SYD466 - Software Analysis and Design - II

Winter 2025 Syllabus, Section V1A, Class Nbr 2022

Course Description

This course develops students abilities to define system requirements for a medium to large scale business. Students follow a case study from the introduction of a Request for Proposal (RFP) through the required analysis to produce an effective response to the RFP. Importance of problem definition and Stakeholder requirements are emphasized. Students will use OO design techniques to produce artifacts. The course concludes with a presentation to the customer, detailing how the student will solve the business problem.

Prerequisite(s)

SYD366

Instructor Information

Navid Mohaghegh - Primary Instructor
Email: navid.mohaghegh@senecapolytechnic.ca

Online Synchronous Mode

This class will be taught via an **online synchronous** instruction mode. Students are required to attend scheduled classes online and expected to engage in real-time interactive lectures.

Times and Location

Th 7pm-10pm

Course Learning Outcomes

Upon successful completion of this course the student will be able to:

1. Describe the activities that a medium-large scale business performs to ensure profitability
2. Identify project stakeholders and define their system requirements
3. Define business problems and describe the impact on stakeholders
4. Document business processes using selected methodology artifacts.
5. Create complex models using UML Standards, detailing system requirements and designs.
6. Work effectively as part of a consulting team to develop and present the requirements for a best fit software solution.

Essential Employability Skills

- communicate clearly, concisely, and correctly in the written, spoken, and visual form that fulfils the purpose and meets the needs of the audience
- respond to written, spoken, or visual messages in a manner that ensures effective communication
- apply a systematic approach to solve problems
- use a variety of thinking skills to anticipate and solve problems
- locate, select, organize, and document information using appropriate technology and information systems
- analyse, evaluate, and apply relevant information from a variety of sources
- show respect for the diverse opinions, values, belief systems, and contributions of others
- interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals
- manage the use of time and other resources to complete projects
- take responsibility for one's own actions, decisions, and consequences

To find out the cost of books and learning material go here (https://www.bkstr.com/senecastore/shop/textbooks-and-course-materials/).

Any courses not listed on the bookstore webpage do not require any resources for purchase. All resources will be provided by your instructor.

Reference Material

Reference Texts

There are no required textbooks for this course, but if you are looking for more information, the following are useful reference materials:

- Essentials of Systems Analysis and Design Sixth Edition by Joseph S. Valacich, Joey F. George, Jeffrey A. Hoffer, Pearson ISBN: 9780137612420
- SYD366 Course Notes – available through Blackboard
- Use Case Modeling by Kurt Bittner, Addison-Wesley, ISBN 0-201-70913-9
- UML for the IT Business Analyst: A Practical Guide to Object-Oriented Requirements Gathering by Howard Podeswa
  [Seneca Online Library: http://proquest.safaribooksonline.com/1592009123 (http://proquest.safaribooksonline.com/1592009123/)]
- Software Requirements, Second Edition Karl E. (Chapters 1-9)
  [Seneca Online Library: http://lcweb.senecac.on.ca:2052/toc.asp?site=RYW9D&bookid=6818 (http://lcweb.senecac.on.ca:2052/toc.asp?site=RYW9D&bookid=6818)]
- Use Cases: Requirements in Context, Second Edition by Daryl Kulak; Guiney
  [Seneca Online Library: http://lcweb.senecac.on.ca:2063/0321154983 (http://lcweb.senecac.on.ca:2063/0321154983/)]
- Systems Analysis and Design in a Changing World by John Satzinger, Robert Jackson, and Stephen D.Burd,
  Cengage Learning, ISBN 978-1-305-11720-4
- Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development (3rd Edition) by Craig Larman
  Prentice Hall, 0-13-148906-2

Modes of Evaluation

Assessment Type	Percentage
Assignment 1	15%
Assignment 2	15%
Assignment 3	15%
Midterm	25%
Exam	35%
Total	100%

Note

Requirements for Passing this Course

You must achieve all of the criteria listed below in order to pass this course:

