**MCN7106 Mobile Software & Content Development March 2021**

Course Name: Mobile Software & Content Development Course Code: MCN7106

Course Level: Year 1 and Semester 1 Course Credit: 4 Contact hours: 60

Location for classes shall be: ZOOM and MUELE [www.muele.mak.ac.ug](http://www.muele.mak.ac.ug) . Primary means of communication; Email ([dpmirembe@gmail.com](mailto:dpmirembe@gmail.com) ) and WhatsApp.

Course instructors: Dr. Drake Patrick Mirembe, PhD. Tel: 0776 844343

Course Description: Writing programmes for mobile devices presents unique challenges. This course gives a general introduction to mobile software development, mobile computing and design of mobile services. It introduces several mobile development platforms. The course concentrates on one programming platform based on its potential, features or popularity. Examples of platforms include android and others. Students will learn the issues in mobile computing and communications.

Course Objectives

1. To highlight students on the characteristics of mobile applications and the history of mobile application frameworks.
2. To skill students on Mobile application development.
3. To equip students with skills for User-interface design for mobile applications and managing application data.
4. To provide students with an understanding on integrating cloud services, networking, the OS and hardware into mobile-applications.
5. To enable students address enterprise requirements in mobile applications performance, scalability, modiﬁability, availability and security.
6. To skill students on testing methodologies for mobile applications.
7. To enable students understand mobile app dev. process; from requirements to Publishing, deployment, maintenance and management of applications and content

Learning Outcomes Upon successful completion of this course, the students, shall:

1. Be exposed to mobile applications development principles and business trends impacting mobile applications
2. Be competent with the characterization and architecture of mobile applications and mobile operating systems
3. Be competent with understanding enterprise scale requirements of mobile applications as well as the ability to develop mobile applications using one application development framework.
4. Have knowledge in the mobile content development principles

Detailed Course Content

1. Module: Review of Mobile Computing fundamentals. (3 hours)

2. Module: Fundamentals of Mobile Terminal Hardware set-up (4 hours) Radio, DSP, Memory and CPU components. The division into access & application parts. Base Station side radio interface standards.

3. Module: Introduction to Mobile Operating System Platforms (OSPs) (4 hours) Symbian, Android,

4. Module: User Interface (4 hours) Menu system, and Applications.

5. 6. Module: Overview of Mobile Multimedia Codecs (4 hours)

7. Module: Fundamentals of Mobile Content & Mobile web content design. (3 hours)

8. Module: Widgets & W3C Standards (4 hours) Device Recognition & dot Mobi.

9. Module: mobile apps development process and approaches

10. Module: The mobile applications Services ecosystem, and cloud computing (4 hours)

11. Module: Security in mobile environments

12. Module: Principles of Multimedia Messaging (SMS, MMS) and web services (3 hours)

Teaching and Learning Patterns • Lectures, seminars and laboratory exercises

Assessment: • Assignment, Lab. Tests, Project (40%) • Semester ﬁnal examinations (60%)

* Reading Materials
* Bill Phillips, Chris Stewart, Brian Hardy, and Kristin Marsicano, Android Programming: The Big Nerd Ranch Guide, Big Nerd Ranch LLC, 2nd edition, 2015.
* Christian Keur and Aaron Hillegass, iOS Programming: The Big Nerd Ranch Guide, 5th edition, 2015
* Tomasz Nurkiewicz and Ben Christensen, Reactive Programming with RxJava, OReilly Media, 2016.
* Raoul-Gabriel Urma, Mario Fusco, and Alan Mycroft, Java 8 in Action: Lambdas, Streams, and Functional-Style Programming, Manning Publications, 2015.
* Benjamin J. Evans and Martijn Verburg, The Well-Grounded Java Developer: Vital Techniques of Java 7 and Polyglot Programming, Manning Publications, 2013.
* Brian Fling, Mobile Design and Development, OReilly Media, Inc., 2009.
* Maximiliano Firtman, Programming the Mobile Web, OReilly Media, Inc., 2nd ed., 2013.
* Cristian Crumlish and Erin Malone, Designing Social Interfaces, 2nd ed., OReilly Media,Inc., 2014.