



Universitat de Lleida

DEGREE CURRICULUM
**APPLICATIONS FOR MOBILE
DEVICES**

Coordination: SENDÍN VELOSO, MONTSERRAT

Academic year 2020-21

Subject's general information

Subject name	APPLICATIONS FOR MOBILE DEVICES			
Code	102025			
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Computer Engineering	3	COMPULSORY	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB	TEORIA	
	Number of credits	3	3	
	Number of groups	1	1	
Coordination	SENDÍN VELOSO, MONTSERRAT			
Department	COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING			
Teaching load distribution between lectures and independent student work	30% Presential (equivalent to 45h) 70% Autonomous work (equivalent to 105h)			
Important information on data processing	Consult this link for more information.			
Language	Preferably Catalan (Spanish if any student shows difficulties with Catalan).			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
SENDÍN VELOSO, MONTSERRAT	montse.sendin@udl.cat	6	

Subject's extra information

This subject belongs to a optional specialization module called 'Information Technologies'.

To follow this subject properly some previous knowledge in Java programming is recommended.

Learning objectives

- Knowing the Android platform and the elements that integrate it
- Knowing the most recommended IDE
- Develop applications for the Android operating system
- Get familiar in the User Interface design
- Knowing and managing some used API for Android
- Lay the foundations for the implementation of additional functionalities (data base access, location utility, resources and functionalities from the device, etc.)
- Knowing the step of publication for Android apps

Competences

University of Lleida strategic competences

CT2. Mastering a foreign language, especially English.

CT3. Training Experience in the use of the new technologies and the information and communication technologies.

Degree-specific competences

GII-T13. Capacity to use methodologies based in the user and the organisation in order to develop, evaluate and manage applications and systems based in the information technologies that ensure the accessibility, ergonomics and usability of the systems.

GII-T16. Capacity to conceive systems, applications and services based on network technologies, which include the internet, web pages, electronic commerce, multimedia, interactive services and mobile computing.

GII-T17. Capacity to comprise, apply and manage the computer systems guarantee and security.

Cross-disciplinary competences

EPS11. Capacidad de comprender las necesidades del usuario expresadas en un lenguaje no técnico.

Subject contents

Laying the foundations

Block I - *Getting started*

- Theme 1 - Introduction to the Android platform and other mobile technologies
- Theme 2 - First steps: Android Studio development environment
- Theme 3 - Basics of Android applications

Block II – Basic questions on User Interfaces

- Theme 4 - Widgets: basic controls and selection controls
- Theme 5 - Organizing the screen: *Layouts*

Block III – Advanced questions on User Interfaces

- Theme 6 – Flexible User Interfaces with *fragments*
- Theme 7 – Menus and Navigation design

Exploring functionalities

Block IV – Additional aspects

- Theme 8 - Data persistence. Managing databases
- Theme 9 - Publication and distribution of an Android app

Methodology

Flipped classroom (to reverse the traditional method)

Active participation of students

- We will tend towards *active learning*, where the student is the centre
- Participatory and dynamic sessions (incorporation of questions / surveys, questions to be discussed, review of points explored, contribution of ideas, etc.)
- Focused on facilitating interaction, analysis and practical experiences

=> It requires commitment from the student

- Previous to the class:
 - Revision of the specific material (material, links, videos) on your own
- Beginning of the class:
 - Polls and reinforcement of revised contents
- Classes dedicated to the practical application (Project-Based Learning):
 - Guided classes and personalized follow-up by working groups
 - Putting concepts into practice by solving small projects => Mini-Activity (small guided practice)

Autonomous work (non presential):

- The development of the *Course Practical* will be completed in non presential hours.flipped classroom

The **evaluation system** (detailed in the corresponding section) is composed of: 1) a written tests (first midterm exam); 2) practices (to develop in group); and 3) a validation test at the end of the coruse (it includes theoretical questions about the last theme), if professor considers necessary.

Development plan

Week	Laboratory addressed session - Theoretical part (BsG)	Laboratory addressed session - Practical part (BsG)	Autonomous work
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APPLICATIONS FOR MOBILE DEVICES 2020-21

