A study of the technical infrastructure that underlies Electronic Commerce on the Internet. The foundational concepts are presented through a series of projects that use an industrial-strength framework on the server side, standard-compliant technologies on the client side, and a variety of messaging protocols on the network side. Best practices, security concerns, and performance issues are emphasized throughout. Prerequisite: cumulative GPA of 4.50 or better over all major EECS courses (without second digit "5"); LE/EECS 2030 3.00 or LE/EECS 1030 3.00; LE/EECS 2011 3.00. Previously offered as: LE/CSE 4413 3.00.

INSTRUCTOR(S)

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<tr>
<td>Roumani, Hamzeh</td>
<td>Sec. A / LECT / F</td>
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ADDITIONAL INFORMATION

COURSE TOPICS

The Server Side
1. TCP and HTTP, Stateful and RESTful Web Services, Cloud Computing (sockets/Thrift, Web Servers, NodeJS/Tomcat, AWS, Google Cloud Platform)
2. The Data Tier (dal/dao, xml/ JSON, jaxb/Gson, jdbc/sql)
3. Web Analytics (lifetime event listeners, ad-hoc features and filters, tracking)

The Client Side
1. Content, Presentation, Formatting, and Behaviour (xml, html, css, JavaScript)
2. Binding and Templating (TypeScript, Express, Handlebars, Angular or React)
3. Dynamic View Generation (SPA, DOM, Ajax, JSON)

Cross-Cutting Themes
1. Design Patterns and Best Practice (MVC)
2. Security (firewall, authentication, CSRF, SQL Injection, ...)
3. Scalability and Emerging Trends (caching, threading, connection pooling)

COURSE LEARNING OUTCOMES

1. Create a server or client of a given specs and exchange data in various encodings.
2. Create a webapp (or critique one) that serves a page, performs a computation (possibly involving a database or a service), and returns the result to the client.
3. Given a webapp, augment it with analytics and client-side behaviour.
4. Given a webapp, identify its security vulnerabilities, harden it, and add auth.
5. Given a webapp, turn it into a service and shift its view handling to the client side.
6. Explain one of the covered frameworks and apply it to a given webapp.
COURSE TEXTBOOK
None

RECOMMENDED RESOURCES
• J2EE at coreservlets.com
• The W3Schools at w3schools.com
• The Angular Tutorial at angular.io
• TypeScript at tutorialPoints.com
• Amazon's aws.amazon.com
• GCP https://cloud.google.com/docs/tutorials

ASSESSMENT
20% - Projects
28% - Test 1
28% - Test 2
24% - Final Exam

ACADEMIC INTEGRITY LINKS
• Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
• Academic Integrity - http://lassonde.yorku.ca/academic-integrity

STUDENT LINKS
• Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
• Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
• Academic Accommodation for Students with Disabilities - http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/
• Student Accessibility Services (SAS) - https://accessibility.students.yorku.ca/
• York University’s Policies on Sexual Violence - http://secretariat-policies.info.yorku.ca/policies/sexual-violence-policy-on/
• York University’s Policies on Gender/LGBTQ*/Positive Space - http://rights.info.yorku.ca/lgbtq/

LAND ACKNOWLEDGEMENT
• We acknowledge our presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the New Credit First Nation. This territory is subject of the Dish With One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.
• The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/
• Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.
Moodle @ York University