COURSE OUTLINE: CSD223 - ADVANCED WEB APPS

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Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	CSD223: ADVANCED WEB APPLICATIONS
Program Number: Name	2090: COMPUTER PROGRAMMER 2095: COMPUTER PROGRAMMING
Department:	COMPUTER STUDIES
Academic Year:	2023-2024
Course Description:	The tools and design patterns used to build modern web applications are constantly evolving. Depending on instructor expertise, students in this course explore and employ a variety of widely used libraries, frameworks, and technologies to prepare them for modern web application development. Topics include full-stack application development, front-end frameworks (Angular, React, Vue, etc), web security, and web application tooling and development environments. JavaScript, TypeScript, Node.js, Java, and PHP may all be used at times throughout the course.
Total Credits:	4
Hours/Week:	4
Total Hours:	56
Prerequisites:	CSD213, CSD214
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: Please refer to program web page for a complete listing of program outcomes where applicable.	**2090 - COMPUTER PROGRAMMER** VLO 2 Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. VLO 3 Implement and maintain secure computing environments. VLO 5 Communicate and collaborate with team members and stakeholders to ensure effective working relationships. VLO 6 Select and apply strategies for personal and professional development to enhance work performance. VLO 7 Apply project management principles and tools when working on projects within a computing environment. VLO 8 Adhere to ethical, legal, and regulatory requirements and/or principles in the development and management of computing solutions and systems. VLO 10 Cntribute to the development, documentation, implementation, maintenance and testing of software systems by using industry standard software development methodologies based on defined specifications and existing technologies/frameworks. VLO 11 Apply one or more programming paradigms such as, object-oriented, structured or functional programming, and design principles, as well as documented requirements,

to the software development process.

VLO 13 Contribute to the integration of network communications into software solutions by adhering to protocol standards.

2095 - COMPUTER PROGRAMMING

VLO 2   Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools.

VLO 3   Implement and maintain secure computing environments.

VLO 5   Communicate and collaborate with team members and stakeholders to ensure effective working relationships.

VLO 6   Select and apply strategies for personal and professional development to enhance work performance.

VLO 7   Apply project management principles and tools when working on projects within a computing environment.

VLO 8   Adhere to ethical, legal, and regulatory requirements and/or principles in the development and management of computing solutions and systems.

VLO 10 Contribute to the development, documentation, implementation, maintenance and testing of software systems by using industry standard software development methodologies based on defined specifications and existing technologies/frameworks.

VLO 11 Apply one or more programming paradigms such as, object-oriented, structured or functional programming, and design principles, as well as documented requirements, to the software development process.

VLO 13 Contribute to the integration of network communications into software solutions by adhering to protocol standards.

Essential Employability Skills (EES) addressed in this course:	
EES 1	Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
EES 2	Respond to written, spoken, or visual messages in a manner that ensures effective communication.
EES 4	Apply a systematic approach to solve problems.
EES 5	Use a variety of thinking skills to anticipate and solve problems.
EES 6	Locate, select, organize, and document information using appropriate technology and information systems.

Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	Students are expected to be present to write all tests in class, unless otherwise specified. If a student is unable to write a test due to illness or a legitimate emergency, that student must contact the professor prior to class and provide reasoning. Should the student fail to contact the professor, the student shall receive a grade of zero on the test. If a student is not present 10 minutes after the test begins, the student will be considered absent and will not be given the privilege of writing the test.

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Students exhibiting academic dishonesty during a test will receive an automatic zero. Please refer to the College Academic Dishonesty Policy for further information.

In order to qualify to write a missed test, the student shall have:

a.) attended at least 75% of the classes to-date.

b.) provide the professor an acceptable explanation for his/her absence.

c.) be granted permission by the professor.

NOTE: The missed test that has met the above criteria will be an end-of-semester test.

Labs / assignments are due on the due-date indicated by the professor. Notice by the professor will be written on the labs / assignments and verbally announced in the class. Labs and assignments that are deemed late will have the following penalty: 1 day late - 10% reduction, 2 days late, 20% reduction, 3 days late, 30% reduction. After 3 days, no late assignments and labs will be accepted. It is the responsibility of the student who has missed a class to contact the professor immediately to obtain the lab / assignment. Students are responsible for doing their own work. Labs / assignments that are handed in and are deemed identical or near identical in content may constitute academic dishonesty and result in a zero grade.

Students are expected to be present to write in-classroom quizzes. There are no make-up options for missed in-class quizzes.

Students have the right to learn in an environment that is distraction-free, therefore, everyone is expected to arrive on-time in class. Should lectures become distracted due to students walking in late, the professor may deny entry until the 1st break period, which is 50 minutes into the class or until that component of the lecture is complete.

Grade
Definition Grade Point Equivalent
A+ 90 - 100% 4.00
A 80 - 89%
B 70 - 79% 3.00
C 60 - 69% 2.00
D 50 - 59% 1.00
F (Fail) 49% and below 0.00

CR (Credit) Credit for diploma requirements has been awarded.
S Satisfactory achievement in field /clinical placement or non-graded subject area.
U Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR Grade not reported to Registrar`s office.
W Student has withdrawn from the course without academic penalty.

Books and Required Resources:	Only reference documentation and free education resources are used in this course

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
Discuss current trends in web application design	1.1 Explain the components of the JavaScript/APIs/Markup (JAM) stack

	1.2 Contrast JAM applications with MVC applications 1.3 Describe the purpose and design of progressive web apps 1.4 Describe static site generators and when their use is appropriate 1.5 Describe low-code/no-code frameworks and explain their dis/advantages
Course Outcome 2	**Learning Objectives for Course Outcome 2**
Build web applications using a front-end framework	2.1 Describe the nature of front-end frameworks and their common components 2.2 Explain the differences between popular front-end frameworks 2.3 Build reusable web components 2.4 Arrange components into a complete user interface using a front-end framework 2.5 Use the routing tools of a front-end framework to manage browser history in a web application 2.6 Explain why state management can be a challenge in front-end frameworks 2.7 Use the state management tools of a front-end framework to manage application and component state
Course Outcome 3	**Learning Objectives for Course Outcome 3**
Integrate web applications with web APIs	3.1 Describe the nature of HTTP APIs 3.2 Make requests and integrate the response of HTTP APIs in a web application 3.3 Perform authentication and make authenticated API requests 3.4 Distinguish GraphQL APIs from regular HTTP APIs 3.5 Describe GraphQL syntax 3.6 Write GraphQL queries to obtain information from a GraphQL API 3.7 Create GraphQL mutations to modify server-side data 3.8 Integrate a GraphQL API into a web application
Course Outcome 4	**Learning Objectives for Course Outcome 4**
Use existing tools and development environments to initialize, build, test, and run web applications	4.1 Install and configure IDE plugins to support web application development 4.2 Install and configure application dependencies 4.3 Configure and run build processes 4.4 Configure and run development and test servers 4.5 Describe the purpose of `hot reloading` 4.6 Configure, write, and run tests to ensure the correct functioning of a web application

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Lab Assignments	40%
Oral Assessment	20%
Test 1	20%
Test 2	20%

Date:	May 31, 2023
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.