- a grade of 50% or better on the overall course (Note: this means that you must have a 50% or better average on your term work in order to pass the course.)
- a grade of 50% or better across the weighted average of Tests

Schedule of Topics and Assignments

Day	Date	Agenda/Topic	Reading(s)	Due
Thu	1/16	Introduction to Object-Oriented Systems Analysis and Design and related Technical Project Management tasks. Overview of Object-Oriented Systems Development. Project management methodologies: Waterfall and Agile. Setting up the development and project management environment.	ESAD Chapter 1 and 2	

Thu	1/23	System Development Approach and Project Initiation Review of the Object-Oriented Systems Development approach. Project initiation: Identifying project objectives, timelines, Gantt charts, scope, and managing stakeholders. Creating use-cases and Project Charter, Goal, Benefits, and Risks.		Assignment 1 Released
Thu	1/30	System Development Approach and Project Initiation Review of the Object-Oriented Systems Development approach. Project initiation: Identifying project objectives, timelines, Gantt charts, scope, and managing stakeholders. Creating use-cases and Project Charter, Goal, Benefits, and Risks.	ESAD Chapter 3, 4, and 5	
Thu	2/6	Requirements Gathering and Analysis Techniques for effective business and system requirements analysis. Structuring OOSD requirements using various diagrams. Stakeholder analysis and impact assessment.		
Thu	2/13	Documentation Techniques and Data Modeling Introduction to UML, swimlane diagrams, and other documentation artifacts. Conceptual Data Modeling in OOSAD. Documenting business processes using UML and process flow swimlane diagrams (Rummler-Brache diagrams).		Assignment 2 Released Assignment 1 Is Due
Thu	2/20	Advanced Modeling and Project Planning Advanced UML modeling for system requirements and designs. Detailed project planning and defining project governance. • Use case, sequence, and class diagrams in practical scenarios.	ESAD Chapter 6 and 7	
Thu	2/27	Midterm		Mditerm
Thu	3/6	Teamwork in OOSAD and Consulting Effective teamwork in OOSAD and consulting environments. Developing and presenting requirements for software solutions. Case studies and practical exercises.		Assignment 3 Released Assignment 2 is Due
Thu	3/13	Strategies for responding to RFI, RFP, RFS in project management. Creating and interpreting interaction diagrams in OOSAD. Real-world examples and case studies.	ESAD Chapter 8, 9, and 10	

Thu	3/20	System and Project Design System design in OOSAD: Architecture and design elements. Project execution phase: Analysis and design using Agile and Waterfall. Developing packaged designs and deliveries: BRD, SDS, STS, UAT, Buildbooks, Runbooks and SOPsz		
Thu	3/27	Data storge, Database Design and Project Implementation Designing object and hybrid object-relational databases. Implementation strategies with pros and cons. Testing methodologies .		
Thu	4/3	Human Interface Designs, UX, and Wireframes and user story mappings Historical aspects and trends in human-computer interaction Project support and maintenance strategies. Preparing system reports, Buildbooks, Runbooks, and SOPs.	ESAD Appendix A and B	
Thu	4/10	Advanced Topics and CASE Tools Implementation and Project Closure Steps for project closure, review, and lessons learned Ongoing Operation phase: Deployments, documentation, user training, system maintenance.		Assignment 3 Due
Thu	4/17	Final Exam		Final Exam

Missed Tests/Late Assessments

Due dates for all evaluations and assessments are posted. Evaluations can include projects, podcasts, videos, assignments, quizzes and/or tests and exams. Students are expected to meet the specified dates and deadlines. It is a best practice for all students to keep a copy of all submitted assignments.

Students who have extenuating circumstances that result in their being unable to meet the stated deadline are encouraged to contact their professor(s). A professor may (or may not) grant an extension to a posted due date. Such extension requests must be discussed prior to the due date, or very closely following. Late submission or completion of any assessments may be subject to a penalty grade deduction. Once feedback is posted and/or discussion of the assessment has taken place, students may not submit that version of the assessment for grading.

