

**UUM COLLEGE OF ARTS AND SCIENCES**

**UNIVERSITI UTARA MALAYSIA**

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| **No.** |  | **Information on Course** | | | | | | | | | | | | | |
|  |  | Course Name : **MOBILE PROGRAMMING** | | | | | | | | | | | | | |
|  |  | Course Code: **STIW2044** | | | | | | | | | | | | | |
|  |  | Name(s) of Academic Staff:   * **AHMAD HANIS MOHD SHABLI** | | | | | | | | | | | | | |
|  |  | Rationale for the inclusion of the course in the programme:  This is an elective course for BSc (Hons) (Information Technology) students majoring in Software Engineering. | | | | | | | | | | | | | |
|  |  | Semester/Year Offered: 5/3 | | | | | | | | | | | | | |
|  | Total Student Learning Time (SLT) | | Face to face | | | | | | Online Learning | | | | SLPA | TLT | |
|  | TL = Traditional Lecture  T = Tutorial  P = Practical  SCL/O = Student Cantered Learning/Others  A = Assessment  OL= Online Learning  OA = Online Assessment  SLPA= Self Learning Preparation and Assessment  TLT = Total Learning Time | | TL | T | P | SCL/O | A | | OL | | OA | |  |  | |
| 25.0 | 0.0 | 22.0 | 0.0 | 3.56 | | 9.0 | | 4.52 | | 92.92 | 160.0 | |
|  |  | Credit Value: 4 | | | | | | | | | | | | | |
|  |  | Pre-requisite (if any):  **STIA1023 PROGRAMMING 2** | | | | | | | | | | | | | |
|  |  | Upon completion of the course, students are expected to   1. be able to design mobile application using standard of the industry mobile software design. 2. be able to develop mobile application using standard of the industry development tools. 3. be able to test mobile application using standard of the industry mobile software testing process. | | | | | | | | | | | | | |
|  |  | Course Learning Outcomes:  Upon completion of the course, students are able to   * design mobile based application using state of the industry mobile application development methodology. (C3,P5) * developed mobile based application using the standard of the industry mobile application development environment.(C3,P5) * Be able to evaluate the mobile based application using appropriate mobile application testing and evaluation tools.(A3,P2) | | | | | | | | | | | | | |
|  |  | Transferable Skills:  Knowledge, Practical, Problem solving and Communication skills | | | | | | | | | | | | | |
|  |  | Teaching-learning and assessment strategy:  Mixed method between teacher-centred and student-centred. For the assessment strategy it is a continuous assessment with real project experience through mobile application project. | | | | | | | | | | | | | |
|  |  | Synopsis:  Mobile devices markets are expected to continue to grow. More new and excited features, application and content keep pushing mobile technology further. The needs for more exciting application solutions to improve current state of the art mobile technology. Mobile application development is the set of processes and procedures involved in writing software with consideration for limited resources computing devices. In this course, students will learn how to design, develop and test mobile applications using state of the industry methodology and technology. Topics covered will include mobile operating systems and development environments, input modalities and user interfaces for mobile devices, power management issues for mobile devices, sensor's and wireless mobile networking, location-aware and other context-aware services. Upon completion of the course, students will be able to design, develop, and test applications for mobile devices. | | | | | | | | | | | | | |
|  |  | Mode of Delivery:  Traditional Lectures, Practical, Student-Centered Learning, Online learning and Project. | | | | | | | | | | | | | |
|  |  | Assessment Methods and Types:  Coursework – 100%:   * 60% (Labs and Assignments) * 40% (Final Project)  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Assessment Methods** | | **Percentage** | **MQF** | **CLO1** | **CLO2** | **CLO3** | **CLO4** | **CLO5** | | **Coursework** | **Quizzes** | 10% | MQF1 | √ |  |  |  |  | | **Midterm Test** | 10% | MQF1/MQF2 |  | √ | √ |  |  | | **Assignments** | 40% | MQF2/MQF6 |  | √ | √ |  |  | | **Project (Development)** | 30% | MQF2/MQF6 |  | √ | √ | √ |  | | **Project (Presentation)** | 10% | MQF2/MQF6 |  | √ | √ |  |  | | **Total** | 100.0% |  |  | | | | | | **Final Examination** | |  |  |  |  |  |  |  | | | | | | | | | | | | | | |
|  |  | Mapping of the course/module to the Programme Aims | | | | | | | | | | | | | |
| **Programme Aims** | | | | | | | **Course Learning Outcomes** | | | | | | | |
| **1** | | **2** | | **3** | | | **4** |
| The aim of this programme is to produce graduates with the competitive knowledge, principles and skills in term of theoretical and practical foundation for designing, implementing and managing information technology solutions and resources and also recognizing the impact of technology on individuals, organization and society. | | | | | | | √ | | √ | | √ | | | √ |
|  | Mapping of the course/module to the Programme Learning Outcomes | | | | | | | | | | | | | | |
| **Programme Learning Outcomes** | | | | | | | **Course Learning Outcomes** | | | | | | | |
| **1** | | **2** | | **3** | | | **4** |
| Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to information technology. | | | | | | | √ | | √ | |  | | |  |
| Design, implement, utilize and manage information technology solutions and resources. | | | | | | |  | |  | | √ | | | √ |
| Utilize relevant techniques, and demonstrate analytical and critical thinking skills in problem solving. | | | | | | |  | |  | | √ | | | √ |
| Communicate and work effectively with peers, clients, superiors and society. | | | | | | |  | |  | |  | | |  |
| Demonstrate skills in meeting people, talking with and accepting guidance and responsibilities. | | | | | | |  | |  | |  | | |  |
| Apply information management skills and principles of lifelong learning in academic and career development. | | | | | | |  | |  | |  | | |  |
| Apply broad business and real world perspectives in planning effectively, making judgments and demonstrating entrepreneurial skills. | | | | | | |  | |  | |  | | |  |
| Demonstrate professionalism, values, attitudes and ethical considerations in accordance with ethical and legal principles. | | | | | | |  | |  | |  | | |  |
| Demonstrate the ability to influence others in completing a common task. | | | | | | |  | |  | |  | | |  |
|  | Content outline of the course/module and the SLT per topic | | | | | | | | | | | | | | |

