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## SYSTEM ANALYSIS, DESIGN AND TESTING

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### School of Comp. Technology

<b>Course Code:</b> COMP2147	<b>Co-Requisites:</b> Please see Course Related Information	<b>Pre-Requisites:</b> COMP1231
<b>Applicable Program(s):</b> T127 - Computer Programmer Analyst	<b>Core/Elective:</b> Core	
<b>Prepared by:</b>	Abid Rana, Professor	
<b>Approved by:</b>	Albert Danison, Chair - SCT	
<b>Approval Date:</b>	Wednesday, September 23, 2020	
<b>Approved for Academic Year:</b>	2020-2021	
<b>Contact Hours:</b>	56.00	
<b>Credit Hours:</b>	4.00	

### Course Description

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This course covers the concepts, skills, tools, and techniques of object-oriented systems analysis, design and testing. The concentration is on Rational Unified Methodology and the Unified Modeling Language, Version 2.0. Students will create models and artifacts necessary to furnish the requirement elicitation and structuring, object and data management, and user interface aspects of object-oriented systems analysis and design (OOSAD) methodology using the Visual Paradigm? CASE tool.

### Essential Employability Skills

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This course contributes to your program by helping you achieve the following Essential Employability Skills:

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| EES 1 | COMMUNICATION: Communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience. (P, E,) |
| EES 2 | COMMUNICATION: Respond to written, spoken or visual messages in a manner that ensures effective communication. (T, P, E,)   |
| EES 3 | NUMERACY: Execute mathematical operations accurately. (T, P, E,)  |
| EES 4 | CRITICAL THINKING & PROBLEM SOLVING: Apply a systematic approach to solve problems. (T, P, E,)  |
| EES 5 | CRITICAL THINKING & PROBLEM SOLVING: Use a variety of thinking skills to anticipate and solve problems. (T, P, E,)  |
| EES 6 | INFORMATION MANAGEMENT: Analyze, evaluate and apply relevant information from a variety of sources. (T, P, E,)  |

EES 7	INFORMATION MANAGEMENT: Locate, select, organize and document information using appropriate technology and information systems. (P, E,)
EES 8	INTERPERSONAL: Show respect for diverse opinions, values, belief systems and contributions of others. (P,)
EES 9	INTERPERSONAL: Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals. (T, P,)
EES 10	PERSONAL: Manage the use of time and other resources to complete projects. (P,)
EES 11	PERSONAL: Take responsibility for one's own actions, decisions and consequences. (P,)

Note: "T" means elements of the skill are taught; "P" means elements of the skill are practiced; "E" means elements of the skill are evaluated; "C" means the skill culminates.

## Course Learning Outcomes

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When you have earned credit for this course, you will have demonstrated the ability to:

CLO 1	COMP2147 CLO1 - Apply an Object-Oriented System Analysis and Design (OOSAD) development methodology for developing and evolving software systems.
CLO 2	COMP2147 CLO2 - Create standard UML diagrams for Object-Oriented Systems Analysis and Design methodology using a popular software engineering CASE tool i.e. Visual Paradigm®.
CLO 3	COMP2147 CLO3 - Elicit, refine, structure and document systems' requirements.
CLO 4	COMP2147 CLO4 - Create structured systems process models (Data Flow Diagrams).
CLO 5	COMP2147 CLO5 - Create use case, activity, and sequence and business process models in order to represent elementary business processes.
CLO 6	COMP2147 CLO6 - Create logical and physical data models and design class diagrams by refining the conceptual models created for domain entities.
CLO 7	COMP2147 CLO7 - Design and prototype the user interface for each use case scenario including all inputs and outputs.
CLO 8	COMP2147 CLO8 - Design user-centered Information systems by implementing usability principles and ensuring cross platform compatibility.
CLO 9	COMP2147 CLO9 - Design and implement unit, integration, acceptance and User Interface tests for information systems under development.
CLO 10	COMP2147 CLO10 - Evaluate various software testing techniques, automated tools and frameworks.

## Delivery Methods/Learning Activities

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The instructional methods of this course are comprised of a combination of lectures, demonstrations, hands-on exercises and take-home assignments.

