Welcome to CSE 4234/5234- Web Applications, Spring 2023.

- CSE 4234/5234 examines the issues related to network-based application development. We will cover the design and implementation of web-based programs. In addition to HTTP, SMTP, HTML, CSS, and JavaScript, a wide range of popular Web technologies, languages, and protocols are covered. With MERN Stack Technology, you will gain experience creating full-stack Web applications. Topics include markup languages such as HTML and CSS, JavaScript, introduction to computer networks, web technologies and standards, network-based programming methodologies, and databases. You will see how they all work together to deliver exciting applications. **Prerequisite**: CSE 1002 or ECE 2552.

  Instructor Name: Dr. Nasheen Nur

    - **Office Location:** Building no 501, Olin Engineering Complex, Room no 307
    - **Office Hours:** Wednesdays - from 3:00 to 5:00 p.m. **and by appointment.** Please schedule appointments from the following link. If no slots work for you, contact me(nurn@fit.edu) to schedule an appointment.
        - calendly.com/nurn
    - **Phone:** (980)-474-6145
    - **Email:** nurn@fit.edu
  - **Class Time**: T/R, 5:00 - 6:15 p.m. EST
    - **Classroom: 460SKU 110**
  - **Join the Discord group with your FIT email id for discussions with your classmates/group mates: TBD**
  - Zoom link for remotely joining office hours:
    - Meeting ID: 355 971 0104
  - Zoom link for remotely attending class: https://fit.zoom.us/j/91520780020

    Meeting ID: 915 2078 0020, You need to be logged in with your Florida Tech email address.

  - **Lecture videos will be uploaded here: https://fit.instructure.com/courses/615858/external_tools/35397**

Course Objectives and Learning Outcomes

- Upon completion of this course, students should be able to:
    - Understand full stack web applications in MERN (MongoDB, Express, ReactJS, NodeJS) stack.
    - Build Up basic knowledge on HTML, CSS, and JavaScript.

- Understand client-side application development using ReactJS and JavaScript.
- Implement single page applications using React JS
- Build Up functional front-end (client-side) using React JS and CSS framework (Tailwind)
- Demonstrate an understanding of RESTful API
- Explain server-side concepts
- Explain the concepts of MongoDB database
- Build and configure a backend server using Express JS which is a Node JS framework
- Integrate front-end with backend with the support of MongoDB database
- Build a RESTful API for the front-end to access backend services using CRUD operations.

Required Texts / Materials (Mandatory):

- None required
- Class notes, slides, podcasts and video/reading materials provided by the instructor

Reference Textbooks (Optional):

- How to Code in ReactJS by Joe Morgan, 2021, ISBN: 978-1-7358317-4-9
- CSS and HTML Handbooks by Flavio Copes, https://flaviocopes.com/
- JavaScript: The Definitive Guide: Master the World's Most-Used Programming Language, Book by David Flanagan, 7th Edition

Course Activities

I will announce/post **a weekly learning guid**e at the beginning of the week **(Monday or Tuesday early morning)**. This learning guide will help you prepare for that week, keep track of the assignments due for that week and special announcements. Besides lectures, we will do class activities for better understanding of course materials.

There will be several major types of course activities that contribute to the overall course grade. All activities will be individual work.

- **Quizzes and Exercises** – Every module will include quizzes and shorter exercises that cover the readings, and study material assigned for students to complete. These assignments will be due weekly - every Tuesday at 11:59 PM
- **Milestone Assignments** – There will be 4 milestone assignments that will evaluate the material covered. Throughout the semester students will be working on developing a web application incrementally. At each stage of the course, students will submit their implementation for evaluation as a part of these grading criteria.
    - **Milestone 1 -** Website Prototyping with HTML5 and CSS3
    - **Milestone 2 -** MVC Application with Routes and Views
    - **Milestone 3 -** Session Tracking
    - **Milestone 4 -** Database Integration with MongoDB
- **Final Application Component** – The final assessment for the course will incorporate a final project component that utilizes all material covered in the course as well as documenting and packaging the web application will be due the last week of classes.
- **Effort** – Involvement in the course will be evaluated constantly in all phases of the course. Students who do the bare minimum will not receive any credit for the effort. In addition, students may be asked to participate actively in the course's discussion forum and are expected to ask/answer questions and share resources. The effort and quality of your participation and submissions will determine this grade. Note that to a very large extent this is a subjective grade. The course will involve problem-solving and programming which are participatory activities, and you must participate. Being passive isn't going to get the job done. By the end of the semester, we will be expecting you to involve in at least 3 discussions to get the full credit on this.

