

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING***SE 3316A: Web Technology*****Course Outline Fall 2024**

COURSE DESCRIPTION: This course covers the technologies, protocols and architectures of the Internet. A major focus of this course is the technology and the drive towards interactive web applications. To achieve this, we will start with a brief introduction of the HTTP protocol as well as the syntax of associated languages (HTML, XML and CSS) and client-side/server-side scripting languages (JavaScript, PHP). We will take an in-depth look at the Representational State Transfer (ReST) paradigm and core components such as Asynchronous JavaScript and XML (AJAX), databases, and frameworks such as Angular that are used to build modern web applications that integrate services from multiple vendors. With this background, we will look at the concept of semantic web as well as the technologies that are being used in it. In each segment, we will also discuss the business implications of each of the protocols and their effect on application design. Throughout the course, we will also look at some of the legal, ethical and social issues surrounding these technologies.

ACADEMIC CALENDAR:

https://www.westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_022289_1

Technologies, protocols and architectures of the Internet. From HTML, XML, JavaScript to paradigms such as ReST and AJAX and software frameworks for developing modern web applications and integrating services from 3rd parties. We will also look at semantic web, business implications of these protocols as well as legal, ethical and social issues surrounding these technologies. Extra Information: 3 lecture hours, 2 laboratory hours.

PRE OR COREQUISITES: Prerequisites: SE 2205A/B; Co-requisite: ECE 4436 A/B

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record.

ANTIREQUISITES: None

CEAB ACADEMIC UNITS: Engineering Science 75%, Engineering Design 25%

INSTRUCTOR INFORMATION:

Name: Dr. Jagath Samarabandu, P.Eng.

Office/Office Hours: Wed. 10:30am-12pm or by appointment.

Phone: 519-661-2111 x80058

Email: jagath@uwo.ca

CONTACT HOURS:

Timetable information is available at <https://draftmyschedule.uwo.ca/>.

Lectures occur weekly starting September 5. Laboratory sessions occur weekly starting September 9.

LECTURE:	Sec 1: Mon. 2:30pm, Wed. 9:30am, Fri. 12:30pm Sec 2: Tue. 1:30pm, Wed. 8:30am, Fri. 1:30pm
LAB:	2 hours every week. Sec 3: Thu. 3:30pm; Sec 4: Fri. 8:30am; Sec 5: Tue. 8:30am
TUTORIAL:	None

RECOMMENDED/REQUIRED TEXT: None

RECOMMENDED SOFTWARE: Visual Studio Code, Node.js, Github Desktop

RECOMMENDED RESOURCES/REFERENCES: None

GENERAL LEARNING OBJECTIVES (CEAB GRADUATE ATTRIBUTES)

Knowledge Base	I	Engineering Tools	A	Impact on Society	D
Problem Analysis	D	Individual & Teamwork		Ethics and Equity	
Investigation		Communication		Economics and Project Mgmt.	
Design	D	Professionalism		Life-Long Learning	D

Notation: x represents the content level code as defined by the CEAB. blank = not applicable; I = introduced (introductory); D = developed (intermediate) and A = applied (advanced).

Rating: I – The instructor will introduce the topic at the level required. It is not necessary for the student to have seen the material before. D – There may be a reminder or review, but the student is expected to have seen and been tested on the material before taking the course. A – It is expected that the student can apply the knowledge without prompting (e. g. no review).

COURSE MATERIALS: Weekly content and guides for the laboratories will be available on the course OWL site. The material for this course will be taught in both lectures and labs; therefore, it is imperative that you attend each lecture and lab.

UNITS: SI

COURSE TOPICS AND SPECIFIC LEARNING OUTCOMES: This course covers the technologies, protocols and architectures of the Internet. Throughout the course, we will also look at some of the legal, ethical and social issues surrounding these technologies.

The following table summarizes the course learning outcomes along with CEAB GAIs where the GAIs in bold indicate ones to be measured and reported annually.

COURSE TOPICS AND SPECIFIC LEARNING OUTCOMES	(CAEB) Graduate Attribute
<p>1. Introduction to network basics and world-wide web: HTML, CSS, client-side scripting with JavaScript, URL notation and Unicode [2 weeks] At the end of this section, students will be able to:</p> <ul style="list-style-type: none"> a. Identify the use of these technologies in a given web application b. Create simple HTML pages with client-side JavaScript c. Be able to describe the process of creating and deploying a static HTML web page 	<p>KB4, ET1, LL1, LL2</p>
<p>2. Web technologies: HTTP protocol, server-side scripting with JavaScript, REST-full web services, XML processing, AJAX, creating and consuming web services [4 weeks] At the end of this section, students will be able to:</p> <ul style="list-style-type: none"> a. Define all the components of the HTTP protocol b. Create simple server-side scripts with JavaScript c. Create a REST-full web service 	<p>KB4, PA, D, ET1, LL1, LL2</p>
<p>3. Web applications: Use of server-side applications such as databases in web applications, software frameworks for creating web applications, integrating services from other vendors on to web applications. [4 weeks] At the end of this section, students will be able to:</p> <ul style="list-style-type: none"> a. Create a REST-full web service that uses server-side applications b. Use Angular framework for creating a web application. c. Integrate services such as social media and authentication from other vendors on to a web application 	<p>KB4, PA, D, ET1, LL1, LL2</p>

