Jul – Dec 2019

IT302 –Web Technologies & Applications

Course Overview

Basic information

Instructors: Dr. Sowmya Kamath S.
Mrs. Priyadarshini

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Course Details:

- Course Code: IT302
- L-T-P: (3-0-2)
- Credits: 4

Overview of the Course

- *The World Wide Web* – Overview & history, Web System Architecture, Web Clients and Web Servers, Application Servers, Web protocols – HTTP1.x, HTTP/2, WebSockets, WebRTC, HTTPS
- *Front-end programming* - HTML5, CSS3, Document Object Model, Event-driven programming with JavaScript, UI/UX design principles, Responsive design principles, Single-page WebApp design concepts.
- *Server side programming* – Statelessness of HTTP, State management basics, Form Validation, Session Tracking techniques, Angular.js, MVC design pattern, Node.js
- *Web Frameworks* - Bootstrap, Flask.
- *Fullstack WebApp Design* – MEAN Stack Technologies, Progressive Web Application design.
- *Advanced Topics* - XML, Representational State Transfer & Restful Service design, Next-generation Web.

Reference Textbooks

1. **Web Technologies - A Computer Science Perspective** – Jeffrey C Jackson [Pearson -2009]
2. **JavaScript: The Definitive Guide, 6th Edition** - David Flanagan (O'Reilly Media).
3. **Responsive Web Design with HTML5 and CSS3, Second edition** – Ben Frain [Packt Books, 2017]
4. **The Elements of User Experience: User-Centered Design for the Web and Beyond** (2nd Edition) – Jesse James Garett, AIGA Books
5. **MEAN Web Development: Master real-time web application development using a mean combination of MongoDB, Express, Angular JS, and Node.js**. - Haviv, Amos Q. [Packt Books]
6. **RESTful Web Services** - Leonard Richardson [O'Reilly]

* Selected IEEE/ACM/Journal papers will also be used as additional references.

Grading Policy

The course grade will be decided on the following criteria –

- Theory
  - Mid Sem - 20%
  - End Sem - 40%
- Lab
  - Practical Assignments (individual) - 15%
  - Team Project (Team size - 3) - 25%
- Homework and Assignments
  - Selected topics may be set as homework/assignments whenever background study is required.

Mini Project Component.

- Project Requirement:
  - Select and implement an IEEE/ACM/Journal paper in the area of Web Technologies and related fields.
  - Final approval will be given after each team discusses their project with the course instructors.

- NOTE: Some interesting papers will be shared via Google Drive. You may read through these to find ones that interest you..

Team Project Component.

- Grading Criteria for 25% marks for Team project :
  - Midsem Evaluation:
    - Formal presentation to instructors - the identified research gaps, feasibility study, methodology, proposed innovative work,
  - Endsem Evaluation (Individual contribution):
    - Part 1: Level of completion of project and implementation 5%
    - Part 2: Level of individual coding effort -5%
    - Part 3: Level of performance evaluation, results and analysis -10%
    - Part 4: Individual viva voce -5%
    - Part 5: Exceptional work (Only given for any modification/extension/innovation beyond the selected paper's methodology that may result in contributions to open source/research) – 0 to 5% *

  * on Instructors' discretion.

Project Milestones

- **Jul 30:** Form a group and submit your info to your CR (names and student numbers). For the following two weeks, discuss what you want to do for a project, and get my approval for the project.

- **Aug 16:** Update your group's project idea/title in the document maintained by the CR.

- **Sep 3rd week:** Midsem Evaluation of Project

- **Nov 1st week:** Final Evaluation, presentations and demos.

Attendance Policy

- Institute norm of 75%* attendance will be strictly enforced.

* minimum of 75% of the classes actually conducted must be attended.