



COURSE PRESENTATION FORM – ACADEMIC YEAR 2010/2011

COURSE NAME	Conceptual Modeling for Information Systems
COURSE CODE	72018 (MSc 270) / 70217 (BSc, MSc 509)
LECTURER	Stefano Tinella
TEACHING ASSISTANT	--
TEACHING LANGUAGE	English
CREDIT POINTS	4
LECTURE HOURS	24
EXERCISE HOURS	12
TIME SPAN	21.02.2011 - 11.06.2011
TIME TABLE	See Timetable Page
OFFICE HOURS LECTURER	During the lecture time span: TBA, Faculty of CS, POS Building, piazza Domenicani 3 , second floor, office 2.10.
OFFICE HOURS TEACHING ASSISTANT	--
PREREQUISITES	A BSc in Computer Science, preferably with basic courses on Software Engineering.
OBJECTIVES	<p>The course is on object-oriented and conceptual modeling and design for databases applications and information systems, it will give an hands-on those methodologies both from static and dynamic perspective.</p> <p>It will cover Object Modeling Techniques as precursor to UML static diagramming, Object-Role-Modeling methodology for information systems, adopted by Microsoft and a large part of UML and Entity Relationship design methodologies for information systems. It will include also a large part of Dynamic UML diagramming and Business Process Modeling Notations.</p> <p>It includes a thorough analysis of the usage of those methodologies in the context of relational, object oriented and object relational models. Metamodeling for database systems.</p> <p>An extensive lab will be done using Visio and Visual Studio.</p>
SYLLABUS	<ul style="list-style-type: none">• Object-Oriented and Conceptual modeling and design for database applications and information systems• Object modeling Techniques• Object-Role Modeling, including lab with ORM• UML for databases application design, and Entity Relationship



- diagrams
- Dynamic UML diagrams, Business Process Modeling Notation

TEACHING FORMAT

Lectures, Exercises in lab, Project activity in pairs of students.

ASSESSMENT

- Project [40 % of mark]
- Final exam (written) [60 %]

The project is not mandatory but counts 40 % of the final mark → in the exam session students cover the full exam program counting for 60 % of the mark.

READING LIST

Available on the teacher's website: slides, reading materials etc.

- Blaha & Premerlani. Object-Oriented modeling and design for database applications, Prentice-Hall, 1998 - (Part I)

This book shows how to use object-oriented principles to design and implement database applications. Introduce new concepts that complement the presentation of OMT methodology. It cover relational databases and object oriented databases

- Halpin & Morgan. Information Modeling and Relational Databases. Morgan Kaufmann, 2008 – (Chapters 8-16)

This book provides an introduction to ORM (Object-Role Modeling) and provide all of the in-depth instruction you need to transform knowledge from domain experts into a sound database design. Supported by examples, exercises, and useful background information, his step-by-step approach teaches you to develop a natural-language-based ORM model, and then, where needed, abstract ER and UML models from it.

SOFTWARE USED

- Visio 2007 pro
- Visual Studio 2008
- MSSQLExpress

LEARNING OUTCOME

The following generic skills are trained in the course:

- Information search
- Critical and structured thinking
- Knowledge Modeling
- Process perspective to Problem solving
- Analytical ability
- Team work

On completion of the course the student will be able to:

- understand terms and concepts behind issue related object-oriented and conceptual modeling and design for databases applications and



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- information systems
- understand object-oriented principles to design and implement database applications
 - understand and apply Object-Role-Modeling UML and Entity Relationship design methodologies for information systems
 - understand and apply UML dynamic modeling methodologies and BPMN methodologies
 - use tools and modeling technique in the accurate and efficient development of databases in order to best meet real business objectives.

COURSE PAGE

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