

Doc 01 - Course Information

Course Name	Android Programming		
Course Code	SPG 0562	Credit	2
Section/Department	CI / EE	Semester	6
TTO Name	Mohd Fadhli bin Abdul Jalil, Ahmad Tajudin bin Baharin	Assessment Type	Type 1
Mode of Delivery	Lecture, Practical, Problem-based Learning	Pre-Requisite	
Rationale	This course extends the previous study of Secured Object-Oriented Programming. This course covers the fundamentals of Android programming using Android Software Development Kit (SDK). This course is concerned with the development of mobile applications. Android will be used as a basis for teaching programming techniques and design patterns related to the development of standalone applications.		
Synopsis	To successfully complete this course student must have ability in Java Programming Language. Students will learn the fundamentals of Android operating systems, Android software development tools, activities, and intents, designing user interface using views, data binding, multi-view-controller and connecting application to web. Students will demonstrate their ability to develop software with reasonable complexity on mobile platform, deploy and debug software or programs running on mobile devices.		
Course Learning Outcome			Learning Taxonomy
CLO 1	Use the application models/architectures to develop mobile application.		Cognitive (C3)
CLO 2	Develop mobile application using an appropriate software development environment.		Psychomotor (P4)
CLO 3	Display creativity while developing mobile interactive application in a client-server environment.		Affective (A3)

Assessment Component	Assessment Method	Percentage (%)
Coursework	PBL Assignment 1	10
	PBL Assignment 2	10
	Practical Test`	20
	Theory Test	20
Kemahiran Insaniah & Sahsiah (KIS)		10
Final Assessment	Mini Project	30

L=Lecture T=Tutorial P=Practical O = Others (PBL, Projects, Assignment, Consultation, Information Search, Self Study, Independent Study, Field Work, etc)

Course Content Outline								
Teaching Week	Content	Unit Learning Outcome	CLO	SLT (Hours)				
				L	T	P	Others	Total Independent Learning
	1. Introduction to Android 1.1 Introduction. 1.2 Installation of Android Studio. 1.3 Configure Android SDK 1.4 Setup First Project 1.5 Setup Embedded Emulator and phone 1.6 Build a simple application 1.7 Run an application on Emulator 1.8 Run an application on physical devices Practical List: 1. Install Android Studio on student's laptop. 2. Set up android first project. 3. Setup embedded emulator and phone	1.1 Install Android Studio 1.2 Run an application with or without physical devices. 1.3 Write simple Android application.	CLO1	5		5		

	2. Android Development 2.1. Android Architecture 2.2. Understanding Android Studio 2.3. Setup Embedded Emulator 2.4. The Manifest File 2.5. Build an App: User Interface Setup 2.6. Build an App: Adding Buttons and the backgrounds 2.7. Build an App: Adding event Listeners and Android Logging 2.8. Build an App: Showing Money Counter and Currency Formatter. 2.9. Build an App: Adding Android SnackBar and Toast Practical List: 1. Build one application to familiarize with widgets components.	2.1 Discuss the android architecture. 2.2 Setup an emulator 2.3 Explain what Manifest file is. 2.4 Explain what user interface is. 2.5 Apply Basic User Interface Design 2.6 Build one application to familiarize with widgets components.	CLO1	5		5		0.5
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	3. Android Layouts & Constraints 3.1. Layouts in Android 3.2. View Class Hierarchy 3.3. Build an App: User interface setup 3.4. Build an App: Adding ScrollView 3.5. Build an App: Adding Button and EditText Practical List: 1. Write Android apps using Android programming using android layout and constraints	3.1. Explain about android layout. 3.2. Explain the View Class Hierarchy. 3.3. Differentiate each layout in android. 3.4. Apply the android layout in building the android application.	CLO2	4		5		0.5
	4. Data Binding 4.1. Introduction on Data Binding 4.2. Example of Data Binding 4.3. Why data binding is important 4.4. Build an App: Implement data binding 4.5. Introduction to Model-View-Controller 4.6. Build an App: Implement model view controller Practical List: 1. Write Android Quiz apps	4.1. Explain about data binding. 4.2. Explain why data binding is important. 4.3. Apply data binding concept in building application. 4.4. Explain about Model-View-Controller. 4.5. Implement Model-View-Controller in building application.	CLO2	4		5		0.5

	5. Android Activities and Life Cycles 3.1 Android Activities and Life Cycle callbacks 3.2 Showing Each Activity Life Cycle. 3.3 Navigate to another activity. 3.4 Receiving data from first activity. 3.5 Using Bundle to retrieve data. 3.6 Show data from second activity. Practical List: 1. Write Android user interface program.	5.1. Explain what android activities and life cycle callbacks are. 5.2. Implement activities and life cycle callbacks in application. 5.3. Write Android program that navigate to other activities. 5.4. Write Android program that can retrieve information for other activities.	CLO2	5		6		0.5
	6. Connecting application to the Web 6.1 Understanding API's and Libraries 6.2 Setting up the Volley Network Library and Parsing a String 6.3 Setting Up JSONArray Android Volley Request 6.4 Parsing a JSONArray with JSONArray Request	6.1 Explain what API's and Libraries for Android. 6.2 Write android application and connect to web. 6.3 Write android application and parse information to web.	CLO2 CLO3	5		6		1

	6.5 Parsing a JSON Payload with the JSONObject Request Practical List: 1. Build a Trivia App							
	PBL Assignment 1		CLO 2				3	1
	PBL Assignment 2		CLO 3				3	1
	Practical Test		CLO 2				2	1
	Theory Test		CLO 1				1	1
	FINAL ASSESSMENT (MINI PROJECT)		CLO 1 CLO 2 CLO 3				3	1
SUBTOTAL				28		32	12	8
TOTAL CONTACT HOURS PER COURSE				72				
TOTAL SLT HOURS PER COURSES (CREDIT)				80 (2)				

No	Identify special requirement to deliver the course (e.g: software, nursery, computer lab, simulation room, etc)
1	Android Studio
2	Computer Lab
3	

References			
No	Main References	No	Additional References
1	Android Programming for Beginners, Packt Publishing; 3rd ed. edition (April 9, 2021). John Horton. ISBN-10 : 1800563434 ISBN-13 : 978-1800563438	1	Paulo Dichone (2021).The Comprehensive 2021 Android Development Masterclass. Udemy. https://www.udemy.com/course/android-development-java-android-studio-masterclass/
2	Android for Absolute Beginners: Getting Started with Mobile Apps Development Using the Android Java SDK. Apress; 1st ed. edition (May 29, 2021). Grant Allen. ISBN-10 : 1484266455. ISBN-13 : 978-1484266458	2	Tim Buchalka (2021). Android Java Masterclass: Become an App Developer. Udemy. https://www.udemy.com/course/master-android-7-nougat-java-app-development-step-by-step/
3	Android Studio 4.1 Development Essentials - Java Edition. Payload Media (October 26, 2020). Neil Smyth. ISBN-10 : 1951442253. ISBN-13 : 978-1951442255		
4	Learn Java for Android Development: Migrating Java SE Programming Skills to Mobile Development. Apress; 4th ed. edition (July 9, 2020). Peter Spath, Jeff Friesen. ISBN-10 : 1484259424. ISBN-13 : 978-1484259429		