## Syllabus
### Enterprise Engineering

Author: **Joseph Barjis, PhD**  
Affiliation:  
Visiting Full Professor, Czech Technical University in Prague  
Director, Institute of Engineering and Management B.V., The Netherlands  
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<table>
<thead>
<tr>
<th>Professor's Information</th>
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<tbody>
<tr>
<td><strong>Name</strong></td>
<td>Joseph Barjis (PhD, Professor)</td>
</tr>
<tr>
<td><strong>Email</strong></td>
<td><a href="mailto:JBarjis@gmail.com">JBarjis@gmail.com</a></td>
</tr>
<tr>
<td><strong>Office hours</strong></td>
<td>For specific discussion, you are welcome to make an appointment.</td>
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<tr>
<th>Course Information</th>
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<tbody>
<tr>
<td><strong>Course Title</strong></td>
<td>Enterprise Engineering</td>
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<tr>
<td><strong>Level</strong></td>
<td>Graduate/Doctoral</td>
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<tr>
<td><strong>Year &amp; Semester</strong></td>
<td>Summer 2014</td>
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<tr>
<td><strong>Credit hours</strong></td>
<td>5 ECTS</td>
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<tr>
<td><strong>Contact hours</strong></td>
<td>5 lectures of 3 hours</td>
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<tr>
<td><strong>Self-study hours</strong></td>
<td>Approximately, 8 hours self-study is required per lecture</td>
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<tr>
<td><strong>Class hours &amp; room</strong></td>
<td>TBD</td>
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<tr>
<td><strong>Final exam</strong></td>
<td>TBD</td>
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**Course Description**

This course is offered within the overall discipline of Enterprise Engineering, where enterprise modeling and business process modeling play central role. Enterprise Engineering is a new discipline, which is concerned with “the body of knowledge, principles, and disciplines related to the analysis, design, implementation, and operation of all elements associated with an enterprise.” The main focus of this course is on enterprise ontology, which is explained through a set of conceptual models, but the main emphasis is on understanding an enterprise from engineering perspective, that is, from construction perspective. This approach requires a thorough understanding of how an enterprise is constructed and how it operates, which is demonstrated through a series of models, each widening the depth of details and abstraction.

**Course Objectives**

Upon completion, students will learn how to engineer, design, and redesign an enterprise in its entirety regardless how complex the enterprise is. For doing so:

- They will learn a new theory (Ψ-Theory), rooted in communicative action
- They will learn a methodology (DEMO Methodology), and a set of modeling languages for enterprise engineering
- They will learn and practice business process modeling
- They will learn how to capture, analyze, design and improve all elements associated with the total enterprise by applying the enterprise ontology approach and its methods and tools to more effectively achieve its goals and objectives.

**Workload**

This course requires the following workload (h=60 min). Lectures: 5 lectures, each 3h, total of 15 hours; Homework: Lecture 1: 10h, Lecture 2: 8h, Lecture 3: 9h, Lecture 4: 8h, Lecture 5: 3h, total of 38 hours. All together, 53 hours (15+38). The 3-hour exam of open book requires 10-12 hours preparation. In total, this course is approximately a 65-70 hours workload.

**Required Materials**

**Required Book**


**Suggested Articles**


**Teaching Methodology**

The course teaching comprises **Theory** (lectures about the foundation and principles), **Methodology** (discussion and practice of modeling methods and modeling languages), **Discussion** (review and discussion of homework assignments) and **Exercises** (apply theoretical and methodological knowledge to small examples).

The course emphasis is primarily put on participation of the students in discussions, problem solving, and reflection.

**Assignments**

This course has different types of assignments described here.

**Homework Assignments**

For each class, students will be given a homework assignment for which they will be asked to prepare their solution to be discussed in the class.

These assignments are aimed to acquire knowledge and master materials of a particular segment of the course.

**In-Class Exercises**

The course has exercises, where we will discuss different real cases. To master materials of this course, active and consistent participation is required in these exercises.

**Final Exam**

The course is concluded with a final exam, which is based on theory and practice of enterprise modeling. The exam will have both theoretical questions to answer and a practical case for which the students will be asked to draw a model(s). The exam is an open book and comprehensive based on the whole materials studied throughout the course.
Assessment

Students performance in this course will be evaluated through a final exam, which is an open book exam for 3 hours.

Course Outline

(Notes: EO stands for “enterprise ontology”. References to chapters (CH #) are based on the required textbook for this course)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics, Content/ Activity/ Reading</th>
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</table>
| Lecture 1: | 0. Course Overview  
 1. INTRODUCTION Towards Enterprise Engineering Enterprise Ontology (EO Ch. 2)  
 2. METHODOLOGY Case Volley (EO Ch. 3)  
 3. THEORY System and Model (EO Ch. 6, 7)  
 4. EXERCISE Case Black Leather Market, Case Printer  
 **Homework:**  
 Case IES homework 1 (4 hours)  
 Study EO Ch. 2, 3, 6, 7, and appendix (3 hours)  
 Read EO Ch. 9, 10, 11, 15, and 16 (3 hours) |
| Lecture 2: | 1. DISCUSSION HOMEWORK  
 2. THEORY Operation, Transaction, and Composition Axiom (EO Ch. 9, 10, 11)  
 3. METHODOLOGY The Modeling Method (EO Ch. 15) The Interaction Model (EO Ch. 16)  
 4. EXERCISE Case Educational Administration  
 **Homework:**  
 Case IES homework 2 (4 hours)  
 Study EO Ch. 9, 10, 11, 15, and 16 (2 hours)  
 Read EO Ch. 12, 17, and 18 (2 hours) |
| Lecture 3: | 1. DISCUSSION HOMEWORK  
 2. THEORY The Distinction Axiom (EO Ch. 12)  
 3. METHODOLOGY The Process Model (EO Ch. 17) The Action Model (EO Ch. 18)  
 4. EXERCISE Case Gynecology  
 **Homework:**  
 Case IES homework 3 (4 hours)  
 Study EO Ch. 12, 17, and 18 (2 hours)  
 Read EO Ch. 4, 5, and 19 (2 hours) |
| Lecture 4: | 1. DISCUSSION HOMEWORK  
 2. THEORY Factual Knowledge (EO Ch. 4, 5)  
 3. METHODOLOGY The State Model (EO Ch. 19)  
 4. EXERCISE Case EU-Rent  
 **Homework:**  
 Case IES homework 4 (4 hours)  
 Study EO Ch. 4, 5, and 19 (2 hours)  
 Read EO Ch. 8, 13, and 20 (2 hours) |
| Lecture 5: | 1. DISCUSSION HOMEWORK  
 2. METHODOLOGY The Interstriction Model (EO Ch. 20)  
 3. EXERCISE Case Educational Administration  
 4. THEORY The Organization Theorem (EO Ch. 13) (Re)design and (re)engineering (EO Ch. 8)  
 5. REFLECTION AND EVALUATION  
 **Homework:**  
 Case IES homework 5  
 Study EO Ch. 8, 13, and 20 (3 hours) |