Evaluation Breakdown

The expected breakdown of contribution from major course activities to the overall course grade follows here. While it is unlikely to change, please note that it is sometimes necessary to adjust the breakdown, and students would be duly notified in that event.

- 25% - Prep Quizzes and Exercises
- 50% - Milestone Assignments
- 20% - Final Project (Counted as Course Final - will be a final presentation and submission with detailed documentation of the milestone project)
- 3% - Effort [post your questions, exciting findings, and ideas, issues you faced over the week on the weekly open discussion]
- 2% - Attendance

Grading Policy (including late work policy):

Please contact the TA or the instructor within one week of receiving grades, if you have any questions or concerns about the grades. Your final course grade will be based on the following components ONLY:

Late Assignments: Late assignments will not be accepted past the due date and time published on Canvas without valid reason. Assignments cannot be submitted via email; those that are will be disregarded and will receive a 0.

Missed Work: With very few exceptions, missed assignments and exams cannot be made up. Exceptions include required ROTC, athletic, or similar university events, significant illness, or family emergencies. Note that in all such cases, an excused absence notice from the office of the Dean of Students will be required. Student should notify Dr. Nur in advance if they expect to miss any coursework. Students missing an assignment with his/her study group will not be assigned a partner/group and must complete work individually.

Course Attendance Policy:

Attendance is expected in all lectures via zoom or classroom. Every class lecture will be uploaded to canvas for the students to review later. Lectures will contain materials often outside the scope of the assigned reading but will be included in the midterm and final exam. Missing lectures via class, zoom or video record could result in missing key material relevant to the exam.

Where to Find Help:

Contact the instructor to schedule office hours outside the fixed office hours. Get help from the TA too. We both have dedicated office hours and you can also schedule an appointment via email. You will find our information on canvas course (once it is published).

If you need help with CS courses, you can stop by at CS Help Desk in Henry Building - Student Success Support Center. The current schedule is at:

https://cs.fit.edu/~pkc/dept/csHelpDesk.html (Links to an external site.)

Issues and Concerns

- If you have a different ability or challenge, inform your teacher. Accommodations can be
- If you have an academic problem, your teacher can link you to support

- If you have a personal issue, without revealing private information, your teacher can link you to support

Academic Honesty Definitions & Procedures:

Is located in the student handbook at https://www.fit.edu/policies/student-handbook/standards- and-policies/academic-honesty/ (Links to an external site.)

Title IX Statement:

The university's Title IX policy is available at https://www.fit.edu/policies/title-ix/ (Links to an external site.)

Title IX of the Education Amendments of 1972 is a federal civil rights law that prohibits discrimination on the basis of sex in federally funded education programs and activities. Florida Institute of Technology policy also prohibits discrimination on the basis of sex.

Florida Tech faculty are committed to helping create a safe learning environment for all students that is free from all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you, or someone you know, have experienced or is experiencing any of these behaviors, know that help and support are available.

Florida Tech strongly encourages all members of the community to take action, seek support, and report any incident of sexual harassment or gender discrimination to Fanak Baarmand, Title IX Coordinator at 321-674-8885 or fbaarman@fit.edu.

Please note that as your professor, I am required to report any incidents to the Title IX Coordinator. If you wish to speak to an employee who does not have this reporting responsibility, please contact the Student Counseling Center at 321-674-8050.

