CityUniversity of Seattle

Syllabus

SCHOOL OF TECHNOLOGY & COMPUTING
CS 272 FULL STACK WEB DEVELOPMENT - FRONTEND

5 Credits
Effective Date: Summer 2020

Access to the Internet is required.
All written assignments must be in Microsoft-Word-compatible formats.
See the library's APA Style Guide tutorial for a list of resources that can help you use APA style.

FACULTY

Faculty Name: FACULTY NAME

Contact Information: CONTACT INFORMATION

[INSTRUCTOR MAY INSERT PERSONAL MESSAGE IF DESIRED]

COURSE DESCRIPTION

This course helps students understand the uses of modern, sophisticated application development frameworks powered by JavaScript. The development stack favored by the program is MEAN (MongoDB, Express, Angular, and Node). MEAN is a user-friendly full-stack JavaScript framework ideal for building dynamic websites and applications. It is a free and open-source stack designed to supply developers with a quick and organized method for creating rapid prototypes of MEAN-based web applications. One of the main benefits of the MEAN stack is that a single language, JavaScript, runs on every level of the application, making it an efficient and modern approach to web development. We focus on frontend web application development using the Angular framework.

COURSE RESOURCES

Textbook

- Holmes, S. & Harber, C. (2019). Getting MEAN with Mongo, Express, Angular, and Node, Second Edition. Manning Publications. (ISBN 9781617294754)

References

- HTML https://www.w3schools.com/html/default.asp
- CSS https://www.w3schools.com/css/default.asp
- JavaScript https://www.w3schools.com/js/default.asp
- TypeScript Freeman, A. (2019). *Essential TypeScript: From Beginner to Pro*. Apress.

COURSE OUTCOMES

- Understand single-page applications and full stack architecture
- Apply full stack development to frontend applications.
- Analyze full stack components for frontend applications.
- Evaluate full stack technologies for frontend applications.
- Create a frontend application by using a full stack.

CORE CONCEPTS

Topics include:

- Angular Application Part I
  - Getting up and Running with Angular
  - Working with Angular Components
- Angular Application Part II
  - Getting Data from an API
  - Putting an Angular Application into Production
- Single-Page Application Part I
  - Adding Navigation in an Angular SPA
  - Building a Modular App Using Multiple Nested Components

- Single-Page Application Part II
  - Adding Geolocation to Find Places near You
  - Safely Binding HTML
  - Challenges
- Advanced Single-Page Application Part I
  - Working with More-Complex Views and Routing Parameters
  - Working with Forms and Handling Submitted Data
- Advanced Single-Page Application Part II
  - Improving the Architecture
  - Using the SPA Instead of the Server-Side Application
- User Authentication, Session Management, and API Security Part I
  - How to Approach Authentication in the MEAN Stack
  - Creating a User Schema for MongoDB
- User Authentication, Session Management, and API Security Part II
  - Creating an Authentication API with Passport
  - Securing Relevant API Endpoints Summary
- Authentication APIs Part I
  - Creating an Angular Authentication Service
  - Creating the Register and Login Pages
- Authentication APIs Part II
  - Working with Authentication in the Angular

OVERVIEW OF COURSE GRADING

The grades earned for the course will be derived using City University of Seattle's decimal grading system, based on the following:

OVERVIEW OF REQUIRED ASSIGNMENTS	% OF FINAL GRADE	POINTS
Concept Test (CT)	10%	100 = 10 points * 10 modules
Hands-On-Practice (HOP)	40%	400 = 40 points * 10 modules
Knowledge Check (KC)	10%	100 = 10 points * 10 modules
Team Project (TP)	20%	Proposal: 30 points Progress: 70 points Final Report: 70 points Final PPT: 30 points Subtotal: 200 points
Final Exam	20%	Exam: 200 points
TOTAL	**100%**	**1,000 points**

The following approaches are used for developing this course content:

Assessment

- Summative Assessment. https://en.wikipedia.org/wiki/Summative_assessment
- Formative Assessment. https://en.wikipedia.org/wiki/Formative_assessment

Classroom Assessment Techniques

- The Muddiest Point. https://en.wikipedia.org/wiki/Classroom_Assessment_Techniques

Active Learning. https://en.wikipedia.org/wiki/Active_learning
- Flipped Classroom. https://en.wikipedia.org/wiki/Flipped_classroom
- Just-in-time Teaching (JiTT). https://en.wikipedia.org/wiki/Just-in-time_teaching
- Peer Instruction. https://en.wikipedia.org/wiki/Peer_instruction**)**

Learning Theory
- Learning-by-doing. https://en.wikipedia.org/wiki/Learning-by-doing
- Project-Based Learning (PBL). https://en.wikipedia.org/wiki/Project-based_learning
- Social Learning. https://en.wikipedia.org/wiki/Social_learning_(social_pedagogy)

Evidence-Based Practice (EBP). https://en.wikipedia.org/wiki/Evidence-based_practice
- Pair Programming. https://en.wikipedia.org/wiki/Pair_programming
- Stand-up Meeting. https://en.wikipedia.org/wiki/Stand-up_meeting
- Agile Software Development. https://en.wikipedia.org/wiki/Agile_software_development

SPECIFICS OF COURSE ASSIGNMENTS

The instructor will provide grading rubrics that will provide more detail as to how this assignment will be graded.

