MET CS602 O1 (Spring1 2021) - Server-Side Web Development

Instructor

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Course Description

The Server-Side Web Development course concentrates primarily on building web applications using PHP/MySQL and Node.js/MongoDB. The course is divided into various modules covering in depth the following topics: PHP, MySQL, Object oriented PHP, PHP MVC, Secure Web applications, Node.js and MongoDB. Along with the fundamentals underlying these technologies, several applications will be showcased as case studies. Students work with these technologies starting with simple applications and then examining real world complex applications. At the end of this course, students would have mastered the web application development on the server-side.

Course Prerequisites

CS601(*Web Application Development*), or instructor's consent.

Course Grading Policy

The course grade will be based on active class participation and discussions (10%), programming assignments (30%), proctored final exam (30%), and a term project (30%). Assignments are expected to be submitted by their respective due dates. Late submissions carry a penalty.

Course Web Site

- **https://onlinecampus.bu.edu**

References

Required Books

- *Web Development with Node and Express: Leveraging the JavaScript Stack, 2nd Edition* , by Ethan Brown, O'Reilly, 2019. ISBN-13: 978-1492053507.
- *Murach's PHP and MySQL, 3rd Edition*, by Joel Murach and Ray Harris, Murach.
  3rd Edition: ISBN13: 978-1-943872-38-1 (2017)

Student Conduct Code

Please review the academic conduct code

Tentative Course Schedule

- Module 1 -- Introduction to Node.js

  - Survey of Server-Side Languages
  - JavaScript Review, ECMAScript 2015 (ES6) in Node.js
  - Web Applications with Node.js (Core Node modules)
  - Events and Streams, Event Handling

- Module 2 -- Node.js Modules and Frameworks

  - Node.js Modules (net, http, etc.)
  - Web Applications using Express.js Framework
  - Routing and REST APIs
  - Serverless Frameworks - Firebase Functions

- Module 3 -- Node.js and Databases

  - Persistence using MySQL
  - Persistence using MongoDB, Mongoose ODM
  - Full Stack Applications using MERN

- Module 4 -- PHP

  - Introduction to PHP and MySQL

- Module 5 -- Object Oriented Design and MVC

  - Object Oriented PHP and MVC (Model-View-Controller) Pattern
  - Caching, Registry, Routing

- Module 6 -- Web Services and Security

  - Working with AJAX, XML, and JSON (Web Services and RESTful Services)
  - Secure PHP Programming (User input, SQL Injection, Cross-Site Scripting, Remote execution, Session hijacking, CAPTCHAs)

- **Term Project Presentation**
- **Final Exam**