UNIVERSITY OF MARY WASHINGTON -- NEW COURSE PROPOSAL
Electronically submit this completed form with attachments in one file to the Chair of the College Curriculum Committee.

**COLLEGE (check one):**
- Arts and Sciences ✗ Business ✗ Education ✗

Proposal Submitted By: Ian Finlayson  Date Prepared: October 14, 2014

**Course Title:** Software Development Tools

**Department/discipline and course number:** CPSC 225

*This course number must be approved by the Office of the Registrar before the proposal is submitted.*

<table>
<thead>
<tr>
<th>Number of credits proposed:</th>
<th>1</th>
<th>Prerequisites:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will this be a <em>new, repeatable</em> “special topics” course? (Do you want students to be able to take this new course more than once if the topic changes?)</td>
<td>NO</td>
<td>✗ YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of first offering of this <em>new</em> course: <strong>FALL SEMESTER, year</strong></th>
<th>Fall 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed frequency of offering of the course:</td>
<td>Every Semester</td>
</tr>
<tr>
<td>List the faculty who will likely teach the course:</td>
<td>Ian Finlayson, Stephen Davies</td>
</tr>
</tbody>
</table>

**Are ANY new resources required?**

- NO ✗ YES

* Document in attached impact statement

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**This new course will be (check all that apply):**

- Required in the major ✗ General Elective
- Elective in the major General Education ✗

**AFTER the new course is approved, a separate proposal must be sent to the General Education Committee.**

**Catalog Description:**

225: Software Development Tools (1): This course provides a practical introduction to using common software development tools. Topics will include using the Unix command line, files and permissions, managing processes, the Vim text editor, version control, and writing shell scripts.

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**COURSE HISTORY**

<table>
<thead>
<tr>
<th>Was this course taught previously as a topics or experimental course?</th>
<th>YES</th>
<th>NO</th>
<th>✗</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Number and Title of Previous Course</strong></td>
<td>Semester Offered</td>
<td>Enrollment</td>
<td></td>
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<td></td>
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**CHECK HERE** if the proposed course is to be equated with the earlier topics or experimental offerings. This means that students who took the earlier “topics” course will only be able to take the new course if they made a C- grade or lower in the earlier course.

**NOTE:** If the proposed course has not been previously offered as a topics or experimental course, explain in the attached rationale statement why the course should be adopted even though it has not been tried out.

**REQUIRED ATTACHMENTS:**

1. **Rationale Statement** (Why is this course needed? What purposes will it serve?)
2. **Impact Statement** (Provide details about the Library, space, budget, and technology impacts created by adding this new course. Include supporting statements from the Library, IT Department, etc. as needed.)
3. **Sample Syllabus**

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Jennifer Polack

Department Chair Approval:

CCC Chair Approval: Dawn S. Bowser

UCC Chair Approval: Date:

Date: Date:

Date:

New Course Proposal Cover Sheet (July 2013)
Rationale

Computer science students need to be proficient with several software tools in order to complete work in our major, as well as to be productive in their careers after graduation. Currently, we teach these tools in several different places in the curriculum. This is not an ideal situation since the tools are tangential to the material in these courses. Additionally, because different instructors rely on a different set of tools, not all students get introduced to the same set. This makes it difficult to rely on the students knowing any particular tool, and results in wasteful repetition.

The course where most of this material is taught is CPSC 230: Data structures and Algorithms (which is being moved to CPSC 340). This course is an important course for our majors as it provides a foundation that is needed for much of the rest of the curriculum. It is also a class which many students struggle with. By including material on software development tools, we lose time to cover the core material for the course, and also frustrate some students by having them learn very different things at the same time. When students lack proficiency with the tools needed to complete their work, it prevents them from being able to focus their attention on the actual material they are working on.

We propose a new, fully online course to cover these topics. This will allow all of our students to get the same introduction to these tools, and also allow them to go back and review this material as needed. The course would be 1 credit hour, and be required for all majors.
Impact Statement

As this course is only 1 credit hour, and will be taught as an online course, there is minimal impact on department resources.

We already have access to all of the hardware and software that will be used for this course.
Sample Syllabus

Below is a sample syllabus for this proposed course. As this course has not been taught before, some specific information is not included, such as a course timeline and office hours.

Course Description

CPSC 225 Software Development Tools (1) - This course provides a practical introduction to using common software development tools. Topics will include using the Unix command line, files and permissions, managing processes, the Vim text editor, version control, and writing shell scripts.

Required Textbook


Course Goals & Objectives

- To develop proficiency using the Unix command line interface.
- To be able to navigate directories and manage files.
- To develop proficiency with the Vim text editor.
- To be able to write make files and use the make program.
- To be able to view and manage running processes.
- To be able to manage version history with Git.
- To learn how to write shell scripts.

Grading Policy

Your grade for this course will be determined as follows:

- 30% Quizzes that accompany each online lecture.
• 30% Homework assignments to be handed in.
• 40% Final Proficiency Exam.

The grading scale for this class is as follows:

• 92 - 100: A
• 89 - 91: A-
• 87 - 88: B+
• 82 - 86: B
• 79 - 81: B-
• 77 - 78: C+
• 72 - 76: C
• 69 - 71: C-
• 67 - 68: D+
• 60 - 66: D
• <60: F

**Honor Policy**

Students are expected to conduct themselves in a manner consistent with the letter and spirit of the Honor Constitution. You may discuss the assignments with other students, but all of your work must be your own. You may not copy assignments from other students or turn in work that is not your own. For more information, please refer to the computer science department policy or contact the professor.

**Disability Statement**

The Office of Disability Services has been designated by the University as the primary office to guide, counsel, and assist students with disabilities. If you already receive services through the Office of Disability Services and require accommodations for this class, make an appointment with me as soon as possible to discuss your approved accommodations.
needs. Please bring your accommodation letter with you to the appointment. I will hold any information you share with me in the strictest confidence unless you give me permission to do otherwise. If you have not contacted the Office of Disability Services and need accommodations, I will be happy to refer you. The office will require appropriate documentation of disability. Their phone number is 540-654-1266. The office is located in Lee Hall, Room 401.

List of Topics

- The history of Unix and the Unix philosophy.
- Logging into a Unix system, SSH, and keys.
- Files, directories and permissions.
- The Vim text editor.
- Compiling from the command line.
- The make program.
- Managing processes.
- Version control with Git.
- I/O redirection & pipes.
- Other essential command line tools.
- More on Vim.
- Using man pages.
- Writing shell scripts.