FRONT END DEVELOPMENT (JS, REACT)

Course Syllabus

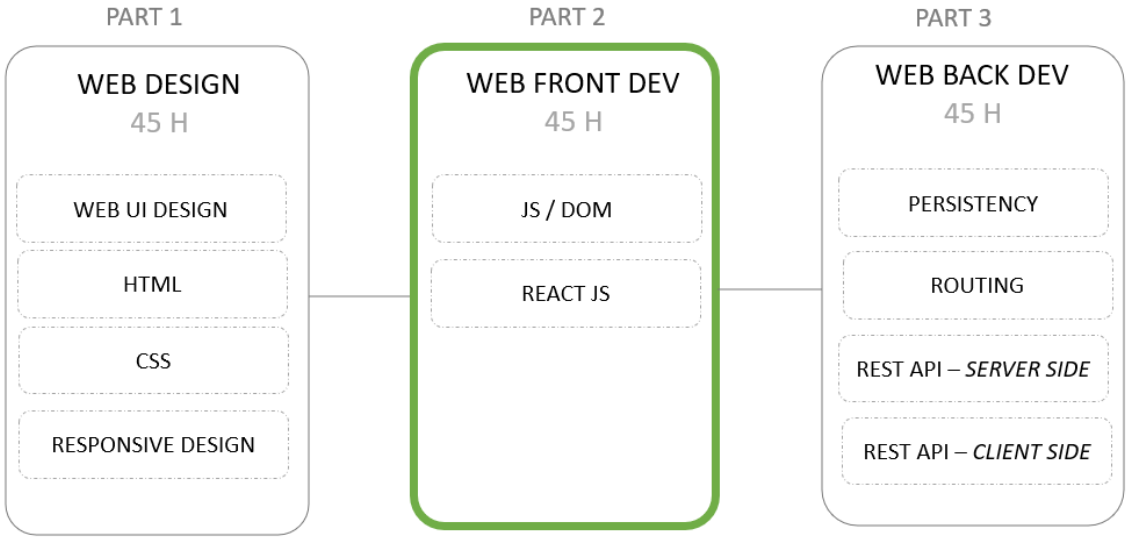
Course Title	Front End Development (*JS, REACT*)
Department	IDT Computer Sciences
Credit	3
In-class hours	45 hours (30 sessions)
Outside-class hours	60 hours (*recommended for assignments, projects, and self-study)*
Period	Year 2 –Term 2
Revision	Generation 10 *(JAN 2025)*
Author	Lect. Ronan Ogor

Instructors

GROUP	*THEORY / PRACTICE*
G1 - DS	Lect. Sok Piseth
G2 - DS	
G1 - SE	Lect. Kheang Kim Ang
G2 - SE	
G3 - SE	Lect. Ngin Kimlong
G4 - SE	

1. COURSE DESCRIPTION

Welcome to the JavaScript & ReactJS Course!
This course covers the second part of CADT web development curriculum.



Over the next 10 weeks, you will learn the essentials of JavaScript and React, focusing on building dynamic, interactive web applications. We'll begin with JavaScript fundamentals, including variables, functions, and DOM manipulation, and then transition into React, where you'll develop skills in building components, managing state, handling events, and fetching data from APIs.

Our learning objectives are centered around mastering **JavaScript and React for real-world applications.** You will learn to write efficient, **maintainable** code, manage data flow in React, and collaborate through **code reviews and group discussions**. Assessments will be based on both the functionality of your code and your adherence to best practices for clean, scalable development.

Through regular coding challenges, group work, and peer feedback, you'll develop the skills needed to build modern web applications confidently and effectively. Each assignment will test your mastery of these skills, ensuring you're fully prepared for real-world development tasks.

Get ready to code, collaborate, and create web applications with confidence!

2. COURSE LEARNING OUTCOMES

By the end of the course, you should gain the following outcomes:

Knowledge	*Theoretical or factual information you need to understand.*

- ✓ Understand **JavaScript** syntax, control structures, functions, and ES6 features.
- ✓ Explain **DOM manipulation**, **event** handling, and **form** validation.
- ✓ Comprehend REACT **component-based** architecture, JSX, props, and lifecycle methods.
- ✓ Manipulate and interact with **stateless** and **stateful** components
- ✓ Identify how React lifecycle methods, especially useEffect, handle side effects and data fetching.