Feedback on Assessments

Feedback to students regarding graded assessments can be provided in any of the following ways: posted on LEARN@Seneca, added to Grade Centre comments, taken up synchronously, and/or discussed with students.

Students are welcome to discuss feedback on completed and submitted assessments with their professor during a synchronous class, during posted "virtual" office hours, or by a mutually agreed upon appointment.

Student Progression and Promotion Policy

Letter Grade	Percentage Grade
A+	90% to 100%
A	80% to 89%
B+	75% to 79%
B	70% to 74%

C+	65% to 69%
C	60% to 64%
D+	55% to 59%
D	50% to 54%
F	0% to 49% (Not a Pass)
OR	
EXC	Excellent
SAT	Satisfactory
UNSAT	Unsatisfactory

Listed below are a number of important links to Seneca Polytechnic policies.

- Student Progression and Promotion Policy (http://www.senecapolytechnic.ca/about/policies/student-progression-and-promotion-policy.html)
- Grading Policy (http://www.senecapolytechnic.ca/about/policies/grading-policy.html)
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Technical Requirements

The following checklists outline the technical requirements for all students starting and continuing at Seneca:

Hardware checklist

- a computer that runs on Windows 10 or the latest Mac OSX and has up to date virus protection software
  - Windows 10 ARM64 (https://support.microsoft.com/en-us/windows/windows-10-arm-based-pcs-faq-477f51df-2e3b-f68f-31b0-06f5e4f8ebb5/) devices are **not recommended** as they will not allow you to install AppsAnywhere, GlobalProtect, VPN, MyApps or use Virtual Commons and other virtual machine apps
- high-speed broadband access (Cable or DSL) is highly recommended. Some programs or courses require more advanced systems. Please refer to the program information page for information on specialized requirements
- headphones or speaker and a microphone for in-class conversations and meetings with your professors
- a webcam (may be required for specific courses)
- individual courses may have additional hardware requirements

Software checklist

- a web browser, such as Safari, Firefox, MS Edge, Google Chrome. Please note: You may need to upgrade your web browser to access online learning tools
- various applications are available to all full-time Seneca students, including Microsoft Office 365, Adobe Creative Suite, and Trend Micro
- Adobe Creative Suite includes a number of applications such as Premiere, Photoshop and more
- online teaching tools, including Blackboard, MS Teams, Zoom, BigBlueButton, and Webex
- individual courses may have additional software requirements for playing audio or video or other applications. You can also review the list of applications made available for home use on a Windows-based machine (http://myapps.senecapolytechnic.ca/)
  Note: Some applications may require you to install Student VPN to access licensed software
- antimalware software must be installed on all personal devices that will be used with your Seneca account. Visit the Malware and Virus Protection (https://students.senecapolytechnic.ca/spaces/185/it-security/wiki/view/963/malware-and-virus-protection/) page for free and paid antimalware software recommendations, or visit the Trend Micro Internet Security (https://students.senecapolytechnic.ca/spaces/189/software/wiki/view/1360/trend-micro-internet-security/) page for a free one-year license of this commercial antimalware software

Mobile devices checklist

- Mobile devices may allow for some participation in your course(s), however they present limitations and we cannot guarantee your device will meet all your coursework needs.
- All students are required to install and use Microsoft Authenticator (https://students.senecapolytechnic.ca/spaces/186/it-services/wiki/view/4168/microsoft-multi-factor-authentication/) to access various services at Seneca. It's an important measure that provides an added layer of security on top of the login credentials for devices. In addition to using your username and password to log into these secure services, a second factor of authentication is required so that if your password becomes compromised, the intruder will not be able to log in. Use of multi-factor authentication is currently required for Blackboard, Office 365 (https://students.senecapolytechnic.ca/spaces/186/it-services/wiki/view/1003/office-365/) and VPN (https://students.senecapolytechnic.ca/spaces/186/it-services/wiki/view/1024/vpn/).

