



CENTRE FOR ARTS, DESIGN &
INFORMATION TECHNOLOGY

School of
**Computer
Technology**

Approved by Chair:

Dec 29, 2024

Signature

COMP3133 - Full Stack Development II

Course Description

This course builds on the fundamental knowledge and skills required for full stack development (MEAN Stack). Students learn Angular as a front-end framework, implement NoSQL databases (MongoDB) and work with Express framework and Node.js environment. Students enrolled in this course are expected to have prior working knowledge of HTML & CSS and JavaScript ES6 Node.js and Express (COMP3123). Knowledge of other JavaScript frameworks is an asset.

Course Outcomes

At the end of this course, the student will reliably demonstrate the ability to:

1. Design and implement a simple front-end web solution using Angular.
2. Utilize native features of Node.js using built-in modules.
3. Implement a data storage solution using MongoDB.
4. Store and retrieve data to a MongoDB using Mongoose ODM.
5. Implement and consume REST APIs with Node.js and Express.

LIST OF TEXTBOOKS AND OTHER TEACHING AIDS:

Required

- N/A

Recommended Resources

- Node.js, MongoDB and Angular Web Development: The definitive guide to using the MEAN stack to build web applications (2nd Edition) – ISBN: 9780134656168
- <http://proquestcombo.safaribooksonline.com.ezproxy.torontopubliclibrary.ca/book/webdevelopment/9780134655642>

Course Delivery Mode

The course uses various instructional methods, such as lectures, demonstrations, hands-on exercises, and take-home assignments. The delivery mode depends on whether the course is online or in person. Online lectures will be the primary mode, but there may be in-person lectures for in-person participants. Labs will be conducted virtually for the online program, while in-person program students must attend on-campus labs. For more information about the delivery mode, please refer to D2L. Any updates will be communicated through D2L in advance.

Assignment Policy

- All assignments must be submitted on the due date based on an instruction given by the professor. Late assignment will be penalized 20% per day to a maximum of 5 days, the weekend included unless the student has notified the professor (via e-mail, phone or in person) ahead of the due date that he/she has a valid reason for late submission.
- Students are responsible for making sure their marks are up to date on the blackboard. No mark will change after two weeks from the time marks were posted on Blackboard.

Test Policy

- Students must complete tests and the final exam on the assigned day. If unable to complete the test/exam as scheduled, students are required to notify the professor at least three days prior to the date, so alternative arrangements can be made. Failure to comply with this policy may result in a zero grade.
- There will be no makeup quiz and lab exercises, for medical or other reasons. If you anticipate missing more than 2 quizzes or lab exercises for serious, major reasons, see your professor beforehand.

In-Person Exam Policy

Mid-term and Final exams for the T177 programs will be conducted in person. Please note the following exam schedule:

- Mid-Term Exams: Week 7 of the semester
- Final Exams: Week 15 of the semester

Students are expected to be available in person during these exam periods.

Important Note on the Use of Generative AI:

Students must review the "Generative AI Usage Guidelines" document, available on D2L, for detailed instructions on how generative AI tools may be used in this course. The course evaluation table now includes a column labelled "AI Usage Allowed," indicating whether AI use is permitted for each assessment.

Yes: AI can be used with proper referencing.

No: AI cannot be used, and any usage will be considered plagiarism and subject to academic penalties.

Misuse of AI in assessments where it is not permitted or failure to adequately disclose its use will be treated as a violation of academic integrity. According to college policy, consequences may include failing the assignment or the course or more severe disciplinary actions. **Students must also download the AI Usage Declaration form from D2L, complete it, and submit it with their assignments where AI use is permitted.** Adherence to these guidelines is mandatory to maintain academic integrity.

EVALUATION SYSTEM:

The passing grade for this course is: D (50%)

