UTCN / Computer Science Department
Software Design 2016/2017

LABORATORY SCHEDULE

Week	Topic	Laboratory activities	Project activities	Deliverables
W1	OO Concepts Review	Revision exercises (OOP, UML, Design Patterns, Testing techniques)	Discuss projects / choose project	
W2	Structural (Layers, Pipes&filters, Blackboard), Distributed (Broker, MVC)	Database connection and operations – exercises	Final deadline for choosing the project **Project Deliverable 1** – presentation and discussion **- Inception:** Software Requirements, Vision, Use Case Model, Supplementary Specification, Glossary	**L1_Revision Homework:** all problems resolved
W3	Patterns for Enterprise Application Architecture [Fowler] Intro, Business Logic (Transaction Script, Domain Model), Hybrid (Table Module, Active Record)	Architectural patterns and styles – exercises **Assignment A1 –** presentation and discussion	**Project Deliverable 1** – progress and discussion	**L2_Database_Operations**: Database diagram + sql script to create the database + unit tests for each DB operation
W4	Data Source Patterns (RDG, TDG, DM), Concurrency	**Assignment A1 –** progress and discussion	**Project Deliverable 2** – presentation and discussion **Elaboration – Iteration 1.1:** Domain Models, Architectural Design (architectural patterns and styles, package design, component diagrams, deployment diagrams)	**Project Deliverable 1:** Vision, Use Case Model, Supplementary Specification, Glossary documents
W5	Class design principles (SOLID, GRASP)		**Project Deliverable 2** – progress and discussion	**Assignment A1**
W6	Package Design Principles, Architectural patterns [POSA]	XML basics – exercises **Assignment A2** – presentation and discussion		**Project Deliverable 2:** Domain Model, Architectural Design, Component and Deployment diagrams
W7	Creational DP (Factory method, prototype, abstract factory, singleton, builder)	Design patterns – exercises **Assignment A2 –** progress and discussion	**Project Deliverable 3** – presentation and discussion **Elaboration – Iteration 1.2:** Design Model (UML sequence, collaboration diagrams, UML class diagrams, design patterns), Data Model	
W8	Structural DP (Composite, Decorator, Proxy, Bridge),		**Project Deliverable 3** – progress and discussion	**Assignment A2**
W9	Behavioral DP (Strategy, State, Command, Chain of Responsibility)	Package and class design principles – exercises **Assignment A3** – presentation and discussion		**Project Deliverable 3:** Design Model, Data Model

W10	Service Oriented Design (SOAP, REST)	**Assignment A3** – progress and discussion	**Project** – presentation and discussion **Elaboration – Iteration 2:** Package design refinement, Design model refinement (class design principles, more GoF patterns)	
W11	Designing for performance/scalability		**Project** – presentation and discussion	**Assignment A3**
W12	Designing for availability/maintainability/security			**Project Final Presentation:** Design and Implementation
W13	Evaluating Architectures (OO Metrics, ATAM methodology)			**Project Final Presentation:** Design and Implementation
W14				**Late Assignments and Projects**

- **Laboratory policy**
  - **Laboratory sessions are compulsory – no more than 3 absences are allowed.**
  - **Assignments and project deliverables must be presented when established. One delay/semester is accepted, while the other delays are penalized as following:**
    - **You have a delay of 1 week then you lose one point of the assignment final grade. (Not applied if is the first delay in the semester.)**
    - **You have a delay of 2 weeks then you lose two points of the assignment final grade.**
    - **You have a delay of 3 weeks then you lose four points of the assignment final grade.**
    - **You have a delay of > 3 weeks then you do not pass the assignment.**
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  - **A single assignment can be presented during a laboratory session.**
  - **No migration between groups is allowed**

- **Grading**
  - **Assignment grading: 0.5 * Documentation_grade + 0.5 * Implementation_grade**
  - **Project grading: 0.1*Deliverable1 + 0.1*Deliverable2 + 0.1*Deliverable3 + 0.3*Final Design + 0.4*Implementation**