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| **COURSE SYLLABUS**  **Android Programming** | |
| name of the course | |
| IT Summer School | |
| Non Degree Program | |
| **Objectives** | Special Course “Android Programming” aims to study concepts of Android application development from the very beginning (basic components of Android app, Activities lifecycle, Intents, etc.) to more complicated things (Services, Content Providers, Multithreading, etc.) |
| **Prerequisites** | * Object-oriented programming * Java programing language * XML |
| **Learning Outcomes** | Students who successfully completed the training course will acquire the following knowledge and skills:   * Design and develop Android applications * Run applications on emulator and device * Debug and profile Android applications * Prepare application to publish them on GooglePlay |
| **Course Overview** | Main topics for lectures and seminars – 36 hours   * App development for mobile and embedded devices. Introduction to Android platform. Android developer tools. Android architecture and base components of Android apps. Activities lifecycle. Intents. Intent Filters. * UI development: resources, layouts, controls, adapters. App localization. Manifest. * UI development: fragments and fragment management. Material Design. * Data Storages in Android: Preferences, Bundles, Files, SQLite DB. Content Providers. * Multithreading: AsyncTasks, Handlers, Threads, Loopers etc. Best strategies to implement multithreading. Tips, tricks and pitfalls. Client-server apps and REST-based communication. * Services in Android. * Working with sensors: Camera, GPS, and Accelerometer. Location-based applications. Displaying maps and routes using GoogleMaps. * Bluetooth Low Energy protocol and its appliances. * What’s new in Android 7/8? * GooglePlay publication. * Android app design. MVC and MVP patterns. |
| **Grading plan** | Coursework will be weighted as follows:   |  |  |  |  | | --- | --- | --- | --- | | **Total** | 1. **Seminars exercises** | **2. Final exam** | **3.Attendance** | | **100%** | **40%** | **40%** | **20%** |   All course is provided in “flat model”, i.e. each class is a mixture of theoretical material and practice tasks/exercises. Students will be given slide decks (.ppt or .pdf) and large number of code samples to study. Basing on these materials, they should develop their own apps modifying given samples code or writing from scratch. Each task solution will be graded.  FINAL EXAM/TEST: The final test (multiple choice) will be given at the end of the course.  ATTENDANCE: Attendance will be graded as follows:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No absences** | **1 absence** | **3 absences** | **4 absences** | **5 or more absences** | | Excellent | Very good | Good | Satisfactory | Bad | |
| **References** | 1. Bill Phillips, Brian Hardy, Chris Stewart, Kristin Marsicano. Android Programming : The Big Nerd Ranch Guide 2. Reto Meier. Professional Android Application Development. 3. Official Android Training materials <http://developer.android.com/training/index.html> 4. Vogella Android Tutorials <http://www.vogella.com/tutorials/android.html> 5. Android API Guides <http://developer.android.com/guide/components/index.html> 6. API Reference <http://developer.android.com/reference/packages.html> |