1	Subject presentation T1: Introduction to the Android platform		Study
2	T2: First steps: Android Studio development environment	<i>MiniActiv-1</i> : Good practices in resources management	Development environment configuration and <i>MiniActiv-1</i> completion
3	T3: Basics of Android applications	<i>MiniActiv-2</i> : Endowing Helloworld of Interactivity and Navigation	Study and <i>MiniActiv-2</i> completion
4	T3: Basics of Android applications.	<i>MiniActiv-3</i> : Knowing thoroughly the EPS with implicit intents	Study and <i>MiniActiv-3</i> completion
5	T3: Basics of Android applications	<i>MiniActiv-4</i> : Expanding player service to demand	Study and <i>MiniActiv-4</i> completion
6	T3: Basics of Android applications	<i>MiniActiv-5</i> : <i>AdapterView</i> selection controls	Study and <i>MiniActiv-5</i> completion
7	T4: Widgets: basic controls and selection controls		Study and <i>Prac1</i> starting
8	T5: Organizing the screen: <i>Layouts</i>		Study and <i>Prac1</i> development
9	1rst midterm		
10	T5: Organizing the screen: <i>Layouts</i>		Study and <i>Prac1</i> development
11	T6: Flexible User Interfaces with <i>fragments</i>		Study and <i>Prac1</i> development
12	T6: Flexible User Interfaces with <i>fragments</i>		Study
13	T7: Menus and Navigation design		Study and <i>Prac2</i> starting <i>Prac1</i> delivey
14	T8: Data persistence. Managing databases		Study and <i>Prac2</i> development
15	T8: Data persistence. Managing databases T9: Publication and distribution of an Android app		Study and <i>Prac2</i> development
16	2nd midterm week		Study and <i>Prac2</i> completion
17	2nd midterm week		Study. <i>Prac2</i> delivey
18	Tutories		
19	Recovery Personalized interview (if <i>Prac</i> is below the minimum mark required)		
20			

Evaluation

Activt.	Description	Weight	Minimum Grade	In group	Presential	Mandatory	Recoverable
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Part1	First midterm exam	20%	3,0	No	Yes	Yes	Yes
Tech4aDay	Teacher for a day	5%	No	No	Yes	No	No
MiniActivs	Pack of Mini-activities	20%	No	Yes	No	Yes	No
Prac	Course practice	60%	4,0	Yes	No	Yes	Yes
ValidEx	Validation exam	Apt/Non Apt	No	No	Yes	If teacher consider appropriate	No

Final grade = $0,20 * \text{Part1} + 0,20 * \text{MiniActivs} + 0,60 * \text{Prac} + 0,05 \text{Tech4aDay}$

- Subject is passed if **final grade** is greater or equal than **5,0** and 1) each part is above the minimum required (both midterm and *Prac*); and 2) the validation exam is passed.

Other considerations and criteria:

- Validation exam: questions related with contents of the 2nd midterm. To be realized at the end of the course if the teacher considers it appropriate. Its mission is to validate the realization of the *Prac*. by the student, discarding possible copies.
- Type of exams: Depending of the modality. 1) *Presencial*: concept fixation and problems solving; 2) *Virtual*: little development with Android Studio.
- Pack of mini-activities (MiniActivs):
 - Continuous work as a practical application of the class sessions contents. Most of them propose a compulsory and an optional part.
 - *Objective*: put into practice *in-situ* each new concept introduced in class.
 - *Delivery*: Online, synchronous session. They are a requirement for the subject success.
 - preferably during the class
 - in other cas: by the Campus Virtual and videoconference.
 - *Mini-activities* proposed along the 1rst partial are compulsory. Contents of the 2nd midterm will be applied directy at the *Course practice*.
 - *Evaluation*:
 - Compulsory part: up to 2 points (complete mark)
 - Compulsory and optionat part: up to 2,5 (0,5 points over the mark)
- Course practice (Prac):
 - Articulated in 2 deliveries
 - *Weight and calendar of each delivery*:
 - *Delivery 1 (Prac1)*: 13^a Week. (30% of the grade)
 - *Delivery 2 (Prac2)*: 17^a Week. (30% of the grade)
 - *Global minimum grade required*: 4 (in the average of both deliveries *Prac1* and *Prac2*).
 - Each separated delivery must have a minimum grade of 3.
 - *Avaluation and recovery system*: continuous avaluation
 - Will be required:
 - Minimal requirements to be fulfilled in code, which are delivered to students both, in a descriptive and numerical way.
 - Criteria set in the **Manual of good programming practices** will be required, specified as minimum requirements to fulfill.
 - Also additional requirements, which will be considered as extra points in the grade.
 - Students receive feedback according to these correction criteria.
 - *Prac1*: Possibility of improvement through the 2nd delivery.
 - The mark of the re-delivered part is modified applying a **corrective factor of 0,85**.
 - *Prac2*: in case the mark is above the minimum required: *personalized interview* during the 19th week (recovery), aiming to bring improvements.
- For all activities: programmed deliveries, unmovable dates

Bibliography

Books

- Frank Ableson, Robi Sen, Chris King
"Android, guía para desarrolladores"
Anaya Multimedia, 2011 (2ª Edition)
- Satya Komatineni, Dave MacLean, et ál
"Pro Android 3"
Apress, 2011
- Jeff Smith , Dave Friesen
"Android recipes: a Problem-solution approach"
Apress, 2012