<p>4. Semantic Web: Resource Description Framework (RDF), RDF Schema, Web Ontology Languages (OWL) [1 week] At the end of this section, students will be able to:</p> <ol style="list-style-type: none"> Identify the role of RDF, RDF schema and OWL in semantic web Justify the use of these technologies in a given application scenario 	<p>KB4</p>
<p>5. Legal, ethical and social issues: Privacy, content control/regulation, children and the internet, intellectual property, unsolicited commercial email, on line communities, internet activism, disabilities and the web, taxation [1 week] At the end of this section, students will be able to:</p> <ol style="list-style-type: none"> Identify legal, ethical and social issues on developing and consuming web-based applications Describe specific legal, ethical and social issues in a given application scenario and identify measures to mitigate these issues 	<p>KB4, IESE1</p>

EVALUATION:

Name	% Worth	Assigned	Due Date	CEAB GAs ASSESSED
Weekly Quizzes	20%			
Laboratory	40%	See below	See below	ET1
Midterm Test	10%			KB4
Final Examination	30%			KB4, IESE1

Note that the dates listed below are **tentative** and may be adjusted if needed. Marks will be assigned based on method of analysis and presentation, correctness of solution, clarity and neatness.

COURSE POLICIES:

All work submitted must be of professional quality in the requested format. Material that is handed in dirty, illegible, disorganized, or in an unapproved format will be returned to the student for resubmission and the late submission penalty will take effect. An additional penalty of 10% may be deducted for poor grammar, incoherence, or lack of flow in the written reports.

To obtain a passing grade in the course, a mark of 50% or more must be achieved on the final examination and 60% on the laboratory. A final examination < 50% or a laboratory mark < 60% will result in a final course grade of 48% or less. These conditions will be strictly enforced. Please contact the instructor before December if you think you are in danger of failing due to an insufficient lab mark.

Quizzes: Weekly quizzes (in-class) on Fridays.

This course has 10 quizzes, each with 3-5 questions and will contribute toward 20% of the course grade. The best 8 out of 10 quizzes will contribute toward 20% your final grade. Academic consideration will not be granted for missed quizzes. If students miss 2/10 quizzes, the remaining 8 quizzes will be used in the calculation of the final grade. If students miss more than 2 quizzes, they will receive a grade of zero on each missed quiz. In-class participation required for all quizzes.

Laboratories: All labs are due by 5pm on the Friday it is due. Labs must also be demonstrated by the end of your lab section to receive the lab mark. You may submit within 48 hours without penalty. Late submissions for labs 1-3 are accepted until November 22 with a 50% penalty. For lab 4, if you are not able to submit it by the submission cutoff date, you may request permission for late submission with a 50% penalty by December 2nd in writing. This request must be approved by the department as well as the Undergraduate Services office and you will be given an opportunity to submit lab 4 by Jan 3, 2025.

Lab	Assigned	Due Date	Demonstrate by	Mark out of 100%
Lab 1 – HTML+CSS	Sep. 9	Sep. 20	Oct. 4	15%
Lab 2 – JavaScript	Sep. 16	Oct. 4	Oct. 18	10%
Lab 3 – REST API	Oct. 7	Nov. 1	Nov. 22	24%
Lab 4 – Full Stack	Nov. 4	Dec. 2	Dec. 11	51%

Labs will run every week. Attendance of lab sessions is mandatory for receiving help and for demonstration of each lab assignment. All laboratory exercises are to be completed individually. A minimum average of 60% across all laboratory exercises is required to pass the course.

FINAL EXAMINATION: The final exam will take place during the regular examination period. The final exam will be 90 minutes long, closed book. Only simple, nonprogrammable calculators are allowed. To obtain a passing grade in the course, a mark of 50% or more must be achieved on the final examination. A final examination mark < 50% will result in a final course grade of 48% or less. If the above conditions are not met, your final grade cannot be greater than 48%. Students who have failed this course (i.e., final average < 50%) must repeat all components of the course.

LATE SUBMISSION POLICY:

Advise the instructor if you are having problems completing the assignment on time prior to the due date of the assignment and be prepared to submit an Academic Consideration Request and provide documentation if requested by the instructor at:

<https://www.eng.uwo.ca/undergraduate/academic-consideration-for-absences.html>

If you are granted an extension, establish a due date with the instructor. The approval of the Chair of your Department is not required if assignments are completed prior to the last day of classes. Extensions beyond the end of classes must have the consent of the instructor, the department Chair and the Associate Dean, Undergraduate Studies.

