ICS 4U: Computer Science, Grade 12, University Preparation
Unit: Project Management

Overview

Major software development is the result of team work. The team extends beyond the programmers to stakeholders, users, testers, marketing and management. This unit is designed to look at the big picture of project management.

- o The team
- o The product life cycle
- o The process
- o The organization
- o The product

Expectations

B1.1 create a software project plan by producing a software scope document and determining the tasks, deliverables, and schedule;

B1.4 use an appropriate project management tool (e.g., Gantt chart, PERT chart, calendar) to manage project components;

B1.5 close the project (i.e., confirm that software meets all user requirements, deliver software in appropriate format, plan software support and maintenance);

B1.6 review the management of the project (e.g., compare plan to actual performance, outline successes, make recommendations for improvement) and prepare a report in an appropriate format;

D4.3 research and describe careers associated with computer studies (e.g., computer scientist, software engineer, systems analyst), and the postsecondary education required to prepare for them.

Expectations from "2008, The Ontario Curriculum, Grades 10 to 12, Computer Science. " http://www.edu.gov.on.ca/eng/curriculum/secondary/computer.html

Teacher Notes

Working from the premise that you will take a project-based approach to senior computer science, this unit is designed to be presented during the first two weeks of the course. Students will work through many stages in project management in the unit--—scope plan, deliverables, tasks, project management tools, documentation, closing.

Readings can be found in the first few lessons. The material in these readings does not need to be formally covered in class. The unit test covers some of the readings. The idea is to help the students develop some skills needed for success at university.

FYI: Professional Project Management Accreditation Sites

http://www.prince2.com/ "PRINCE2 is a process-based approach for project management, providing an easily tailored and scaleable project management methodology for the management of all types of projects. The method is the de-facto standard for project management in the UK and is practiced worldwide."

http://www.pmi.org/Pages/default.aspx "PMI is the leading global association for the project management profession. Since our founding in 1969, we have been at the forefront of working with business to create project management standards and techniques that work. "

Assessment

There are a variety of activities (individual and group) with rubrics running throughout the unit. Most (if not all) of these activities should be assessed formatively. At the end of the unit, you will find a short pencil and paper test covering the theory of project management. The test and answer key are attached. You will need to format and modify to meet your classroom needs. Filenames: unitAssessment4U, unitAssessmentAnswerKey4U

Looking Ahead

When planning future projects think about the concept of practice driving theory. For example, you can present a project that asks the students in teams to create an interactive Suduko game. As they plan the project, students will need to find effective ways to store data. And you, the teacher, can teach data structures. Short individual assignments on arrays and linked lists will round out the data structure unit.

Each university bound senior student (ICS4U) should take on the various roles needed to develop a software project throughout the course– project manager, tester, coder, etc.

Lesson Overview

Day	Topic	Expectations Covered	Resources Needed
1	What is a Project	B1.1 create a software project plan by producing a software scope document and determining the tasks, deliverables, and schedule; D4.3 research and describe careers associated with computer studies (e.g., computer scientist, software engineer, systems analyst), and the postsecondary education required to prepare for them;	File: lessonOneWhatIsProject4U.doc Photocopy: What is a Project? Photocopy: Reading task (check links) Overhead: Which of these are Projects?
2	Scope Document	B1.1	File: lessonTwoSoftwareScope4U.doc Photocopy: Software Scope Plan assignment Overhead: Product Life Cycle Template: Software Scope Document to be distributed electronically
3	Scope Document	B1.1	File: lessonTwoSoftwareScope4U.doc Check link to http://office.microsoft.com/en-us/project/HA010970121033.aspx
4	Project Management Tools	B1.4 use an appropriate project management tool (e.g., Gantt chart, PERT chart, calendar) to manage project components;	File: lessonThreeManagementTool4U.doc File: SmartIdeaExample Software: Smart Ideas Photocopy: Project Management Tool Examples Photocopy: Reading task (check links)
5	Project Management Tools	B1.4	File: lessonThreeManagementTool4U.doc Photocopy or distribute electronically: Plan of Action activity

6	Project Management Tools	B1.4	File: lessonThreeManagementTool4U.doc Photocopy or distribute electronically: Organizational Chart/Plan activity
7	External Documentation	B1.3 produce the software according to specifications (i.e., code, test, deploy), and create user documentation and training materials;	File: lessonFourExternalDocumentation4u.doc Photocopy: Code Walkthrough activity Check link: http://www.gecdsb.on.ca/d&g/cswebquest/ (This webquest will be updated before September 2008 to meet ICS4U expectations.)
8		B1.3	File: lessonFourExternalDocumentation4u.doc Samples of external documentation
9	Closing Projects	B1.5 close the project (i.e., confirm that software meets all user requirements, deliver software in appropriate format, plan software support and maintenance); B1.6 review the management of the project (e.g., compare plan to actual performance, outline successes, make recommendations for improvement) and prepare a report in an appropriate format;	File: lessonFiveProjectClosing4U.doc
10	Closing Projects	B1.5, B1.6	File: lessonFiveProjectClosing4U.doc Photocopy or electronically distribute: Closing a Project activity
	Unit Assessment	B1	File: unitAssessment4U.doc File: unitAssessmentAnswerKey4U.doc