Concept Test (CT)

In class, students may be required to answer questions called Concept Tests, which allows peer to teach other, i.e. Peer Instruction. 1) Instructor poses question based on students' responses to their pre-class reading. 2) Students reflect on the question. 3) Students commit to an individual answer. 4) Instructor reviews student responses without giving the correct answer to the students. 5) Students discuss their thinking and answers with their peers. 6) Students then commit again to an individual answer. 7) The instructor again reviews responses and decides whether more explanation is needed before moving on to the next concept. Any participating students will earn their 100% grade.

Components	***% of Grade***
Quality Participation: Meets requirements in a timely manner	100%
TOTAL	**100%**

Hands-on Practice (HOP)

The instructor may assign hands-on practice exercises to a pair of students in class or individually in online. Students will learn and practice either specific tools or languages pertinent to your course. Each activity will be graded by pass or fail to encourage collaboration among students. (Pair programming can be used for the generation of more diverse solutions to problems.)

Components	***% of Grade***
Quality Participation: Meets requirements in a timely manner	80%
Accuracy: Answers questions correctly	20%
TOTAL	**100%**

Knowledge Check (KC)

Students will complete weekly quizzes that are from the course content to reflect on what they have learned in the course. Completing all KCs will help ensure that you successfully master the concepts in

this course. The best way for you to gain a thorough understanding of the underlying concepts is to apply those concepts to solve the quizzes. You should focus on the underlying principles, rather than just memorizing information.

Components	***% of Grade***
Accuracy: Answers questions correctly.	100%
TOTAL	**100%**

Team Project (TP)
Each student can select his or her own team. Each team consists of three students. A team of less than three students requires instructor's approval. Each team will use an instructor-approved topic relevant to the course. For effective project management, an agile software development process, Scrum, is used.

Three submissions are required according to the following schedule:

- Proposal (1 slide; 30 points) - Starting (Module 1) & Ending (Module 3)
- Progress (2-6 slides; 70 points) - Starting (Module 4) & Ending (Module 7)
- Final (7-13 slides; 100 points) - Starting (Module 8) & Ending (Module 10)

Students are expected and encouraged to use the assigned readings, videos, and other materials used throughout the quarter on this project. Students will need to utilize additional sources that were not assigned by the professor. While stylized after an industry report; nonetheless, students are expected to employ APA formatting of citations, footnotes, and bibliography. Students must cite the sources of all ideas, facts, and information used that are not their own, even if they have put the information into their own words. Failure to do so is plagiarism, even if the oversight is unintentional.

Components	***% of Grade***
Structure: Consists of the required report elements.	5%
Content: Demonstrates critical analysis and synthesis of concepts.	30%
Reference: Is pertinent to the topic and cited properly.	5%
Writing: Is clear, concise, and grammatically correct.	10%
Visual Presentation: Is well designed, legible, and persuasive.	30%
Team Collaboration: Is based on peer review	20%
TOTAL	100%

COURSE POLICIES
Late Assignments
The late assignment without advanced notice will receive an -10% penalty per day for a maximum of 7 days.

Participation
Students will participate in activities and discussions as defined by the instructor. Whether in class, online, or a mixed-mode setting, students will be graded on the following things: their participation in classroom discussions; their ability to present, explain, or defend alternative viewpoints; and the degree to which they have mastered the concepts and principles inherent in the study of the subjects.

Professional Writing
Assignments require error-free writing that uses Standard English conventions and logical flow of organization to address topics thoroughly and concisely. CityU requires the use of APA style.

UNIVERSITY POLICIES

You are responsible for understanding and adhering to all of City University of Seattle's academic policies. The most current versions of these policies can be found in the University Catalog linked to the CityU Website.

Scholastic Honesty

Academic honesty in students requires the pursuit of scholarly activity that is free from fraud, deception, and unauthorized collaboration with other individuals. You are responsible for understanding CityU's policy on academic honesty and adhering to its standards in meeting all course requirements. A complete copy of this policy can be found in the University Catalog in the section titled *Scholastic Honesty* under *Student Rights & Responsibilities*.

Attendance

Students taking courses in any format at the University are expected to be diligent in their studies and to attend class regularly.

Regular class attendance is essential in achieving learning outcomes in the course and maybe a valid consideration in determining the final grade. For classes where a physical presence is required, a student has attended if s/he is present at any time during the class session. For online courses, a student has attended if s/he has posted or submitted an assignment. A complete copy of this policy can be found in the University Catalog in the section titled *Attendance Policy for Mixed Mode, Online and Correspondence Courses*.

SUPPORT SERVICES

Disability Resources

If you are a student with a disability and require an accommodation, please contact the Disability Resource Office as soon as possible. For additional information, please see the section in the University Catalog titled *Students with Special Needs* under *Student Rights & Responsibilities*.

Library Services

CityU librarians help you find the resources and information you need to succeed in this course. Contact a CityU librarian through the *Ask a Librarian* service, or access library resources and services online, 24 hours a day, seven days a week.

Smarthinking

As a CityU student, you have access to 10 free hours of online tutoring offered through Smarthinking, including writing support from certified tutors 24 hours a day, seven days a week. Contact CityU's Student Support Center at help@cityu.edu to request your user name and password.