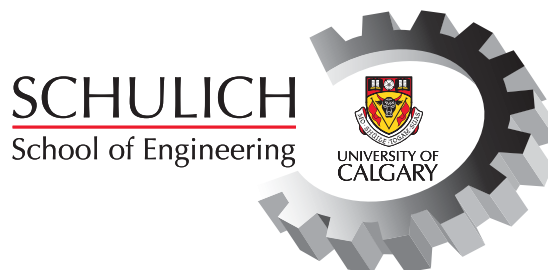


September 2008



COURSE NAME / NUMBER

SENG 421

TITLE OF COURSE	HOURS	SESSION	YEAR
<i>Software Metrics</i>	<i>H(3-2)</i>	<i>Fall</i>	<i>2008</i>

## COURSE OUTLINE

### 1. DESCRIPTION

#### Calendar description:

The theory, process, and application of measurement in software and software development processes.

### 2. OBJECTIVES

Offering state of the art knowledge of software measurements and best practices with emphasis on the value of software measurement as a set of pragmatic methodologies and tools for both software engineers and software project management.

After completing this course students will:

- Have a good understanding of nature and problems associated with software measurement and experimentation
- Have a working knowledge of software measurement planning and implementation (incl. data collection and analysis)
- Have a working knowledge of software size measurement (Function Point counting, etc.)
- Have a working knowledge of software cost estimation (COCOMO II model and tool, etc)
- Know concepts and examples of software resource, process, and product (i.e., product structure, complexity, quality, and reliability) measurement

### 3. LECTURES/LABS/TUTORIALS

L/B/T	SESSION	DAYS OF THE WEEK	START TIME	DURATION/ MINUTES	LOCATION
<i>L01</i>	<i>Fall</i>	<i>MWF</i>	<i>11:00</i>	<i>50</i>	<i>ICT 116</i>
<i>B01</i>	<i>Fall</i>	<i>Tue</i>	<i>15:00</i>	<i>110</i>	<i>ICT 215</i>

## 4. COURSE INSTRUCTORS

### LECTURERS:

SECTION	NAME	TELEPHONE	OFFICE	EMAIL
<i>L01</i>	Dr. Behrouz Far	403. 210.5411	ICT 543	<i>far@ucalgary.ca</i>

### LABORATORY INSTRUCTORS:

SECTION	NAME	TELEPHONE	OFFICE	EMAIL
<i>B01</i>	Dr. Behrouz Far (with Nariman Mani)	<i>TB</i>	ICT 543	<i>far@ucalgary.ca</i> <i>nmani@ucalgary.ca</i>

## 5. EXAMINATIONS

There will be a midterm and a final examination. All examinations will be closed book and closed notes.

## 6. Use of CALCULATORS in Examinations

Calculators may be used during examinations.

## 7. FINAL GRADE DETERMINATION

The final grade will be based on the following components:

<b>Quizzes + Laboratory Reports</b>	40	%
<b>Midterm Examination</b>	20	%
<b>Final Examination</b>	40	%
<b>TOTAL</b>	100	%

It is necessary to submit all Laboratory Reports and earn a passing grade of at least 50% on the final exam in order to pass the course as a whole.

## 8. PRINCIPLES OF CONDUCT

The University of Calgary Calendar includes a statement on the Principles of Conduct expected of all members of the University community (including students, faculty, administrators, any category of staff, practicum supervisors and volunteers) whether on or off the University's property. This statement applies in all situations where the Members of

the University Community are acting in their University capacities. All Members of the University Community have a responsibility to familiarize themselves with this statement which is available at:

[http://www.ucalgary.ca/pubs/calendar/2008/how/How\\_LB.htm](http://www.ucalgary.ca/pubs/calendar/2008/how/How_LB.htm)

## 9. ACADEMIC MISCONDUCT/PLAGIARISM

The University of Calgary Calendar defines plagiarism as:

“submitting or presenting work in a course as if it were the student’s own work done expressly for that particular course when, in fact, it is not.”

