

RRC Polytech campuses are located on original lands of Anishinaabeg, Cree, Oji-Cree, Dakota and Dene peoples, and on the homeland of the Métis Nation.

Course Outline

Course Information

Course Code and Title: WEBD-2011 OO Systems Analysis and Design

Course Section: Self Directed

Department: School of Continuing and Distance Education

Program: Full Stack

Total Hours: 84

Credit Hours: 4

COURSE DESCRIPTION:

You will be introduced to the fundamentals of Object-Oriented Systems Analysis and full stack web application development design using the Unified Modeling Language (UML). You will be implementing UML diagrams in modelling software as it relates to web applications. The Analysis portion deals with basic OO concepts, capturing requirements with use cases, identifying classes, and modeling dynamic object behavior. The Design portion refines the analysis models with design (implementation) decisions, introduces patterns and examines the persistence of objects to relational databases. The Systems Development Life Cycle adopted for purposes of this course is defined as the USDP (Unified Software Development Process).

RECOGNITION OF PRIOR LEARNING (RPL):

RPL is a process in which students have the opportunity to obtain credit for College-level knowledge and skills gained outside the classroom and/or through other educational programs. It is a process that documents and compares a student's prior learning gained from education, work and life experience to the learning outcomes in College courses/programs. For more information about RPL at RRC Polytech, refer to the RPL website at rrc.ca/RPLservices or [A14 - RPL Policy](#).

For general information and assistance with RPL, contact RRC Polytech's RPL Advisor at 204.632.3094 or rpladvisor@rrc.ca.

ACCESSIBILITY STATEMENT:

If you are a student with a disability and require reasonable accommodations, you are encouraged to discuss this privately with your instructor to facilitate greater understanding of your learning needs. To receive accommodations, you must connect with Counselling and Accessibility Services, who will assist in developing and implementing your accommodation plan. You can contact Counselling and

Accessibility Services in person at NDC (D102) or EDC (P210), or by filling out the online intake form rrc.ca/accessibility/getting-started/book-an-appointment.

For further information about RRC Polytech's accommodation process, see the Disability Documentation Guide at rrc.ca/accessibility/getting-started.

COURSE DELIVERY METHODS:

Distance delivery; online using LEARN (eLearning Management System)

The following communication tools will be used in this course:

RRC Polytech student email, online content, discussion board

Course format:

Students will work in a self-directed format maintaining their own course hours. Students should complete a minimum of one module per week, each module will have discussions, self assessment, and link to an assignment. Once all modules are complete there will be a final exam.

EFFECTIVE DATE:

Jan 2022

Instructor Information

Instructor's name: Eric Graeb

Email: egraeb@rrc.ca

Student Readiness

TECHNOLOGY AND EQUIPMENT READINESS:

Students will need a computer with a browser supported by LEARN, a word processor, and software that supports diagramming that can support saving files to attach to assignments in Word, Visio, or Image (eg: Word, Visio, Dia, LucidChart, Creately)

STUDENT COMMITMENTS AND CONTACT TIMES:

Students should expect to commit 8 hours to study and undertake assignment work each week.

COURSE RESOURCES:

Linkedin Learning

Textbook(s):

The Object-Oriented Thought Process, 5th Edition, Matt Weisfeld, Addison-Wesley Professional
ISBN: 9780135182130

Head First Design Patterns, Eric Freeman, Elisabeth Robson, Bert Bates, Kathy Sierra, O'Reilly Media, Inc.

ISBN: 9780596007126

References:

Visual Paradigm

<https://www.visual-paradigm.com/>

UML 2 and the Unified Process, Second Edition: Practical Object-Oriented Analysis and Design, Jim Arlow and Ila Neustadt, Addison Wesley

ISBN: 0-321-32127-8

Design Patterns-Elements of Reusable Object-Oriented Software, Gamma et al

ISBN: 0-201-63361-2

Student Learning

LEARNING OUTCOMES:

By the end of this course of study, you should be able to...

1. Describe the object-oriented systems analysis process.
2. Describe the design process used in full stack web application development.
3. Distinguish Agile methodologies from other system development life cycles.
4. Conduct an object-oriented systems analysis.
5. Identify basic object-oriented concepts to document class analysis.
6. Use Agile stories to capture user requirements.
7. Use wireframing to gather feedback on the usability of the design.
8. Produce a Unified Modeling Language diagram to identify classes.
9. Use dynamic object behaviour to improve maintainability of classes.
10. Design web applications using common patterns and practices.
11. Refine analysis models with design decisions using SOLID principles.
12. Use design patterns to improve the usability and maintainability of code.
13. Create diagrams to show objects and data flow when building systems.

