

Lecture 00

Lect. PhD.
Arthur Molnar

Introduction
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Introduction to Course

Lect. PhD. Arthur Molnar

Babes-Bolyai University

arthur@cs.ubbcluj.ro

Overview

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- Arthur Molnar, PhD.
- Lazăr Mihnea
- Marieșan Bogdan



UBB

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- **Lazăr Mihnea**
- *mihnea.lazar@accesa.eu*
- B.Eng. Automated Systems Engineering, Technical University of Cluj-Napoca
- M.Eng. Medical Engineering, Technical University of Cluj-Napoca Software Engineer, 5y experience

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- **Marieșan Bogdan**
- *bogdan.mariesan@accesa.eu*
- B.Eng. Automated Systems Engineering, Technical University of Cluj-Napoca
- M.Eng. Applied Informatics in Complex Systems, Technical University of Cluj-Napoca
- Senior Software Engineer, 8y experience

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- **Lecture:** 2 hours/week
- **Laboratory:** 2 hours/every other week

Course materials

Go to: <https://github.com/lzrmihnea/ubb.dp.1819>

Email: arthur@cs.ubbcluj.ro.

Note!

Send email from the @scs domain

Note!

Slack channel: <https://ubb-dp.slack.com>, talk to the lab professors

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What should you gain from this course?

- Learn about design patterns
- Improve you ability to understand source code and identify the principles used to build it
- Acquire and improve your skills in designing an object-oriented solution to a problem.
- Help you prepare the source code and presentation for the upcoming thesis defense

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How is this course organized?

- Recap / Introduction
- Design Patterns
- Architectural Patterns
- Enterprise Integration Patterns

Recap / Introduction

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- 1 Encapsulation, Inheritance, Polymorphism
- 2 SOLID Principles

Design Patterns

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■ Creational Patterns

- Factory
- Builder
- Prototype
- Singleton

■ Structural Patterns

- Adapter
- Bridge
- Composite
- Decorator
- Facade
- Proxy

Design Patterns

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- **Behavioural Patterns**
 - Chain of Responsibility
 - Command
 - Iterator
 - Mediator
 - Observer
 - State
 - Strategy
 - Template

Architectural Patterns

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- Model View ViewModel (MVVM)
- Model View Controller (MVC)
- Model View Presenter (MVP)

Enterprise Integration Patterns

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- Introduction to Service Oriented Architecture, Micro-services, Messaging
- Point to Point Channel
- Message Translator
- Publisher/Subscriber
- Pipes and Filters
- Message Routing

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- 1 Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides - "Design Patterns: Elements of Reusable Object-Oriented Software", Addison-Wesley, 1994
- 2 Eric Freeman, Elisabeth Robson, Bert Bates, Kathy Sierra - "Head First Design Patterns", O'Reilly, 2004
- 3 Gregor Hohpe, Bobby Woolf - "Enterprise Integration Patterns: Designing, Building, and Deploying Messaging Solutions", Addison-Wesley, 2003

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**Activity and
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- **The recommended way:**
 - **50%** - Presentations during the semester
 - **50%** - Presentation during last week of school
- **Option 2:**
 - **100%** - Written exam (in the regular session)
- **Option 3:**
 - **100%** - Written exam (in the retake session)

Activity and Grading - Recommended way

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- **50%** - Presentations during the lecture
 - Presentation the usage of a design pattern in a real-life system (*lecture*)
 - Next week: Abstract Factory, Factory Method, Builder, Singleton, Prototype

Course Rules

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1 General

- Lecture attendance & activity bonus up to 1 point
- Another 2 points bonus during the laboratory
- Laboratory attendance mandatory **(6/7)**
- Without making attendance you can't enter the exam this year!

2 Do not copy assignments or plagiarize