Plagiarism is academic misconduct. Please read the section in the University Calendar on Plagiarism/Cheating/Other Academic Misconduct which is available at:

[http://www.ucalgary.ca/pubs/calendar/2008/how/How\\_MB.htm](http://www.ucalgary.ca/pubs/calendar/2008/how/How_MB.htm)

## 10. TEXTBOOK

The course slides and handouts are the major source of information. All the slides and handouts are downloadable from the course Web page and/or Blackboard. For those with limited access to the internet, a CDROM containing all the documents will be distributed on demand. The following textbooks are recommended as reading supplements.

Software Metrics: A Rigorous and Practical Approach (2nd ed.) (638p.)
ISBN 0-534-95425-1 (1998)
N.E. Fenton and S.L. Pfleeger
PWS Publishing

Metrics and Models in Software Quality Engineering (2nd ed.) (528 pages)
ISBN 0-201-72915-6 (2002)
Stephen H. Kan
Addison-Wesley

Software Metrics: A Guide to Planning, Analysis, and Application (312p.)
ISBN 0-8493-1661-8 (2004)
C. Ravindranath Pandian
Auerbach Publications, CRC Press Company

Goal/Question/Metric Method: A Practical Guide for Quality Improvement of Software Development (216 p.)
ISBN 007-709553-7 (1999)

Rini van Solingen and Egon Berghout
McGraw-Hill

## 11. ACADEMIC ACCOMMODATION POLICY

It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 403.220.8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.

## 12. ENGINEERING FOIP POLICY

**SCHULICH SCHOOL OF ENGINEERING - UNIVERSITY OF CALGARY  
POLICY FOR IMPLEMENTATION OF FOIP REQUIREMENTS  
Protection of Student Examinations and Course Work Under the  
Freedom of Information and Protection of Privacy Act of the Province of Alberta**

The Schulich School of Engineering policy is intended to ensure that examinations and term-work of students in engineering courses are protected with respect to privacy. The philosophy behind the policy is that marked student examinations and term-work (hereafter called "student's work") should be available only to the student and to staff in the Schulich School of Engineering who have a need to see the material. This includes academic staff, graduate assistants and support staff.

Please read the Schulich School of Engineering FOIP Policy:

<http://www.ucalgary.ca/eng/courses/Engg/FOIPPOLICY.html>

## 13. ADDITIONAL COURSE INFORMATION SECTION

Course email list:

All students are automatically subscribed via blackboard. An email list will be available there.

Course synopsis:

This course will cover theory of measurement, experimental design, software metrics collection, statistics for analyzing measurement data, software size and software structure, resource measurement, prediction of software characteristics, planning software measurement, software quality and reliability. The focus is on engineering application of measurement in software project planning and management.

Purpose of course:

To familiarize students with the applied software measurement.

Approach to course:

Students will learn through a combination of lectures, project work, assignments and project reviews.

Educational aim:

To introduce concepts of software measurement, transfer the knowledge of how to apply these concepts, and discuss problems associated with the application of these concepts.

During the course the students will be grouped into teams composed of 2-3 members. Each team will be asked to work on a number of projects. A list of projects that the students can select among them will be posted on the course web page. The laboratories reports (progress reports) of various phases of the assigned projects should be handed in for review and marking. The reports will be reviewed by the instructor and the TAs and a group discussion will be held during the laboratory sessions. Unlike many undergraduate courses, and similar to what is actually performed in industrial practices, the laboratories hours will be for group discussion and review of the projects. Additional discussion and review hours can be arranged by the students, TAs and the instructor.

The SENG 421 course home page contains links to up-to-date course information, problem assignments, announcements, as well as laboratory and examination scheduling. The SENG 421 course home page is available through the B.H. Far's home page at the URL:

<http://www.enel.ucalgary.ca/People/Far/Lectures/SENG421/>

Watch the SENG421 course homepage regularly for updates, if any, to this document.