Skills	*Practical abilities you need to acquire*

- ✓ Build **dynamic web** pages using **JavaScript** and **manipulate the DOM**.
- ✓ Develop modular **React applications** using components, state, and props.
- ✓ Implement reusable **components** to enhance modularity and maintainability
- ✓ Adopt a proper investigation methodology to **troubleshoot React JS bugs**

Attitudes	*Values, motivations, and dispositions you need to develop.*

- ✓ Develop **problem-solving skills** and adaptability to coding challenges.
- ✓ Foster **collaboration** and effective communication in peer reviews and group discussions.
- ✓ Embrace best practices for writing **clean, scalable, and maintainable** code.

3. COURSE ORGANISATION

The course spans 10 weeks and follows the bellow objectives outlined for each week:

	Learning	Practice	Exam	Project
W 01	Course Kick Off JavaScript Ecosystem C++ to JS	Get familiar with JS Syntax Manipulate Array and Objects in JS		
W 02	Navigate in the DOM structure Handle DOM Events	Build a Calculator Build a Currency converter		
W 03	Conditional and list display Modules and Packages	NPM packages ES6: *Array find, map, filter, foreach*		Quiz player
W 04	Overview of React An overview of React	ES6: *Array function, destructuring, spread operator*		
W 05	JSX Dynamic Data React Components	Create a first React component Create a header / Main / Footer Display the atomic clock dynamically		
W 06	Props List Display	Display a list of data Display images dynamically Pass data to components using props		
W 07	Revisions Peer review	Conditional Display Build a student score app	Mid Term	
W 08	Handle UI Events Use states hook	Build a Calculator Build a Currency converter		Proposal
W 09	Reflect on a state's management Understand React lifecycle Pass functions as value to props	Create a score bar component Handle a list of groceries Create a checkout component		
W 10	Fix bugs Use breakpoints Use React DevTools	Monster Slayer app		
W11			Final	Jury

4. GRADING & ACADEMIC POLICY

TYPE OF EVALUATION	RATIO
Attendance & Participation	10 %
Assignments	30 %
Mid Term	10 %
Final Exam	20 %
Project	30 %

Participation

You must be present in all sessions of this course for the physical class

- *Only absences authorized by the academic affair are allowed*

Participation is scored. By participation we mean:

- Your collaboration with peer
- Your presentation to the whole class
- Your involvement to help others

Assignments

- You are required to work independently to solve the assigned problem for practice
    - *Copying or plagiarism will be treated as academic dishonesty and will be handled according to institution regulations*
    - *Late homework submission will result in getting zero score.*

- In addition to each assignment, you will evaluate your peers works and submit your evaluation on LMS

Project

As part of this course, you will undertake a **project in pairs,** aimed at applying the knowledge and skills you have acquired. *See below the project's descriptions*

Exams

Exams will be performed **without internet**.

5. PROJECT

As part of this course, you will undertake a **pair project** aimed at applying the knowledge and skills you have acquired. Your project will involve the following steps:

1. App Definition

- ✓ Your project must fit the following 2 constraints:
  - It needs to showcase your achievement on each of the course learning objectives
  - It needs to be useful for your (or others) daily life

2. App Proposal *(week 8)*

- ✓ You will defend your app proposal in terms of:
  - Which course learning objectives will be integrated?
  - How this app is useful for your (or others) daily life?
  - How do you plan to develop this app within the next 6 weeks?

3. App Development *(week 4 to 10)*

- ✓ You will regularly share your ideas, links, code example to your peer, using our online channels

4. App Jury (*week 10)*

- ✓ You will defend your App features and technical achievements during a jury session

6. REQUIRED SOFTWARE

You will need to install the following software/application:

SOFTWARE	REASON
VS Code	IDE with Virtual Server and Prettier extensions
Git	Version control system to submit code
Figma	For designing and prototyping UI/UX
MS Teams	Our main tool to communicate on this course

7. RESOURCES

JAVASCRIPT

https://cstart.mines.edu/web/Day2/2-JavaScriptBasicSyntax.pdf
https://www.integral-domain.org/lwilliams/mis462/JavaScript.pdf

https://www.gurukultti.org/admin/notice/javascript.pdf
https://www.w3schools.com/js/default.asp

WEBSITES

W3Scholl documentation
React official documentation

REACT

You tube channel about react JS

Udemy React Course (not free)
Note: this course is using many example from this resource, it can be interesting to acquire it !