JS components.

1. Assignment 1: Hand code a web page for given wireframe.
2. Assignment 2: Build a responsive webpage taking advantage of Bootstrap.
3. Quiz 3: Online quiz, 20+ questions covering common web technologies covered so far
4. Presentation: Short presentation of the webpage built so far to the class

Module 2 Core JavaScript (2 Weeks)

1. JS Data Structures (Arrays etc.)
2. JS Functions
3. DOM intro

Assignment 3: Signup page with data validation applied (something like Google Signup page)

Assignment 4: An assignment covering core JS functions and variables concepts

Quiz 4: Online quiz, 20+ questions covering common web technologies covered so far

Presentation: Short presentation of the webpage built so far to the class

Module 3 Database fundamentals (1 Week)

1. DDL
2. DML
3. MySQL
4. ER diagram

Assignment 5: Build a simple database systems with few tables, export ER diagram, populate dummy data and write sample queries

Quiz 5: 20+ questions covering database concepts

Module 4 Python basics (2 Weeks)

1. Data Structures 1: Numbers, strings, lists, dictionaries
2. Data Structures 2: Tuples, Sets, Booleans
3. Control flow
4. Functions

Assignment 6: Coding exercises such as find max min, read file count word kind

Quiz 6: 20+ questions covering core python concepts

Module 5 Python OOP (2 Weeks)

1. OOP Concepts
   TBD. Depending on student's profile

Assignment 7: Coding exercises that include constructor, destructors, function calls etc.

Quiz 7: 20+ questions covering OOP in Python

Module 6 Django Framework 1 (1 Week)

1. Django installation and start a new project
2. Start version control
3. Launch the application on a dev server (NGINX and Apache)

Assignment 8: Find a Django app from GitHub and deploy the app to AWS server (Apache)

Assignment 9: Find a Django app from GitHub and deploy the app to AWS server (NIGNX)

Quiz 8: Django specific questions

Module 7 Django Framework 2 (2 Weeks)

1. Advanced concepts on Django

Capstone Phase 1: Use the forms and pages built in the beginning of the semester and start adding backend components to it. This is the opportunity to build an application. Students spend most of the time coding and if got stuck, TA, peer and instructor provide guidance.

Module 8 Capstone – Putting it together (Up to 3 weeks)

Continuation of Module 7 but no onsite scheduled lab/lecture sessions. Students will have access to materials and support.

Notes:

1. Students can use lab outside the scheduled time if available
2. Students must attend all scheduled classes and labs
3. The course will be equivalent to taking 6 credit hours of Undergraduate Computer Science coursework in the US.