

Course Description:

The first part of this course is focused on building on the technologies that students encountered in CS235 Web Technologies. Students will be introduced to Bootstrap and JSON. They will study advanced topics in PHP and MySQL after reviewing JavaScript and the JQuery Library. They will learn about database design and the ERD diagrams as well as using more advanced queries in PHP. Object oriented programming concepts will be emphasized in PHP. The second part focuses on using JavaScript as a client and Node.js as a server technology. Students will also be exposed to the fundamentals of creating E-commerce web sites. They will have an opportunity to develop, test and deploy real-world production applications using these technologies. Students will explore many of these advanced topics through research and presentations.

INSTRUCTOR(S):

- Name(s): Namrata Pandya
- Office Number(s) (When and where you are available for help.): A157
- Telephone number(s): 630-907-5965
- Email address(es): npandya@imsa.edu
- Office Hours: 9:00 – 10:00am (math office)

Meeting Days, Time and Room(s)

A – D days at 12:20pm – 1:15pm in A156

Text(s) / Materials:

There is no required text for this course. A number of online resources, including tutorials on <http://www.w3schools.com/> will be used.

Instructional Design and Approach:

There will be a hands-on approach in learning the advanced web technologies in this course. Students will be asked to do research and present their research to the class to learn new material. Students will build on the technologies that they learned in Web Tech, CS235. They will review the basic concepts of JavaScript and jQuery libraries. They will build a basic web application using PHP and MySQL to review the material. They will expand on their knowledge by incorporating bootstrap and JSON into their web pages. They will be then introduced to advanced topics in PHP including object oriented programming concepts and advanced queries in MySQL. Students will learn to design databases and use ERD diagrams to visualize their design. The second part of this course

will introduce them to Node.js. Students will explore the fundamentals of Node.js and a framework Node.js projects, Express.js. They will create simple web applications using JavaScript and Node.js and then advanced applications using Express.js. Students will work on quarter projects to solidify their understanding of these technologies. If time permits, they will explore multiple aspects of building E-commerce web sites.

Student Expectations:

Be involved in class discussions and explorations, both large and small group.

- attend all the classes and be on time.
- complete all daily assignments, including reading assignments and projects in a timely manner.
- take responsibility to look up new features from online resources.
- take responsibility for learning certain basic skills and relationships.
- take responsibility for seeking additional help as it is needed.
- collaborate with each other and contribute to each other's learning
- be prepared to do research on advanced topics and present it to the class
- follow the guidelines of Students Handbook about ethical behavior and plagiarism.

Materials Needed:

Because of the abundance of information about web technologies on the Internet, we will not use any one text book for this course. However, students will be required to go through tutorials for each topic at the given links like <https://www.w3schools.com/> and YouTube videos. Students will also be asked to read material from online text book and /or handouts for certain topics, if available.

Course components:

- **Exercises:** Must be completed on a timely basis. Will be checked regularly during class time.
- **Projects:** Programming projects will be assigned for both the quarters.
- **Quizzes:** Pencil and paper tests/quizzes will be given in addition to programming labs.
- **Final exam/Project:** Paper pencil comprehensive final exam will be given at the end of the semester

Academic Honesty: All programs must be your own work. Copies of another's work will be considered plagiarism and treated accordingly. IMSA plagiarism policy is strictly enforced.

Class Rules: No food or drinks will be allowed in the classroom. Inappropriate use of resources will result in expulsion from the course. No head phones allowed during the class time.

Late Work: Students are encouraged to turn in their assignments/projects in a timely manner. Late work is heavily penalized, 20% deduction for each day once the deadline has passed. Assignments should be turned in on moodle by the due date/time, usually in the beginning of the class.

Quarterly grades will be averaged using the following weighting:

| | |
|----------------------------|-----|
| Projects/Presentations | 50% |
| Quizzes/Tests/labs | 30% |
| Exercises | 15% |
| Participation/Organization | 5% |

Semester grades will be averaged using the following weighting:

| | |
|--------------------------|-----|
| Cumulative semester work | 95% |
| Semester Final Exam | 5% |

Sequence of Topics and Activities

Third Quarter

| Unit/Topic | Length of Unit |
|----------------------------------|----------------|
| Review of JavaScript, PHP, MySQL | One Week |
| Introduction of bootstrap, JSON | One Week |
| Database Design | One Week |
| ERD diagrams | Two Weeks |
| MySQL advanced queries | One Week |
| PHP as OOP | Two Weeks |

Quarter 3 project

Fourth Quarter

| Unit/Topic | Length of Unit |
|----------------------------|----------------|
| Introduction to Node JS | Two Weeks |
| Introduction to Express.JS | Two Weeks |
| Exploring E-commerce sites | One Week |
| Presentations | One Week |
| Quarter 4 project | One-Two weeks |

Final exam