CONESTOGA

COURSE OUTLINE

Course Systems Development: Systems Project (2016-2017)

Code / Version INFO3800 (101)

Total Hours 90

Credits 6

PreRequisite(s) PROG3200 (100) Database: Application Development
and PROG2070 (101) Programming: Software Qlty Assurance
and PROG2240 (100) Programming: JAVA Web Technologies
or PROG2240 (101) Programming: JAVA Web Technologies
or PROG2240 (102) Programming: JAVA Web Technologies
or PROG2240 (103) Programming: JAVA Web Technologies
and PROG3050 (101) Programming: Microsoft Enterprise Applic
or PROG3050 (100) Programming: Microsoft Enterprise Applic
and INFO2040 (100) Systems Developmt: Mobile App Design
or INFO2040 (101) Systems Developmt: Mobile App Design
and PROG3180 (103) Programming: Mobile Applications I
or PROG3180 (102) Programming: Mobile Applications I
and INFO2050 (100) Systems Developmt: Computer Security
or INFO2050 (101) Systems Developmt: Computer Security

CoRequisite(s)

Course Description

This course is the culmination of the program. Successful completion of this course will require the application of skills learned in most of the courses studied in the prior semesters. Small groups of students are to work as a team to plan, design, code, document and install a custom application for a client. A faculty advisor will meet regularly with the group to ensure the process is properly managed and a plan is followed.

PLAR Eligible: No

Course Outcomes

Successful completion of this course will enable the student to:

1. Work as part of a team to accomplish a major undertaking.
2. Define the system objectives.
3. Identify the process requirements of each stakeholder.
4. Define system specifications.
5. Design a normalized database.
6. Design user interfaces and reports.
7. Prepare system planning documents.
8. Prepare program design plans.
9. Code program modules.
10. Test program modules.
11. Integrate modules into a complete system.
12. Test the system.
13. Document the system.
14. Prepare an installation package and deploy at a client site.

Essential Employability Skills addressed in this course			Taught	Reinforced	Assessed
Communication	n	Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience		X	X

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Essential Employability Skills addressed in this course			Taught	Reinforced	Assessed
Communication	n	Respond to written, spoken, or visual messages in a manner that ensures effective communication		X	X
Numeracy	n	Execute mathematical operations accurately			
Critical Thinking and Problem Solving	n	Apply a systematic approach to solve problems		X	X
	n	Use a variety of thinking skills to anticipate and solve problems		X	X
Information Management	n	Locate, select, organize, and document information using appropriate technology and information systems		X	X
	n	Analyze, evaluate, and apply relevant information from a variety of sources		X	X
Interpersonal	n	Show respect for the diverse opinions, values, belief systems, and contributions of others		X	X
	n	Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals		X	X
Personal	n	Manage the use of time and other resources to complete projects		X	X
	n	Take responsibility for one's own actions, decisions, and consequences		X	X

Unit Outcomes

Successful completion of the following units will enable the student to:

1.0 Perform Phase 1: Inception

- 1.1 Write the Project Charter and Team Charter.
  - 1.1.1 Prepare a document outlining the objective(s) and scope of the project.
  - 1.1.2 Prepare the project standards document.
  - 1.1.3 Draft the team charter describing the team members' rights and obligations.

2.0 Perform Phase 2: Elaboration (Systems Analysis)

- 2.1 Perform Detailed Systems Investigation.
  - 2.1.1 Create a questionnaire and interview the client to gather the functional requirements of the system from the perspective of each user type.
  - 2.1.2 Identify and obtain samples of major source documents.
  - 2.1.3 Identify transaction types.
  - 2.1.4 Identify system controls: current, desired, potential.
  - 2.1.5 Determine network, language, database and other technological environmental factors, incorporating any constraints of client's current and planned environment.
  - 2.1.6 List and define system terminology.
- 2.2 Prepare Modeling and Analysis.
  - 2.2.1 Apply rules and style guidelines to draft the Use Case Diagrams and Descriptions.
  - 2.2.2 Apply rules and style guidelines to create the domain layer Class Diagrams.
  - 2.2.3 Apply rules and style guidelines to create the System Sequence Diagrams and the State Diagrams.

2.3 Prepare System/Subsystem Design.

2.3.1 Write the Class Descriptions describing the attributes, methods, constraints and contracts of each class that had been identified.

2.3.2 Draft the Network Model, identifying where major components of the system will be located and their interconnections.

3.0 Perform Phase 3: Elaboration (Systems Design)

3.1 Prepare Screen/Report Design.

3.1.1 Design the standard user interface layout: navigation/menu, status and work areas.

3.1.2 Narrate common use scenarios and draft the system's Navigation Diagram.

3.1.3 Identify the major output reports and draft Report Designs highlighting the information they will contain/convey.

3.2 Prepare Database Design.

3.2.1 Map problem domain objects to an RDBMS schema.

3.2.2 Normalize the database and justify intended de-normalizations.

3.2.3 Document the interrelationships and intended use of each table and each field in a Data Dictionary.

3.2.4 Identify relationships and draft the Entity-Relationship Diagram (ERD).

3.3 Prepare Detailed Design Plan.

3.3.1 Prototype screen designs for major processing points.

3.3.2 Identify major systems components and project milestones, along with the tasks required to complete each one.

3.3.3 Draft a Project Plan showing all required tasks, their durations, prerequisite relationships, and team assignments, preferably in a GANTT chart.

