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| 1. | Course Title | Visual programming | | |
| 2. | Code | F18L2S082 | | |
| 3. | Study program | Software engineering and information systems | | |
| 4. | Study Program Organizer | Faculty of Computer Science and Engineering | | |
| 5. | Degree (first, second, third cycle) | first cycle | | |
| 6. | Academic year / semester<br>2 / summer / optional | 7. ECTS credits<br>6 | | |
| 8. | Teacher | full professor Dejan Gjorgjevikj, associate professor Gjorgji Madzharov | | |
| 9. | Course enrollment prerequisites | Објектно-ориентирано програмирање | | |
| 10. | Course program goals (competencies):<br>The student will attain knowledge of software development techniques by using modern object-oriented programming language in advanced integrated development environment, designing user interfaces and software debugging. After completing the course, the students will be capable for developing event-driven application, graphical user interfaces, advanced forms for user input, custom user controls and creating installation packages. | | | |
| 11. | Course program content:<br>Development environments. Event-driven programming. Application wizards and forms designers. User controls, event controls, text controls, state controls, list controls, group controls. Generating and handling events. Time generated events. Graphical user interfaces, localization (l10n) and internationalization (i18n). User menus, toolbars and status bars. Custom user controls. Multithreading, resource sharing, inter-process communication. Creating installation packages. | | | |
| 12. | Learning methods:<br>Lectures using presentations, interactive lectures, exercises (using equipment and software packages), teamwork, case studies, invited guest lecturers, independent preparation and defense of a project assignment and seminar work. | | | |
| 13. | Total available time | 180 | | |
| 14. | Distribution of the available time | 30 + 45 + 15 + 15 + 75 = 180 hours | | |
| 15. | Teaching activity forms | 15.1. | Lectures – theoretical teaching | 30 hours |

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| | | 15.2. | Exercises (laboratory, auditory), seminar papers, teamwork | 45 hours |
| 16. | Other activity forms | 16.1. | Project Tasks | 15 hours |
| | | 16.2. | Independent Learning Tasks | 15 hours |
| | | 16.3. | Home learning | 75 hours |

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| 17. | Assessment methodology | | |
| | 17.1. | Tests | 10 points |
| | 17.2. | Seminar paper/project (presentation: written and oral) | 10 points |
| | 17.3. | Activity and learning | 10 points |
| | 17.4. | Final exam | 70 points |

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| 18. | Assessment criteria (points/grade) | up to 50 points | 5 (five) (F) |
| | | 51 to 60 points | 6 (six) (E) |
| | | 61 to 70 points | 7 (seven) (D) |
| | | 71 to 80 points | 8 (eight) (C) |
| | | 81 to 90 points | 9 (nine) (B) |
| | | 91 to 100 points | 10 (ten) (A) |
| 19. | Course completion and final exam requirements | Realized activities 15.1 and 15.2 | |
| 20. | Teaching Language | Macedonian and English | |
| 21. | Teaching quality evaluation method | Internal evaluation mechanisms and questionnaires | |
| 22. | Course Material | | |
| | 22.1. | Mandatory course material | |

| | No. | Author | Title | Publisher | Year |
|---|---|---|---|---|---|
| | 1 | Benjamin Perkins, Jacob Vibe Hammer, Jon D. Reid | Beginning C# 6 Programming with Visual Studio 2015 | Wrox | 2015 |
| | 2 | Mark Michaelis, Eric Lippert | Essential C# 6.0, 5th Edition | Addison-Wesley Professional | 2015 |
| | 3 | Chris Sells | Windows Forms Programming in C# | Addison - Wesley Professional | 2004 |
| | 4 | Matthew MacDonald | User Interfaces in C#: Windows Forms and Custom Controls | Apress | 2002 |

22.2. Additional course material

| No. | Author | Title | Publisher | Year |
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