Assessment	Description	Outcome(s) assessed:	EES assessed:	Week	Weight	AI Usage Allowed
Lecture Quiz 8	The best 8 out of 10 quizzes will count. Note: <ul style="list-style-type: none"> • Due Same DAY end of lecture • No extension, No extra time and No makeup quizzes are allowed as these may affect other courses and 8/10 quizzes are available 	3,4,5,6	1,2,3,4,5	1-6 and 9-14	8%	NO
Lab Test x 2	Hands on test, covers previous weeks topics	1,2,4,5,7	1,2,3,4,5, 6,7,10	5, 12	12%	NO
Lab exercises 8	8 Weekly lab exercises and AtKlass participation Note: <ul style="list-style-type: none"> • Due Sunday DAY end of lecture • No extension, No extra time and No makeup quizzes are allowed as these may affect other courses 	1,2,3,4, 5,6,7	1,2,3,4,5	1-6 and 9-14	8%	NO
Assignment 1	Individual assignment GitHub required for code verification	1,2,3,4, 5,6,7	1,2,3,4,5,6, 7,10,11	6	12%	YES
Assignment 2	Individual assignment GitHub required for code verification	1,2,3,4, 5,6,7	1,2,3,4,5,6, 7,10,11	13	16%	YES
Mid-Term Exam	Mixed format and multiple-choice test.	1,2,3,4	1,2,4	7	18%	NO
Final Exam	Mixed format and multiple-choice test on week 1 to week 14	4,5,6,7	2,4,5	15	26%	NO
				TOTAL	100%	

Topical Outline

Learning Schedule / Topical Outline (subject to change with notification)

Week	Outcome(s)	Topics	Chapter/ Reference
1	1	<ul style="list-style-type: none"> - Administrative & Course Outline - Introduction to MEAN Stack - Review of JavaScript & ES6 features - Review Node's core concept 	Class notes, Chapter 2 https://nodejs.org/api/
2	2	Node.js <ul style="list-style-type: none"> - Accessing Local File System (read/create/update/delete/rename file or directory) - Readable & Writable Streams <ul style="list-style-type: none"> o reading & writing chunk of data o using pipe - Buffer Object 	Chapter 5, 6, 8 https://nodejs.org/api/
3	2	<ul style="list-style-type: none"> - Interaction with Socket.IO - Working with Multiple Sockets - Testing and Debugging <ul style="list-style-type: none"> o Intro to testing framework Mocha 	Chapter 9, https://nodejs.org/api/ https://mochajs.org/
4	3, 4	<ul style="list-style-type: none"> - MongoDB and Mongoos - Review building the Schema and Models <ul style="list-style-type: none"> o Query and Sorting with Mongoose o Methods and Statics - Middleware 	Chapter 16 https://mongoosejs.com/docs/
5	3, 4	<ul style="list-style-type: none"> - Mongoose Validation <ul style="list-style-type: none"> o Built-in Validators o Custom Validators o Handling Validation Errors 	https://mongoosejs.com/docs/
6	2, 5	<ul style="list-style-type: none"> - Introduction to GraphQL <ul style="list-style-type: none"> o REST vs GraphQL o Setting up GraphQL to work with Express o Schemas o Types and Queries 	https://graphql.org/
7		----- Midterm Exam -----	
8		**** Intersession week ****	
9	1, 2	<ul style="list-style-type: none"> - NPM: Node Package Manager - Getting started with Angular - Introduction to TypeScript 	Chapter 20,
10	2	<ul style="list-style-type: none"> - The Architecture of Angular Apps <ul style="list-style-type: none"> o Structure of Angular Projects - Angular Fundamentals 	Chapter 21, 22

		<ul style="list-style-type: none"> - Components <ul style="list-style-type: none"> o Angular CLI 	
11	2	<ul style="list-style-type: none"> - Displaying Data and Handling Events <ul style="list-style-type: none"> o Data Binding and Event Binding - Directives 	Chapter 24, 25, 27
12	2	<ul style="list-style-type: none"> - Building Reusable Components <ul style="list-style-type: none"> o View Encapsulation/Shadow DOM - Routing & Navigation 	Chapter 22, https://angular.io/api/
13	2, 5	<ul style="list-style-type: none"> - Consuming HTTP Services <ul style="list-style-type: none"> o Observables & RxJS o Pipes - Template Driven Forms <ul style="list-style-type: none"> o Angular Material 	Chapter 23, 27, 28 https://material.angular.io/
14	2	<ul style="list-style-type: none"> - Authentication & Authorization 	
15		----- Final Exam -----	
<p>For information on withdrawing from this course without academic penalty, please refer to the College Academic Calendar: http://www.georgebrown.ca/Admin/Registr/PSCal.aspx</p> <p>Policy on Academic Dishonesty: The <i>minimal</i> consequence for submitting a plagiarized, purchased, contracted, or in any manner inappropriately negotiated or falsified assignment, test, essay, project, or any evaluated material will be a grade of zero on that material.</p> <p>To view George Brown College policies please go to www.georgebrown.ca/policies</p>			