## Learning Resources

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**Required:**

Modern Systems Analysis and Design, 9/E

Joseph Valacich and Joey F. George

ISBN-10: 0135172756 • ISBN-13: 9780135172759

**Recommended / Optional:**

N/A

## Course Related Information

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**PREREQUISITES:** COMP 1168

**COREQUISITES:** N/A

**TESTING POLICY**

- A score of zero will be recorded for a missed lab assignment, quiz, or written examinations unless the student presents the Professor with official substantiation of the absence the first day she or he returns to class.
- A penalty will be given to late projects and assignments; 10% penalty will be applied for every day that assignment is past its due date. An assignment can be late up to one week.
- Lab exercises must be completed during the scheduled lab hours and must be based on given instructions.

**ASSIGNMENT POLICY**

- Students are responsible for keeping a back-up copy of each assignment submitted.
- All assignments submitted should adhere to the documentation standards specified by the professor.
- Students should check the assignment handouts for the instructions for submission.
- Students are responsible for making sure their marks are up to date on the blackboard. Any request for a change in mark will not be entertained after two weeks from the day these marks were posted on Blackboard.

## George Brown Related Information

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**PROGRAM LEARNING OUTCOMES**

Every Ontario college program is designed to deliver a set of specific program learning outcomes – statements that describe the knowledge, skills and attitudes students are expected to acquire and demonstrate on completion of their program. College programs are designed to deliver specific learning outcomes that relate to the unique content of a particular area of study. To review the learning outcomes for your program, please go to your program page on the George Brown College website at <https://www.georgebrown.ca/>

**PROGRAM REQUIREMENTS**

Students are advised to consult program coordinators regarding specific requirements for successfully completing their program. It is essential that students review all college policies, including Academic Policies available at <https://www.georgebrown.ca/policies>. Students are required to apply themselves diligently to their course of study, and to prepare class and homework assignments as given. Past student performance shows a strong relationship between regular attendance and success.

## EQUITY STATEMENT

George Brown College values the diversity of our students, employees and community partners, and is committed to providing a learning environment where all people are safe and respected. Comments, behaviours or interactions that are inconsistent with our values may be a violation of the following college policies: Sexual Assault and Sexual Violence, Human Rights Discrimination and Harassment, and the Prevention of Workplace Violence and Harassment. These types of actions or comments are not acceptable and will not be tolerated. The commitment and cooperation of all students and employees is required to maintain a welcoming environment in which to learn and work.

Support and information are available through a Human Rights Advisor at [diversity@georgebrown.ca](mailto:diversity@georgebrown.ca) or the Sexual Violence Response Advisor at [svra@georgebrown.ca](mailto:svra@georgebrown.ca)

For information on the relevant policies visit <https://www.georgebrown.ca/diversity/>

## ACCESSIBLE LEARNING SERVICES FOR STUDENTS

Accessible Learning Services facilitates academic supports and services for George Brown students with physical, sensory, learning, medical or mental health disabilities. Delivered in collaboration with academic departments and other service areas, these services are available to students in all programs at all campuses.

George Brown College is committed to upholding a student's right to individualized and timely accommodation that promotes dignity, independence, autonomy, equity, and inclusion for the student. In addition to our current supports, we are working to eliminate disability-related barriers by increasing access to alternate formats, planning accessible buildings and classrooms, enhancing employee training, and adopting inclusive practices in placement and on campus.

Only those involved in a student's accommodation plan shall be alerted to their registration with Accessible Learning Services, and a student's registration with Accessible Learning Services will not be identified on the student's official college transcript and/or graduation documentation. For more information, please visit the Accessible Learning Services website at <http://www.georgebrown.ca/accessible-learning-services/> or call 416-415-5000 ext. 2622 or email [letstalk@georgebrown.ca](mailto:letstalk@georgebrown.ca)

## TECHNOLOGY REQUIREMENTS

As George Brown College continues to design and update courses to increase accessible, personalized, and flexible delivery methods, students will be required to have access to a computer and to the internet. There may also be additional technology-related resources required to participate in a course that are not included in the course materials fee, such as headphones, webcams, specialized software, etc. Details on these requirements can be found in the Course Section Information of the course outline for each course.

The Library Learning Commons has a limited number of devices including laptops and portable WIFI devices to support students; however, we cannot guarantee access to a device for all students.

## ACADEMIC INTEGRITY

George Brown College is committed to the highest standards of academic integrity. The college's academic integrity policy seeks to ensure that all students understand their rights and responsibilities in upholding the values of academic integrity, that students receive an accurate and fair assessment of their work, and that the integrity of George Brown College's community is accessible to all students and employees. Please read the Academic Integrity Policy on our website at <https://www.georgebrown.ca/policies>

## ANTI-PLAGIARISM TOOLS

Text-matching detection software assists faculty and students in preventing and detecting plagiarism. Faculty may use such software in order to check the originality of the academic work students submit in a course by comparing submitted assignments to those contained in publicly accessible internet sites, and academic journals, as well as databases of submitted papers and other sources. Faculty may not submit any student work that contains personally identifiable information through a text matching/anti-plagiarism tool or require students to do so.

