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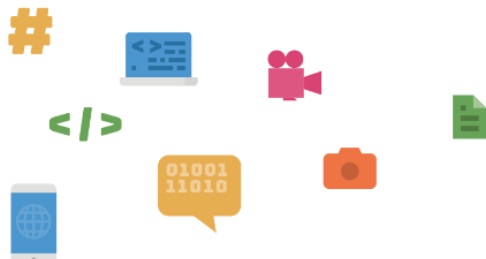
# Native Mobile App Development

Course Outline



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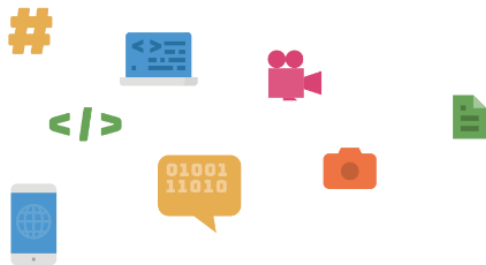
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PROJECT NUMBER: 612128-EPP-1-2019-1-BE-EPPKA3-IPI-SOC-IN  
PROJECT TITLE: Social Hackademy - #hackAD



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Social Hackademy - #hackAD

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**Agreement number:**

Erasmus+ KA3 Social Inclusion

[www.socialhackademy.eu](http://www.socialhackademy.eu)

**Partners:**

ALL DIGITAL aisbl (Belgium), European Grants International Academy (Italy), Hellenic Open University (Greece), CTC Rijeka (Croatia), SIMPLON.co (France), Public libraries 2030 (Belgium)

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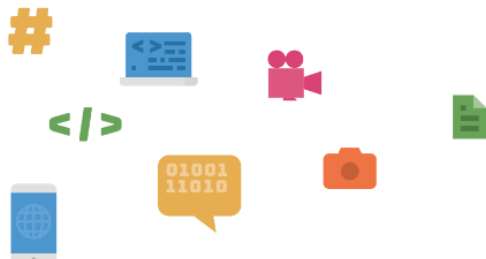


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<b>Project Acronym</b>	#hackAD
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Deliverable Title	#hackAD Native mobile app development course outline
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Delivery date	31/05/2020
Abstract	This document provides organizations and trainers with the plan on how the Native mobile apps development course is structured, what are the key competences and learning outcomes which can be acquired during this course, general guidelines, requirements and notes for the course.
Author	CTC Rijeka
Project n°	612128-EPP-1-2019-1-BE-EPPKA3-IPI-SOC-IN
Agreement n°	2018 – 3186
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## LEARNING OBJECTIVES

The course is focused on teaching participants how to create simple native mobile applications for a specific purpose. The participants will gain basic digital knowledge and skills about:

- the environment in which mobile applications are developed,
- how to design and develop user interfaces with simple interactivity,
- creating the functionality of the mobile application,
- using data to further improve the app's functionality and usability,
- how to publish the application to users.

Besides digital skills, in this course the users are encouraged to think critically, be creative, work in teams and use the assets at their disposal to create solutions, thus they will have the chance to improve their entrepreneurial skills and skills for 21st century.

## COMPETENCES

A student who attends most of the classes, does the assignments and actively participates in the course should, by the end of the course, gain following competences:



DigComp 2.1 -> Competence Area 3: Creation of Digital Content -> Competence 3.4 – Programming -> Level 3 – Intermediate

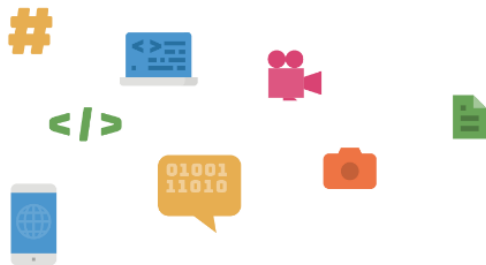


EntreComp -> Competence Area 1: Ideas & Opportunities -> Competence 1.2 – Creativity



EntreComp -> Competence Area 3: Into action -> Competence 3.5 – Learn by doing





## COURSE REQUIREMENTS

The participants are required to have basic computer skills in accordance with DigComp 2.1 – Competence Area 1 – Information and Data Literacy – 1.3 Managing data, information and digital content – Level 4, ECDL - Computer Essentials Module or similar. It is also recommended that the participants have at least some prior coding knowledge.

## EQUIPMENT

Computer or laptop for each participant with stable internet connection and necessary software and tools (GUI drag-and-drop tools or easy coding tools) based on the trainer's preferences (Android Studio, VS Code, MIT App Inventor, etc.), digital projector, mobile devices with different screen size (can be provided by participants) could be useful but they are not required, pens, papers.

