

NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	B.Tech. Computer Science and Engineering
Course Code:	2CSDE76
Course Title:	Mobile Operating Systems
Course Type:	Departmental Elective
Year of Introduction:	2021-22

Credit Scheme

L	T	Practical Component				C
		LPW	PW	W	S	
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Course Learning Outcomes (CLO):

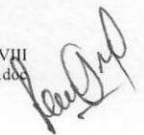
At the end of the course, students will be able to –

1. compare the similarities, differences and benefits of the current mobile operating systems
2. explain the functionalities of remote operations and security essential of mobile devices
3. analyze the latest trends in building Mobile OS
4. demonstrate the native applications required to build using mobile OS

Syllabus:

Total Teaching hours: 45

Unit	Syllabus	Teaching hours
Unit-I	Introduction: Introduction to different operating system platforms, Windows Server, Windows Desktop, Linux servers, Android, Apple iOS.	10
Unit-II	List and order the basic process of building a PC, component selection, order of component assembly, environment precautions. Describe the process for installing a software operating system, obtaining installation media, identifying suitable hardware, installing software, configuring for first use.	08
Unit-III	List and describe the order of tasks required for end-to-end testing of an operating system to ensure it works as intended (Windows, Linux), perform a log in as an administrative user, test remote management, perform a log in as a normal user, verify that a normal user cannot use admin tools requiring elevated permissions, verify that connectivity to network resources and internet services works correctly.	10
Unit-IV	Summarise the native applications for different operating systems. IOS, Safari, Maps, App Store, Windows; o IE, Edge, Notepad, Paint, Command Prompt, Linux, Nano, Terminal, Android; Chrome, Maps, Play Store.	09



Unit-V Explain the security principles when running an operating system running on a platform; with a focus on physical hardware, virtual servers and cloud services. secure configuration following recommended good practice; user access control; malware protection; patch management. 08

Self-Study: The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings/References:

1. Gerardus Blokdijk, Mobile Operating System A Complete Guide, 5STARCOOKS publication
2. Reto Meier, Professional Android 4 Application Development, Wrox Publication
3. Books Llc (Google online Books), Mobile Phone Operating System : General Books LLC
4. Haseman, Chris, Android Essentials Apress publication
5. Charlie Miller, Dion Blazakis, Dino DaiZovi, Stefan Esser, Vincenzo Iozzo, iOS Hacker's Handbook, Wiley publication

Suggested List of Experiments:	Sr. No.	Title	Hours
	1	To explore different operating system platforms	04
	2	To perform the process for installing a software operating system	02
	3	To explore and implement the order of tasks required for end-to-end testing of an operating system to ensure it works as intended (Windows, Linux)	02
	4	To study and perform algorithmic verification (model-checking) of operating system	04
	5	To summarise the native applications for different operating systems	04
	6	To implement the security concepts when running an operating system running on a platform; with a focus on physical hardware, virtual servers and cloud services	04
	7	Mobile application phase-I: Demonstration of simple UI with user activity To develop an application by using list view and spinner view to list out some items on screen by selecting any of the items system display complete information about that item. Also show addition and deletion of the items from the spinner view.	02

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| 8 | <p>Mobile application phase-II:
 To show Communication between two Activity through Intents: In first Activity take two input from user send these two numbers or strings via intent to second activity, perform the user defined operations on these two numbers/strings in second activity. Now sent back to first activity and show the results to the user on first activity.</p> | 04 |
| 9 | <p>Study and explore Internet of Things:
 To design a program to access sensors and control actuator using HTTP protocol. Connect ESP8266 to a WiFi network and control/access the sensor/actuator from web browser using HTTP.</p> | 02 |
| 10 | <p>To study and explore different Remote Systems Management API.</p> | 02 |

Suggested Case List: -NA-