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Mobile Applications Course Definition File

1- Basic Information:

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| Course Name | Mobile Applications |
| Course ID | CCN403 |
| Contact Hours (Registered Sessions) | 30 |
| Contact Hours (Synchronized Sessions) | 18 |
| Mid Term Exam | None |
| Exam | 1.5 |
| Registered Sessions Work Load | 30 |
| Synchronized Session Work Load | 18 |
| Credit Hours | 5 |

2- Pre-Requisites:

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| Course | ID |
| Object Oriented Programming | IPG204 |

3- Course General Objectives:

This course starts by an overview of Java programming language basics that are needed for developing mobile applications.

It provides the necessary skills to develop Android based applications using the Android Studio Integrated Development Environment.

At the end of this course, students will learn how to:

1. Build mobile applications.
2. Deal with various widgets.
4. Use Google maps and geographical location.
5. Deal with mobile databases.

Intended Learning Outcomes (ILO):

| Learning Outcomes codes | Learning Outcomes |
|-------------------------|---|
| LO1 | Learning Java programming language basics |
| LO2 | Building mobile applications using Android Studio |
| LO3 | Using main widgets, menus and events |
| LO4 | Dealing with widgets and Action Bar |

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| LO5 | Using Layouts |
| LO6 | Building Activities and Intents |
| LO7 | Manage activity states |
| LO8 | Building lists, using Text to Speech and Speech to Text tools |
| LO9 | Using fragments |
| LO10 | Using Google maps |
| LO11 | Building SQLite databases |

4- Course Content

| LO | Course Syllabus | Recorded Sessions | Synchronized Sessions | Type | Additional Notes |
|-----|---|-------------------|-----------------------|---|------------------|
| LO1 | Learning Java programming language basics | 2 | 1 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input checked="" type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | |
| LO2 | Building mobile applications using Android Studio | 2 | 1 | <input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | Android Studio |
| LO3 | Using main widgets, menus and events | 2 | 2 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input checked="" type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | Android Studio |
| LO4 | Dealing with widgets and Action Bar | 2 | 2 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | Android Studio |
| LO5 | Using Layouts | 2 | 1 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments | Android Studio |

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| | | | | <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | |
|-------------|---|---|---|---|----------------|
| LO6 | Building Activities and Intents | 1 | 1 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | Android Studio |
| LO7 | Manage activity states | 2 | 2 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | Android Studio |
| LO8 | Building lists, using Text to Speech and Speech to Text tools | 1 | 2 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input checked="" type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | Android Studio |
| LO9 | Using fragments | 1 | 2 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input checked="" type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | Android Studio |
| LO10 | Using Google maps | 1 | 2 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others | Android Studio |
| LO11 | Building SQLite databases | 2 | 2 | <input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input checked="" type="checkbox"/> Others | Android Studio |

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5- Assessment Criteria (Related to ILOs)

| LO Code | LO | Assessment Type | | | | |
|---------|---|--|----------|-------|--|---------|
| | | Interactive Synchronized Collaboration | Practice | Exams | Presentations And Face-to-Face Assessments | Reports |
| LO1 | Learning Java programming language basics | X | X | X | | |
| LO2 | Building mobile applications using Android Studio | X | X | | | |
| LO3 | Using main widgets, menus and events | X | X | X | | |
| LO4 | Dealing with widgets and Action Bar | X | X | X | | |
| LO5 | Using Layouts | X | X | X | | |
| LO6 | Building Activities and Intents | X | X | X | | |
| LO7 | Manage activity states | X | X | X | | |
| LO8 | Building lists, using Text to Speech and Speech to Text tools | X | X | X | | |
| LO9 | Using fragments | X | X | X | | |
| LO10 | Using Google maps | X | X | X | | |
| LO11 | Building SQLite databases | X | X | X | | |

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6- Course Syllabus (18 hours of total synchronized sessions)

| Chapter | Contents | |
|---|-----------------------|--|
| (1) Java Basics | | <ul style="list-style-type: none"> • Data Types • Conditional statements • Loops • Arrays • Methods |
| (2) Object Oriented Programming in Java | | <ul style="list-style-type: none"> • Classes • Inheritance • polymorphism |
| (3) Data Structures in Java | | <ul style="list-style-type: none"> • Collections in Java |
| (4) Building mobile applications using Android Studio | Android Studio | <ul style="list-style-type: none"> • Android • Android Studio • Virtual Devices • Building applications • Application parts • Activity • View • Layout • Widgets • Events • Action Bar • Notification Area |
| | Example | Example |
| (5) Main widgets, menus and events | Example 1: Calculator | Example 1: Calculator |
| | Example 2: Game | Example 2: Game |
| (6) Widgets and Action Bar | Widgets | <ul style="list-style-type: none"> • Button • ImageView • EditText • CheckBox • RadioButton • Spinner |
| | Action Bar | Action Bar |

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| (7) Layouts | Layouts | <ul style="list-style-type: none"> • LinearLayout • Gravity • Weight • Widget Box Model • Sizing • Padding • Margin • Grid Layout • Nested layout • RelativeLayout • FrameLayout |
| (8) Activities and Intents | Activities | <ul style="list-style-type: none"> • Activity lifecycle • Activity states |
| | Intents | Intents |
| | Example | Example |
| (9) Manage activity states | Activity states | <ul style="list-style-type: none"> • Activity instance state • Lost activity state • Handling rotation • non-persistent/ permanent state • non-persistent state • Preferences |
| | Files | <ul style="list-style-type: none"> • Internal storage • File • Streams • External storage • Accessing web data |
| | Camera | Using the Camera |
| (10) Building lists, using Text to Speech and Speech to Text tools | Lists | <ul style="list-style-type: none"> • ListView • Static Lists • Dynamic Lists • List Adapter • List events |

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|------------------------|-----------------------------------|--|
| | Text to Speech and Speech to Text | <ul style="list-style-type: none"> • Text to Speech • TextToSpeech Class • speak • Speech to Text |
| | Example | Example |
| (11) Fragments | Fragments | <ul style="list-style-type: none"> • Situation-Specific folders • Fragment lifecycle • Fragment Template • Activities and intents |
| | Example | Example |
| | Example | Example |
| (12) Using Google maps | Google Maps | <ul style="list-style-type: none"> • MapFragment • Google Map methods • The map camera • Latitude and longitude • Set camera in XML • Set camera in Java code • Placing markers • Lines and paths • Accessing phone's location • Location update events • Emulator location |
| (13) SQLite databases | SQLite databases | <ul style="list-style-type: none"> • Create database • Create tables • SQL statements |

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7- Practice Tools:

| Tool Name | Description |
|----------------|-------------|
| Android Studio | |

8- References

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| Android Studio Development Essentials, Neil Smyth, Techotopia, July 2014 |
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