## INSTRUCTIONAL METHODS

**Classwork** – theoretical or practical work done by students according to trainer's instructions during class

**Self-study** – theoretical or practical work done by students individually according to trainer's suggestions (tutorials, online reading materials, etc.) outside of class

**Exercises** – short tasks done by students themselves during the class moderated by trainer

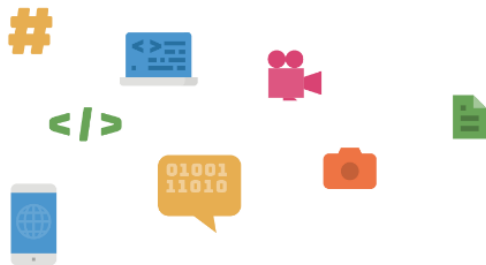
**Project assignments** – comprehensive tasks that students do by themselves or in groups with the guidance and support by trainer

## NOTES

The course is designed upon practical „learning by doing“ methodology and should be mostly carried out by tasks and exercises that participants will do by themselves with the guidance of the mentor.

## ASSESSMENT AND EVALUATION

The students' progress should be monitored by the trainer during the course, providing the necessary feedback on strengths and emphasis on the topics that need further improvement. The student's skills and knowledge should be evaluated during the Hackathon, assessing the student's involvement in the Hackathon assignment, the quality of produced results, creativity, problem-solving and teamwork.



## COURSE DURATION:

The course consists of 40 hours of face-to-face workshops. It is recommended that the course is extended by additional 20 hours dedicated to practice and exercises.

## SYLLABUS AND LEARNING OUTCOMES:

### 1. INTRODUCTION AND SET-UP (4 hours)

#### 1.1. Introduction to Mobile App Development

At the end of the course the participants will be able to know the difference between native apps, hybrid apps and PWAs, know the pros and cons of each mobile app development approach and know main OSs, technologies and frameworks in which mobile apps are developed.

#### 1.2. Introduction to Native Mobile App Development Framework

At the end of the course the participants will be able to know the main parts of the mobile app development framework.

#### 1.3. Set-up a mobile app project

At the end of the course the participants will be able to know the different segments of the mobile app project, and set-up the environment for a simple mobile app project.

#### 1.4. Application structure

At the end of the course the participants will be able to understand the different parts of the mobile app structure (layout, assets, configuration, source code), and know where to find and put different files of the application.

#### 1.5. Testing the apps on devices and emulators

At the end of the course the participants will be able to explain the differences between testing the app on physical device and emulator, understand why it is important to test the application on different screen sizes, install and set-up the emulator and physical devices for testing, and test the apps on emulators and physical devices.

### 2. CREATING USER INTERFACE (8 hours)

#### 2.1. Incorporating external assets (images, fonts, dependencies)

At the end of the course the participants will be able to prepare, include and use external assets in the app/code.



## 2.2. Creating layout

At the end of the course the participants will be able to apply the principles of user interface design, use different elements to create the app's layout, use creativity to produce intuitive, visually pleasing and user friendly interface, and know how to create responsive layouts.

## 2.3. Using external layout elements

At the end of the course the participants will be able to know about and use different elements from libraries to create app's layout.

# 3. CREATING THE APP'S FUNCTIONALITY (10 hours)

## 3.1. Fundamental concepts of programming – variables, branching, loops, functions

At the end of the course the participants will be able to understand fundamental concepts of programming, get acquainted with basic programming techniques, create small programs or functions to fulfill simple purpose (e.g. reading user input, basic arithmetics), and fix simple errors that occur during app development.

## 3.2. Importing libraries

At the end of the course the participants will be able to find libraries that fulfill certain purpose online, and import and use functionality of the libraries in the app.

## 3.3. Creating interaction in the apps

At the end of the course the participants will be able to understand different ways I can add interactivity to app, and connect the layout with the code to achieve app's functionality.

# 4. WORKING WITH DATA (10 h)

## 4.1. Persistence of data

At the end of the course the participants will be able to know different ways to create, read, update and delete data, take user input and store it for further processing.

## 4.2. External data sources





At the end of the course the participants will be able to understand what are external data sources and know how they can benefit the app, find and use different simple external data sources in the app, fulfill simple tasks with the help of the documentation, and encode and parse data for my app.

## 5. EXERCISE ASSIGNMENT (8 h)

### 5.1. Creation of simple mobile app for a specific purpose under mentor's guidance

At the end of the course the participants will be able to work together in small teams, and learn from mentors and others.