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| **Mobile Application Development with iOS** | |
| Department responsible for the course | I.I. Vorovich Institute of Mathematics, Mechanics and Computer Science  Master Program in Theoretical Computer Science and Information Technologies |
| Lecturer | Ilya Loshkarev, assistant teacher, loshkarev.i@gmail.com |
| Semester when the course unit is delivered | Autumn semester |
| Teaching hours per week | 4 |
| Level of course unit (for ex., Second cycle – Master level) | Master Level |
| ECTS credits | 5 |
| Admission requirements | Programming Fundamentals, Data Structures and Algorithms |
| Course objectives (aims) | Implement applications using Swift programming language under the iOS development environment.  Independently explore and utilise various iOS frameworks and APIs.  Demonstrate the fully tested software using iOS simulator for iPads and iPhones. |
| Course contents | Topic 1: Swift & Cocoa   * Basic Syntax * Classes, inheritance, polymorphism * Foundation Framework * File I/O * UI   Topic 2: iOS   * App lifecycle and design * iOS frameworks   Topic 3: App Development   * Building and testing app for iOS simulator and device * AppStore publication and maintenance |
| Learning outcomes | Upon successful completion of this course, students should be able to:   1. Define key programming terms relevant to Swift and iOS programming. 2. Describe the process of creating iOS apps. 3. Recognize patterns and idioms present in the Cocoa Touch API and other Apple frameworks. 4. Employ the Apple developer tools to create an iOS app. 5. Examine and subdivide app functionality into properly designed components. 6. Plan, prepare and build an original iOS app, from concept to working program. |
| Planned learning activities and teaching methods (for ex., lectures with a variety of examples and practice) | Lectures, Supervised practice. |
| Assessment methods and criteria | Individual Programing Assignments (correctness 50%, implementation 30%, code style 20%)  Final Project (project scope 40%, architecture 30%, implementation 30%) |
| Course literature (recommended or required) | Apple Inc, The Swift Programming Language  David Mark, Beginning iPhone Development with Swift 2: Exploring the iOS SDK. Erik Buck, Cocoa Design Patterns. |