- A compatible Android (https://play.google.com/store/apps/details/?id=com.azure.authenticator) or iOS (https://apps.apple.com/app/microsoft-authenticator/id983156458/) mobile device that can be used to install Microsoft Authenticator is required.
- A cellphone data plan is not a mandatory requirement to use the Microsoft Authenticator app. The app can be used through a Wi-Fi connection or with no data connection.
- If you have a basic cellphone, you can choose to receive an SMS or a phone call as verification for second factor authentication.
- The Microsoft Authenticator app does not store any personal data.
- Authenticating through a mobile device is the only available option.

Helpful sites to bookmark:

- MySeneca.ca (https://outlook.office.com/mail/inbox/) – access your Seneca email account
- Learn@Seneca (https://learn.senecapolytechnic.ca/ultra/institution-page/) – Seneca's learning management system and intranet portal

Seneca Polytechnic Library Resources

Be sure to begin all research, assignment support and career preparation at Seneca Polytechnic Libraries (http://library.senecapolytechnic.ca) website. Students can find information about our services and collections including, print and e-books, databases that will lead to thousands of articles in magazines, newspapers, journals, encyclopedias, carefully selected websites, how-to tutorials, streamed videos and much more.

Citation Style Guidelines (https://library.senecapolytechnic.ca/citingsources/): APA/MLA. Please check with your professor on the preferred formatting.

Seneca Policies

Below are the Seneca policies and links to more information.

Academic Integrity

Seneca upholds a learning community that values academic integrity, honesty, fairness, trust, respect, responsibility and courage. These values enhance Seneca's commitment to deliver high-quality education and teaching excellence, while supporting a positive learning environment. Ensure that you are aware of Seneca's Academic Integrity Policy (http://www.senecapolytechnic.ca/about/policies/academic-integrity-policy.html) Review section 2 of the policy for details regarding approaches to supporting integrity. Section 2.3 and Appendix B of the policy describe various sanctions that can be applied, if there is suspected academic misconduct (e.g., contract cheating, cheating, falsification, impersonation or plagiarism).

Please visit the Academic Integrity at Seneca (http://open2.senecac.on.ca/sites/academic-integrity/for-students/) website to understand and learn more about how to prepare and submit work so that it supports academic integrity, and to avoid academic misconduct.

Discrimination/Harassment

All students and employees have the right to study and work in an environment that is free from discrimination and/or harassment. Language or activities that defeat this objective violate Seneca's Policy on Discrimination/Harassment and shall not be tolerated. Information and assistance are available from the Student Conduct Office at student.conduct@senecapolytechnic.ca.

Accommodation for Students with Disabilities

Seneca will provide reasonable accommodation to students with disabilities to promote academic success. If you require accommodation, contact the Accessible Learning Services Office *(senecacnas@senecapolytechnic.ca)* to initiate the process for documenting, assessing and implementing your individual accommodation supports for the classroom and Work-Integrated Learning (WIL) environments.

Accommodated students are required to meet the expected learning outcomes of courses. Accommodations do not surpass the need for safety, or supersede academic policies and requirements.

Camera Use and Recordings - Synchronous (Live) Classes

Synchronous (live) classes may be delivered in person, in a Flexible Learning space, or online through a Seneca web conferencing platform such as MS Teams or Zoom. Flexible Learning spaces are equipped with cameras, microphones, monitors and speakers that capture and stream instructor and student interactions, providing an in-person experience for students choosing to study online.

Students joining a live class online may be required to have a working camera in order to participate, or for certain activities (e.g. group work, assessments), and high-speed broadband access (e.g. Cable, DSL) is highly recommended. In the event students encounter circumstances that impact their ability to join the platform with their camera on, they should reach out to the professor to discuss. Live classes may be recorded and made available to students to support access to course content and promote student learning and success.

By attending live classes, students are consenting to the collection and use of their personal information for the purposes of administering the class and associated coursework. To learn more about Seneca's privacy practices, visit Privacy Notice (https://www.senecapolytechnic.ca/privacy.html).

Last updated: January 29, 2025 at 6:24 p.m.