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| 1. Course title: Basics of mobile application development | | | | | |
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| 2. Code: | | 3. Type (lecture, practice etc.): seminar | | | |
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| 4. Contact hours: 2+2 hoursper week | | 5. Number of credits (ECTS): 5 | | | |
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| 6. Preliminary conditions (max. 3): | | | | | |
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| 7. Announced:fall semester, spring semester, both | | | | | |
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| 8. Limit for participants: 20 | | | | | |
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| 10. Responsible teacher (faculty, institute and department):  Viktor Rébay (Faculty of Science, Institute of Mathematics and Informatics, Department of Informatics) | | | | | |
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| 11. Teacher(s) and percentage: | |  | |  | |
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| 12. Language:English | | | | | |
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| 13. Course objectives and/or learning outcomes:  The seminar intends to introduce students to the basics of mobile application development. Students completing the course will have knowledge on the basic concepts of Android programming. They will be able to develop Android applications, using various services and hardware resources. | | | | | |
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| 14. Course outline   1. Basics of Android programming. Necessary tools. Downloading and installing Android Studio. Creating an Android project. Running applications using the emulator and on real devices. Debugging Android applications. 2. Creating more than one Activities. Passing data between Activities. Getting a result back from a child Activity. UI fragments and the Fragment Manager. Hosting and creating UI Fragments. 3. Creating user interfaces with Layouts and Widgets. Using the graphical Layout Tool. Displaying lists with RecyclerView. Customizing list items. 4. Dialogs and menus. Creating and showing a Dialog Fragment, setting up the contents. A responsive DialogFragment. Defining the menu in XML. Creating the menu and responding to menu selections. Hierarchical navigation. 5. SQLite databases. Building own databases. Writing into the database, inserting and updating rows. Reading from the database. 6. Using explicit and implicit Intents. Taking pictures with Intents. 7. Audio playback with SoundPool. Loading, playing, and unloading sounds. Styles and Themes. Style inheritance. Modifying themes, adding theme colors. Modifying button attributes. 8. HTTP and background tasks. Networking basics. Using AsyncTask to run on a background thread. Downloading images and a lot of small things. Messages and message handlers. 9. Background services. Networking using background services. Delayed execution with AlarmManager. Notifications. Browsing the Web and WebView. 10. Creating a custom views. Handling touch events. Property animation. Simple property animation and playing animators together. 11. Location and Play services. Setting up Google Play services. Location permissions. Using Google Play services. Importing Play services maps. Setting up and working with own maps. 12. Individual presentations of the mid-semester assignment (beta version). 13. Individual presentations of the mid-semester assignment (beta version). | | | | | |
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| 15. Mid-semester works  Each student develops an Android mobile application, offering a solution to an individual or a wider group’s problem. The beta version of each project will be evaluated during the last classes of the semester, where all students can give feedbacks to the developer based on the presentation. The final releases have to be submitted during the first 4 weeks of the examination period. | | | | | |
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| 16. Course requirements and grading  The presentation of the beta version and the final application will be considered. | | | | | |
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| 17. List of readings   1. Bill Phillips, Chris Stewart, Brian Hardy, Kristin Marsicano: Android Programming: The Big Nerd Ranch Guide (2nd Edition). Pearson, 2015. ISBN: 9780134171456 | | | | | |
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| 18. Recommended texts, further readings | | | | | |
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| **Date** | 10 May, 2017 | **Prepared by** |  | | |
| Viktor Rébay  responsible teacher | | |
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| **Endorsed by** | | |  | | |
| program supervisor | | |