## Student Evaluation System

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Below is a list of evaluation methods included in this course along with the course learning outcomes (CLO) and essential employability skills (EES) assessed by each. In some cases, program learning outcomes (PLO) assessed may also be indicated.

### Quiz / Quizzes (10%)

(5% Each) Quizzes given through QuizAtKlass® during the lecture

Validates Outcomes: CLO 1, CLO 2, CLO 3, CLO 4, CLO 5, CLO 6, CLO 7, CLO 8, CLO 9, CLO 10

### Exercise(s) (15%)

Individual exercises to be finished during the Lab time consisting of various UML models to be created using Visual Paradigm®

Validates Outcomes: CLO 1, CLO 2, CLO 3, CLO 4, CLO 5, CLO 6, CLO 7, CLO 8, CLO 9, CLO 10, EES 2, EES 4, EES 5, EES 6

### Lab Test(s) (15%)

(2@7.5% Each) Hands on tests to create various UML models using Visual Paradigm®

Validates Outcomes: CLO 1, CLO 2, CLO 3, CLO 4, CLO 5, CLO 6, CLO 7, CLO 8, CLO 9, CLO 10, EES 2, EES 4, EES 5, EES 6

### Group Project (20%)

Analyzing, Designing and documenting software project based on a given case study.

Validates Outcomes: CLO 1, CLO 2, CLO 3, CLO 4, CLO 5, CLO 6, CLO 7, CLO 8, CLO 9, CLO 10, EES 1, EES 4, EES 5, EES 6, EES 7

### Midterm Exam (15%)

Multiple choice, questions

Validates Outcomes: CLO 1, CLO 2, CLO 3, CLO 4, CLO 5, EES 1, EES 2, EES 4, EES 5

### Final Exam (25%)

Comprehensive. Multiple choice, questions

Validates Outcomes: CLO 1, CLO 2, CLO 3, CLO 4, CLO 5, CLO 6, CLO 7, CLO 8, CLO 9, CLO 10, EES 2, EES 3, EES 6

## Prior Learning Assessment and Recognition

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Prior learning assessment and recognition (PLAR) is a process that gives students the opportunity to obtain academic credit for one or more courses in a certificate, diploma or degree based on demonstrated prior learning acquired through life experiences before enrollment in a program. More information regarding PLAR can be found on the GBC website at: <http://www.georgebrown.ca/plar/>

- This course is not PLAR eligible: Based on the Course Outline.

## Grading System

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The passing grade for this course is 50% / "D"

Final Grade	Percentage	Weight
A+	90-100	4.0
A	86-89	4.0
A-	80-85	3.7
B+	77-79	3.3
B	73-76	3.0
B-	70-72	2.7
C+	67-69	2.3
C	63-66	2.0
C-	60-62	1.7
D+	57-59	1.3
D	50-56	1.0

Refer to the Evaluation System on this outline for information on how marks are distributed. More detailed information on assessments may also be found in your Course Section document.

As per Office of the Registrar Policies:

“A” Range = GPA 4.0-Consistently exceeds (course) requirements; shows evidence of being well-organized; shows original and creative thinking and a superior grasp of subject matter.

“B” Range = GPA 3.0-Shows consistent performance and evidence of being well-organized, shows elements of original and creative thinking; has a strong grasp of subject matter

“C” Range = GPA 2.0-Applies the subject matter appropriately; comprehends the subject matter.”

"D" Range = GPA 1.0-The student inconsistently applies and communicates knowledge of the subject matter

"F" Range = GPA 0.0-The student fails to apply and communicate an understanding of the subject matter.

Additional information regarding grading for this course may also be found in the "Course Related Information" section of this course outline.

## Legend

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### Terms

- ALO: Aboriginal Learning Outcome
- Apprenticeship LO: Apprenticeship Learning Outcome
- CLO: Course Learning Outcome
- DPLO: Degree Program Learning Outcome
- EES: Essential Employability Skill
- EOP: Element of Performance
- GELO: General Education Learning Outcome
- LO: Learning Outcome
- APO: Additional Program Outcome
- PLA: Prior Learning Assessment
- PLAR: Prior Learning Assessment and Recognition
- PLO: Program Learning Outcome