3.4 Present Project Plan to Faculty Advisor.

3.4.1 Obtain approval to present the plan to client.

3.5 Present Project Plan to Client.

3.5.1 Obtain approval to proceed to coding stage.

3.5.2 Revise project plan and designs to recommendations.

4.0 Perform Phase 4: Construction

4.1 Code programs and Test.

4.1.1 Prepare module planning documents.

4.1.2 Code and test major classes.

4.1.3 Code modules.

4.1.4 Draft Unit Test Plans, create the data required, test and record the results.

4.1.5 Add modules to the system's Code Library and perform integration testing.

5.0 Perform Phase 5: Transition (Assemble the Solution)

5.1 Assemble Module to Make the System.

5.1.1 Combine modules/subsystems to make a unified system.

5.1.2 Perform system testing, including tests for data consistency. (numbers add up, objects added in one screen appear in another, etc.)

5.1.3 Perform user acceptance testing with the client and/or end users.

5.1.4 Create the Online Help facility to at least the screen level.

5.1.5 Write tutorials and/or user manuals, as appropriate.

5.1.6 Prepare the system's Technical Documentation, which should include all of the project's phased deliverables, Meeting Minutes and Status Reports.

5.1.7 Create a Deployment Guide which describes the project, lists the team members with contact information and lists the steps involved in installing the application. Include the installation media such as DVD or USB Drive.

6.0 Perform Phase 6: Transition (Demo the Solution)

6.1 Perform Public Demonstration.

6.1.1 Present the completed project to the public (e.g., Tech@Work trade show).

7.0 Perform Phase 7: Transition (Deploy the Solution)

7.1 Perform Client Installation.

7.1.1 Prepare installation media with an initial database.

7.1.2 Install and test system in client environment.

7.1.3 Train client.

8.0 OPTIONAL: Deliver project using the Disciplined Agile Delivery (DAD) approach.

8.1 Apply to form an Agile team and to use the DAD approach.

8.1.1 Verify that stakeholders have a background in the Agile approach such as Scrum or DAD.

8.1.2 Confirm that all the team members have appropriate knowledge and skills to form an Agile team.

8.1.3 Seek commitment from Product Owner to attend regular coordination meetings.

8.1.4 Obtain approval from faculty advisor to start the project using the DAD approach.

8.2 Perform Inception Phase.

8.2.1 Create an initial vision of the proposed solution.

8.2.2 Perform lightweight requirements envisioning with stakeholder involvement.

8.2.3 Define the scope, the timeline, the relevant constraints, and the architectural strategy of the project.

8.2.4 Prepare a release plan with schedule of key milestones, delivery dates and external deliveries.

8.2.5 Create Usage models: User stories, use cases, usage scenarios.

8.2.6 Create User interface models: Layout of major screens and reports.

8.2.7 Create Domain models: Entity-relationship diagrams, class diagrams.

8.2.8 Create Process models: UML activity diagrams, data flow diagrams, flow charts.

8.3 Perform Construction Phase.

8.3.1 Incrementally build a consumable solution over multiple iterations using the traditional disciplines (see Phases 2 to 4 above).

8.3.2 Maintain product backlog / work item list.

8.3.3 Elaborate design details.

8.3.4 Address risks and changing stakeholder needs.

8.3.5 Maintain or improve upon existing levels of quality.

8.3.6 Demonstrate the solution to the stakeholders.

8.4 Perform Transition Phase.

8.4.1 Ensure the solution is production ready (see Phases 5 to 7 above).

8.4.2 Ensure the stakeholders are prepared to receive the solution.

8.4.3 Deploy the solution into production.

Required Student Resources

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Systems Analysis and Design / OOAD Textbook

UML Modeling Software (e.g., Visual Paradigm for UML)

Programming Development Environment (e.g., Microsoft Visual Studio)

Optional Student Resources

Programming Language Manuals

Disciplined Agile Delivery Textbook

Evaluation

The minimum passing grade for this course is 55 (D).

In order to successfully complete this course, the student is required to meet the following evaluation criteria:

Team Project - Inception / Analysis	20.00
Team Project - Prototyping / Design	20.00
Team Project - Construction / Testing 1	20.00
Team Project - Construction / Testing 2	20.00
Team Project - Transition / Presentation	20.00
	100.00 %

Other

Conestoga College is committed to providing academic accommodations for students with documented disabilities. Please contact the Accessibility Services Office.

Prepared By Meyer Tanuan

School Information Technology

Date 2016-10-25