Documentation is mandatory.

This course employs flexible deadlines for assignments. The assignment deadlines can be found above in the course outline. For each assignment, students are expected to submit the assignment by the deadline listed. Should illness or extenuating circumstances arise, students are permitted to submit their assignment up to 48 hours past the deadline without academic penalty. Should students submit their assessment beyond 48 hours past the deadline, a late penalty of 50% will be subtracted from the assessed grade. **As flexible deadlines are used in this course, requests for academic consideration will not be granted.** If you have a long-term academic consideration or an accommodation for disability that allows greater flexibility than provided here, please reach out to your instructor at least one week prior to the posted deadline.

ATTENDANCE: Attendance is not mandatory for lectures. Attendance is mandatory for labs on the day of demonstration.

ABSENCE FROM MANDATORY COURSE COMMITMENTS: Students must familiarize themselves with the Policy on **Academic Consideration for Absences:**

<https://www.eng.uwo.ca/undergraduate/academic-consideration-for-absences.html>

I. Missed/Late Accommodation Policy

1. Students missing a test/assignment/lab or examination must report the absence by submitting Academic Consideration Request form through [STUDENT ABSENCE PORTAL](#).
2. Documentation must be provided as soon as possible.
3. Forged notes and certificates will be dealt with severely. To submit a forged document is a scholastic offence.

II. Exam Accommodation

1. If you are unable to write a final examination, report your absence using the Academic Consideration Request Form through [STUDENT ABSENCE PORTAL](#).
2. Be prepared to provide the Undergraduate Services Office with supporting documentation (see next page for information on documentation) the next day, or as soon as possible (in cases where students are hospitalized). **The following circumstances are not considered grounds for missing a final examination or requesting special examinations: common cold, headache, sleeping in, misreading timetable and travel arrangements.**
3. In order to receive permission to write a Special Examination, you must obtain the approval of the Chair of the Department and the Associate Dean and in order to apply you must submit an the Academic Consideration Request Form through [STUDENT ABSENCE PORTAL](#).

PLEASE NOTE: It is the student's responsibility to check the date, time and location of the Special Examination.

III. LATE ASSIGNMENTS

IV. Medical Accommodation

1. Requests for Academic Consideration Request Form through [STUDENT ABSENCE PORTAL](#).
2. Requests for academic consideration must include the following components:
 - a. Self-attestation signed by the student (*This is only accepted for the first/one absence*)
 - b. Medical note. Forged notes and certificates will be dealt with severely. To submit a forged document is a scholastic offence.

- c. Indication of the course(s) and assessment(s) affected by the request
 - d. Supporting documentation as relevant
3. Requests without supporting documentation are limited to one per term per course.
4. **Students must request academic consideration as soon as possible and no later than 48 hours after the missed assessment.**
5. Once the request and supporting documents have been received and reviewed, appropriate academic consideration, if granted, shall be determined by the instructor in consultation with the academic advisor, in a manner consistent with the course outline.

Academic consideration may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, or re-weighting of course requirements. Some forms of academic consideration, such as arranging Special Examinations, assigning a grade of Incomplete, or granting late withdrawals without academic penalty, may only be granted by the Academic Advising office of the Faculty of Registration.

6. **An instructor may deny academic consideration for any assessment that is not required in the calculation of the final grade** (e.g., "8 of 10 quizzes"). Assessment flexibility is indicated on the course outline.
7. **An instructor may deny academic consideration relating to the timeframe submission of work where there is already flexibility in the submission timeframe** (e.g., 48-hour submission window). This assessment flexibility is indicated on the course outline.

V. **Religious Accommodation**

When scheduling unavoidably conflicts with religious holidays, which (a) require an absence from the University or (b) prohibit or require certain activities (i.e., activities that would make it impossible for the student to satisfy the academic requirements scheduled on the day(s) involved), no student will be penalized for absence because of religious reasons, and alternative means will be sought for satisfying the academic requirements involved. If a suitable arrangement cannot be worked out between the student and instructor involved, they should consult the appropriate Department Chair and, if necessary, the student's Dean.

It is the responsibility of such students to inform themselves concerning the work done in classes from which they are absent and to take appropriate action.

VI. **Academic Integrity**

In the Faculty of Engineering, we encourage students to create a culture of honesty, trust, fairness, respect, responsibility, and courage, befitting the professional degree you are pursuing.

Please visit [Academic Integrity Western Engineering](#) for more information

VII. **Academic Offences**

Plagiarism means using another's work without giving credit. The university has rules against plagiarism and other scholastic offences. Western Engineering has a zero-tolerance policy on plagiarism. The minimum penalty is zero on the course work and a repeat offence will earn you zero on the course. A third offence may lead to expulsion from the university.

