



## COURSE PRESENTATION FORM – ACADEMIC YEAR 2010/2011

<b>COURSE NAME</b>	<b>Software Metrics – Stream, Level B</b>
<b>COURSE CODE</b>	70140 (BSc) / 70059 (BSc Old)
<b>LECTURER</b>	<a href="#">Barbara Russo</a>
<b>TEACHING ASSISTANTS</b>	<a href="#">Barbara Russo</a> and <a href="#">Ilenia Fronza</a>
<b>TEACHING LANGUAGE</b>	English
<b>CREDIT POINTS</b>	4 (MSc and BSc new study plan) / 6 (BSc old study plan)
<b>LECTURE HOURS</b>	24
<b>EXERCISE HOURS</b>	12
<b>TIME SPAN</b>	27.09.2010 - 21.01.2011
<b>TIME TABLE</b>	See <a href="#">Timetable Page</a>
<b>OFFICE HOURS LECTURER</b>	During the lecture time, TBD, <a href="#">Faculty of CS, POS Building, piazza Domenicani 3</a> , office 2.09
<b>OFFICE HOURS TEACHING ASSISTANT</b>	During the lecture time, TBD, <a href="#">Faculty of CS, POS Building, piazza Domenicani 3</a> , office 2.13
<b>PREREQUISITES</b>	Foundations of Software Engineering: software development problems, processes and methods used to address them. Software life cycle models. Principles of requirements analysis and specification, software design, implementation, integration and testing of software. Object-oriented approaches. Java. Basic statistics.
<b>OBJECTIVES</b>	Students will acquire methods to evaluate software artifacts with a rigorous and modern approach. They will learn how to manage software development projects to produce high quality software. They will experience how, where and when improving real software products and processes with the application of basic mathematical concepts.
<b>SYLLABUS</b>	The course Software Metrics is a step by step introduction to software measurement. It includes introduction to foundations of measurement theory, models of software engineering measurement, software metrics of product, process and resources. The course is composed of the following basic modules: <ul style="list-style-type: none"><li>• Fundamentals of measurement theory</li></ul>



- Review of existing software measures (internal and external attributes of product, process and resources: measures of size and structure; function points, measures of quality, cost, effort, and software reliability; object-oriented metrics)
- The Goal Question Metric method
- COCOMO
- Basics of Experimental design
- Basics of Personal Software Process, the PROBE method

For 6 credits only: Students will discuss two articles on the topic. They will coordinate the team work in the lab.

### TEACHING FORMAT

Frontal lectures and practical exercises.

### ASSESSMENT

- Final report and presentation: 50% of the final mark
- Written exam: 50% of the final mark

To access the written part students need to pass the final report and presentation part.

Presentation: one week before the written exam.

Final report and presentation can also be done all in one.

### READING LIST

*Textbooks:*

- Software Metrics: a rigorous and Practical Approach, (2nd ed.) (638p.), N.E. Fenton and S.L. Pfleeger, PWS Publishing, 2000 ISBN 0-534-95425-1
- A framework of software measurement (755p.) Zuse H. Walter de Gruyer Berlin New York 1998
- Campbell, D. T., and Stanley, J. C. Experimental and Quasi-experimental Designs for Research. Chicago: Rand McNally, 1966
- Experimentation in software engineering. An introduction, C. Wohlin et al. Experimentation in Software Engineering: an Introduction. Kluwer Academic Publishers, 2000. ISBN 0-7923-8682-5

*Additional Recommended Text and Reference Book:*

- Measure for Excellence Putnam L. H. and Myers W., Prentice Hall Press 1992
- Five core metrics The intelligence behind software management Putnam L. H. and Myers W., Dorset House Publishing 2003
- What makes measuring software so hard? IEEE Software, May/June 2001, Vol.18, No. 3, pp.41-45
- Metrics and Models in Software Quality Engineering, Stephen H. Kan, (344p.) Addison-Wesley, 1995. ISBN 0201633396
- Software Metrics: Measurement for Software Process Improvement, BA Kitchenham, Blackwell Pub, 1996. ISBN 1855548208

*Additional bibliography will be suggested during the course*

### SOFTWARE USED

- Eclipse IDE
- Metrics Eclipse plug-in
- COCOMOII  
download:

