Software Development and Business Information Systems – Master
2nd Year, 2022 - 2023

Course outline details
Enterprise Systems Development Methodology

A. Evaluation

1. The student evaluation has two components:
   - Development and presentation of a business process modeling and implementation project by using BPMN standard and a BPM engine (Activiti, Bonita or other); the project will be carried out in teams of 2 – 4 students.
   - Development and presentation of an Agile Software Development project; the project will be carried out in teams of 5 – 6 students.
2. The final grade is computed as follows: FG = **BPMN_Project_Grade * 70% + ASD_Project_Grade * 30%**
   - Minimal performance standards: **min. 5 for each of the two projects**

B. Course content and activities schedule

B1. Course content:

1. Process-based information systems development (BPM).
2. Agile Software Development methodologie (ASD).
3. Issues of software crisis.
4. Model driven software development (MDA/MDD/MDE).

B2. Course activities schedule:

- Subject 1 (BPM) – 22.02, 01.03, 08.03, 15.03, 22.03, 29.03;
- Subject 2 (ASD) – 04.03, 11.03 – orele 9.00 – 13.00 (including course and lab activities);
- Subjects 3 and 4 (MDD) – 05.04; 17.05.

B3. Laboratory and evaluation activities:

Day	Topics
01.03.23	Discussing BPM project requirements.
15.03.23	Business process description and team members presentation (see details in section C1, point 1.1)
08.04.23	ASD project evaluation
12.04.23	BPMN model presentation by students (see details in section C1, point 1.2) Business process implementation. Bonita study case.
17.05.23	BPM project evaluation

C. Projects requirements

C1. BPM project requirements – business process modeling and implementation

The BPM project has two parts:

1. **Business process modeling.** The students have to create a business process model using BPMN standard.

   1.1 Narrative description of the business process. The description must include: trigger events, the main activities, the actors, the data objects used within the business process, the outcome, KPIs (cost, time, quality), the instance frequency etc

   1.2 BPMN process diagram. The process diagrams must contain as many of the following types of BPMN objects as possible:

   - Swimlanes
   - Intermediate events (including attached to boundary)
   - Gateways (exclusive, inclusive and parallel)
   - Defaults sequence flow and message flows
   - Sub-processes (they can be used to reduce the complexity of process diagrams)
   - Exception handling

   Optionally, the student can create Choreography, Collaboration and/or Conversation diagrams.

   Tools like Lucidchart, Enterprise Architect, Visual Paradigm etc.cand be used to create BPMN diagrams.

2. **Business process implementation (automation).** Platforms like Activiti or Bonita can be used to implement/automate the business process (see the two tutorials). The students may use for implementation a simplified version of the business process, but the automated process should include at least the following: a user form, a script task, a service task (implemented by Java classes or Web service), a user task and a gateway.

C2. ASD project requirements

The details about ASD project requirements will be provided at the first meeting on the topic Agile Software Development.

Good luck!!!

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