[Scholastic Discipline for Undergraduate Students & Cheating, Plagiarism and Unauthorized Collaboration: What Students Need to Know](#)

Students must write their reports, essays and assignments in their own words. Whenever students take an idea or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. University policy states that cheating, including plagiarism, is a scholastic offence. The commission of a scholastic offence is attended by academic penalties, which might include expulsion from the program. If you are caught cheating, there will be no second warning.

All required papers may be subject to submission for textual similarity review to commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted will be included as source documents on the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between the University of Western Ontario and Turnitin.com (<http://www.turnitin.com>). Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, in the relevant section of the Academic Handbook:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

VIII. Faculty of Engineering AI Policy

The use of generative Artificial intelligence (GenAI) tools won't be discouraged in the Faculty of Engineering. As we pride ourselves on building the future we can't hide from the use of GenAI tools to contribute to the understanding of the course materials. However, the use of GenAI tools in any assignment or contribution during the course will have to be disclosed, as a resource.

GenAI tools use won't be permitted in any type of examination or other assessments where the faculty have prohibited their use. If use of GenAI tools is detected by the instructor in these instances, academic offences penalties might be imposed against the student.

IX. Use of English Policy

In accordance with Senate and Faculty Policy, students may be penalized up to 10% of the marks on all assignments, tests, and examinations for improper use of English. Additionally, poorly written work except for the final examination may be returned without grading. If resubmission of the work is permitted, it may be graded with marks deducted for poor English and/or late submission.

X. Accessibility

Western is committed to achieving barrier free accessibility for persons with disabilities studying, visiting and working at Western. As part of this commitment, there are a variety of services, groups and committees on campus devoted to promoting accessibility and to ensuring that individuals have equitable access to services and facilities. To help provide the best experience to all members of the campus community, please visit the [Accessibility Western University](#) for information on accessibility-related resources available at Western.

Students with disabilities may arrange for academic accommodation at Western. For a more detailed explanation, please visit [Academic Support & Engagement -Academic Accommodation](#).

XI. Inclusivity, Diversity, and Respect

The Faculty of Engineering at Western University is committed to creating equitable and inclusive learning environments that value diverse perspectives and experiences. We recognize that university courses often marginalize students based on social identity characteristics such as, but not limited to, Indigeneity, race, ethnicity, nationality, ability, gender identity, gender expression, sexuality, age, language, religion, and socioeconomic status. Understanding this, we strive to facilitate equitable experiences and inclusion

within the classroom by respecting and integrating multiple ways of knowing, being, and doing. Please visit the [Office of Equity, Diversity and Inclusion](#).

XII. Health and Well-Being

- [Health & Wellness Services – Students](#) - Offers appointment-based medical clinic for all registered part-time and full-time students.
- [Mental Health Support](#) - Provides professional and confidential services, free of charge, to students needing assistance to meet their personal, social and academic goals. Services include consultation, referral, groups and workshops, as well as brief, change-oriented psychotherapy.
- [Crisis Support](#) - For immediate assistance, please visit Thames Hall Room 2170 or call 519-661-3030. The crisis clinic operates between 11:00 am - 4:30 pm. For after-hours crisis support, click [here](#).
- [Gender-Based Violence and Survivor Support](#) - Western [is committed to reducing incidents of gender-based and sexual violence](#) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced gender-based or sexual violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts, [here](#). To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Important Contacts

Engineering Undergraduate Services	SEB 2097	519-661-2130	engugrad@uwo.ca
Electrical and Computer Engineering	TEB 279	519-661-2111 x86264	eceugrad@uwo.ca
Office of the Registrar/Student Central	WSSB 1120	519-661-2100	

Important Links

- [WESTERN ACADEMIC CALENDAR](#)
- [ACADEMIC RIGHTS AND RESPONSIBILITIES](#)
- [ENGINEERING PROGRESSION REQUIREMENTS AND ACADEMIC REGULATIONS](#)
- [UNIVERSITY STUDENTS' COUNCIL \(USC\) - SERVICES](#)
- [IMPORTANT DATES AND DEADLINES](#)
- [ACADEMIC CONSIDERATION FOR MEDICAL ILLNESS - UNDERGRADUATE STUDENTS](#)
- [ACCOMMODATIONS FOR RELIGIOUS HOLIDAYS](#)
- [SCHEDULING OF ASSIGNMENTS, TESTS, AND EXAMINATIONS](#)
- [STUDENT FORMS](#)
- [OFFICE OF THE REGISTRAR](#)
- [RETENTION OF ELECTRONIC VERSION OF COURSE OUTLINES \(SYLLABI\)](#)
- [ACADEMIC APPEALS](#)
- [STUDENT ABSENCE PORTAL](#)