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| **Course title: Object-Oriented Programming C# 2** |
| Course code: 63049 |
| ECTS credits:  6 |
| Requirements: None |
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| **Basic information** |
| Level of studies: Undergraduate applied studies |
| Year of study:  3 |
| Trimester: 2 |
| Goal: Enabling students to apply advanced data manipulation techniques, desktop user interface creation, network and distributed programming as well as software design principles. |
| Outcome: The student should be able to apply advanced data manipulation techniques, create desktop user interface, perform network and distributed programming as well as apply software design principles. |
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| **Contents of the course** |
| Theoretical instruction |
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| 1. Interfaces |
| 2. Generic types |
| 3. Observer software pattern |
| 4. Threading |
| 5. Composite software pattern |
| 6. Reflexion |
| 7. Generic data structures |
| 8. Data Serialization |
| 9. gRPC |
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| Practical instruction (Problem solving sessions/Lab work/Practical training) |
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| 1. Implementation of .NET native interfaces |
| 2. Exercises using generic types |
| 3. Observer software pattern examples |
| 4. Threading samples using async and await keywords |
| 5. Composite software pattern examples |
| 6. Reflexion |
| 7. Stack and Queue implementation using generic types |
| 8. XML and Binary data serialization |

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| 9. Database data manipulation using desktop application | |
| 9. .NET Core gRPC server and client | |
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**Textbooks and References**

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| 1. Skeet, J., & Simeloff, E. (2014). C# in Depth (p. 616). Manning. |
| 2. Nathan, A. (2013). WPF 4.5 Unleashed. Sams publishing. |
| 3. Johnson, R., & Vlissides, J. (1995). Design patterns. Elements of Reusable Object-Oriented Software Addison-Wesley, Reading. |
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**Number of active classes (weekly)**

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| Lectures: 4 |
| Practical classes: 1 |
| Other types of classes: 1 |
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**Grading (maximum number of points: 100)**

**Pre-exam obligations: Points**

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| Activities during lectures: |
| Activities on practical exercises: 0 |
| Seminary work: |
| Colloquium: 50 |

**Final exam: Points**

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| Written exam: 50 |
| Oral exam: |
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**Lecturer**

Milanko Kragović, MSc

**Associate**

Luka Lukić