INSTRUCTIONAL SCHEDULE:

MODULE	TOPIC	ASSIGNMENTS
Module 1	Object-Oriented Programming	
Module 2	Requirements Gathering	Starting your project
Module 3	Analyzing Your Requirements	Analyzing the domain
Module 4	Diagramming Classes	UML Class Design
Module 5	Adding Relationships	Analyzing your class relationships
Module 6	Adding Architecture Patterns	Determining the Boundary
Module 7	Refine with SOLID	Expanding your design with Solid
Module 8	Decorate Your Code	Decorate your application
Module 9	Decoupling Events	Decrease Coupling

Module 10	Driving with Data	Adding Database Access
Module 11	Improving Your View	Using Strategies
Module 12	Custom Iterations	Add a custom iterator
Module 13	State Controls Action	Take command
Module 14	Let the Proxy Take the Fall	Add a proxy to your services
Module 15	See Patterns in Patterns	
Module 16	Finally Done	Final Exam

IMPORTANT DATES:

NOTE: The following dates are subject to change based on the needs of the students at the instructor's prerogative. Students will be notified ahead of time of any changes.

DATE	IMPORTANT INFORMATION
10 th Day	Drop date deadline (refund less admin fee) – Form Required*
3 weeks prior to course end	Extension and withdrawal deadline. You can pay for an extension or withdraw from the course before the deadline. You cannot withdraw once extended. – Form Required*
Course End Date	All course work must be completed and submitted
*Forms required	www.rrc.ca/forms

ASSESSMENT AND EVALUATION:

ASSESSMENT	WEIGHT
Assignments	78
Final exam	22
Total:	100%

LETTER GRADE DISTRIBUTION:

A+	4.5	90 to 100%
A	4.0	80 to 89%
B+	3.5	75 to 79%
B	3.0	70 to 74%
C+	2.5	65 to 69%
C	2.0	60 to 64%
D	1.0	50 to 59%
F	0.0	0 - 49%

Minimum performance requirement for this course: D is minimum required

*Students must have a minimum program GPA of 2.0 to graduate. See Policy A12

Course Policies

ACADEMIC INTEGRITY:

Academic Integrity describes a commitment to honesty, truthfulness and accountability in teaching, learning and research. Academic misconduct describes acts and activities that breach standards of academic integrity, including and not limited to fraud, cheating, plagiarism, misuse or misrepresentation of sources, unauthorized collaboration, etc. Academic misconduct will be treated seriously and will not be tolerated. Clear expectations will be communicated to students to promote positive academic practices in compliance with RRC Polytech policy **S4 Academic Integrity**.

GENERAL ACADEMIC POLICIES:

It is the student's responsibility to be familiar with and adhere to the RRC Polytech Academic Policies. These Policies can be found in the RRC Polytech calendar or online under A SERIES – ACADEMIC MATTERS at rrc.ca/legal/policies.

DATE REVISED:

January 28, 2022

Additional Information/Frequently Asked Questions

Do I need to know how to code software?

There is no coding in this course, it is about analysis and design, laying out how a solution would be coded if you were coding. Assignments will be done using diagram tools.

When are assignments due?

You should complete an assignment before continuing to the next module. Each assignment it is expected you will produce a solution with that lesson. Subsequent modules will show different ways you could solve the same problem and shouldn't be used yet. Assignments are expected to be submitted by Sunday at 11:59 after a full week with the module lesson to stay on schedule. Students unable to submit the assignment should email their instructor with their plan to get back on schedule.

Mental Health and Well-being at RRC Polytech

Having good personal health and well-being will support your success in this program.

WE ENCOURAGE YOU TO:

- Recognize that stress is an expected part of being a college student.
- Rethink how you view difficulty. Being challenged is actually a part of learning and reaching success.
- Reflect on your role in taking care of yourself throughout the term. Do your best to balance your schoolwork and life demands.
- Reach out to your instructor, program coordinator, or College supports at any time if something is affecting your academic performance. It's always best to reach out early and it's the responsible thing to do.

COLLEGE SUPPORTS READY AND WILLING TO ASSIST YOU:

- Student Counselling Services
- Indigenous Student Supports
- International Student Supports
- Academic Success Centre
- Student Accessibility Services
- Health Services
- Library Services

AUTHORIZATION:

This course is authorized for use by:

Stephen Lawrence, Program Manager
School of Continuing Education

January 28, 2022