# 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 – **A1** – prexercises **Assignment** esentation 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**