Academic Accommodations:

Florida Tech is committed to equal opportunity for persons w/disabilities in the participation of activities operated/sponsored by the university. Therefore, students w/documented disabilities are entitled to reasonable educational accommodations. The Office of Accessibility Resources (OAR) supports students by assisting w/accommodations, providing recommended interventions, and engaging in case management services. It is the student's responsibility to make a request to OAR before any accommodations can be approved/implemented. Also, students w/approved

accommodations are encouraged to speak w/the course instructor to discuss any arrangements and/or concerns relating to their accommodations for the class. Office of

Accessibility Resources (OAR): Telephone: 321-674-8285 / Email: accessibilityresources@fit.edu Website: https://www.fit.edu/accessibility-resources (Links to an external site.)

Recording Disclosure (Privacy Waiver):

This course may be recorded for use by students and/or faculty. Enrolled students are subject to having their images and voices recorded during the classroom presentations, remote access learning, online course discussions, and remote office hours/meetings. Course participants should have no expectation of privacy regarding their participation in this class. Recordings may not be reproduced, shared with those not registered in the courses, or uploaded to other online environments. All recordings will be deleted at the conclusion of the academic term.

Covid-19 University Policy:

As per Florida Tech's "Return to Learn Fall 2020" policy, the "use of face coverings [is] mandatory for students." By attending this class in person students agree to follow all health guidelines listed in that document, as well as practicing social distancing in the classroom itself.

Anyone with COVID-19 symptoms should stay at home and seek medical attention. Students failing to follow masking and social distancing will not be allowed to remain in class. For more information, please visit the Florid Tech Safe website at https://www.fit.edu/coronavirus. (Links to an external site.)

Schedule: I will finalize the schedule two weeks ahead of time. Here is a tentative table of the lecture plan for the whole semester.

Weeks and Lecture Dates		**Topics**	**Assignments (due dates)**
Week 1	01/10 & 01/12	Lecture 01: Introduction Lecture 02: How internet works, How a web page is rendered, Concept of front-end and Backend, Environment setup: code editor (VS code), NodeJS , Introduction to Hypertext Markup Language (HTML)	Syllabus quiz - 01/17

Week 2	01/17 & 01/19	Hypertext Markup Language (HTML) continued	Canvas quiz on materials covered in week 1 and 2 - 01/24
Week 3	01/24 & 01/26	Cascading Styling Sheet (CSS) ,CSS Framework: Tailwind/less/sass/bootstrap	Canvas quiz on CSS - 01/31
Week 4	01/31 & 02/02	Version Control Tool: GitHub JavaScript	At the end of fourth week - Milestone 1
Week 5	02/07 & 02/09	JavaScript continued	canvas quiz on JavaScript - 02/14
Week 6	02/14 & 02/16	DOM Manipulation and JavaScript Devtool and debug projects	
Week 7	02/21 & 02/23	Modern Front-end Core Concepts Single Page Application React JS core concepts	A programming assignment on JavaScript - due 02/28
Week 8	02/28 & 03/02	How ReactJS works React Router React Hooks and forms	
Week 09	03/07 & 03/09	API, JSON, Data Load, Dynamic Website. Working principle of JavaScript and browser Advanced JavaScript Concepts	Milestone-2 - 03/07
Week 10	**March 13-17**	**Spring Break**	
Week 11	03/21 & 03/23	React Authentication with Firebase JWT token, Private route React state management, auth context	
Week 12	03/28 & 03/30	Backend core concepts	

		NodeJS core concepts NodeJS framework Express JS RESTful API, CRUD operation	
Week 13	04/04 & 04/06	MongoDB database core concepts	Milestone 3 - 04/04
Week 14	04/11 & 04/13	MongoDB Database Integration Mongoose	
Week 15	04/18 & 04/20	Pagination Adding file upload	
Week 16	04/25	Advanced Topics - Adding Payment System, Unit Test with JEST	Milestone 4 - 04/25
Week 17	**May 1 to 5**	**Week of Final (Syllabus: TBD)**	**Final Project due on the day of Final**