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| **Topics/Weeks** | **Learning Outcomes** | **Face to Face** | | | | **OL** | **SL** | **TLT** |
| **TL** | **T** | **P** | **SCL/O** |  |  |  |
| 1. Introduction to Mobile Programming  1.1 Evolution of the mobile devices.  1.2 Mobile devices characteristic.  1.3 Mobile devices operating system.  1.4 The Ecosystem of Mobile Application  1.4 Case study. | 1 | 4 |  |  |  |  | 4 | 8 |
| 2. Mobile Application Development Life   Cycle.  2.1 Application development framework  2.2 Mobile application testing framework  2.3 Preparing development environment  2.3 Testing development environment.  2.4 Mobile application testing framework.  2.5 Mobile application life cycle. | 2 | 2 |  | 2 |  |  | 4 | 8 |
| 3. User interface component  3.1 Standard interface component (label,   text input, button).  3.2 Sample application using standard   components.  3.3 Interface layout design consideration.  3.4 More interface component (spinner,   radio, toggle and list)  3.5 Menu and popup menu.  3.6 Navigating multiple layouts. | 2,3 | 3 |  | 3 |  | 2 | 8 | 16 |
| 4. Device features and Multimedia control  4.1 Accessing contact, dialler and   messaging functions.  4.2 Display and manipulate image.  4.3 Display and manipulate video.  4.4 Play and manipulate audio. | 2,3 | 1 |  | 2 |  | 1 | 4 | 8 |
| 5. File and Database Operating  5.1 File read and writes operation to   storage.  5.2 Offline database access   (add/delete/update/search)  5.3 Online database access  (add/delete/update/search)  5.4 JSON parser handler. | 2,3 | 3 |  | 3 |  | 2 | 8 | 16 |
| 6. Location Based Service  6.1 Accessing location based service.  6.2 Accessing and manipulating Google   maps.  6.3 Location based geocoder.  6.4 Sample application using location based   service. | 2,3 | 3 |  | 3 |  | 2 | 8 | 16 |
| 7. Device sensor  7.1 Accessing and manipulating sensor   manager.  7.2 Light, rotation, accelerometer,   magnetometer, and gyroscope.  7.3 Sample application using sensors. | 2,3 | 2 |  | 2 |  |  | 8 | 8 |
| 8. Mobile Network Communication  8.1 Bluetooth access communication.  8.2 Near Field Communication access.  8.3 Infrared access communication. | 2,3 | 2 |  | 2 |  |  | 4 | 8 |
| 9. Mobile and Internet of Things.  9.1 Introduction to IOT.  9.2 Basic IOT implementation SOC device   side.  9.3 Basic IOT implementation mobile side.  9.4 Sending and receiving data in IOT   environment. | 2,3 | 3 |  | 3 |  | 2 | 8 | 16 |
| 10. Publishing Mobile Application  10.1 Preparing for mobile application release.  10.2 Version control  10.3 Signing and releasing application  10.4 Monetized application through mobile   market. | 2,3,4 | 2 |  | 2 |  |  | 4 | 8 |
|  | | 25 |  | 22 |  | 9 | 56 | 112 |

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| **Student Learning & Assessment** | **Face to Face** | **Online Learning** | **Online Assessment** | **SLPA** | **TLT** |
| Course Delivery and Preparation | 47.0 | 9.0 |  | 56.0 | 112.0 |
| Coursework 60% | 0.2 |  | 4.5 | 25.2 | 29.9 |
| Final Examination  40% | 3.4 |  | 0.0 | 14.7 | 18.1 |
| Total Notional Hours | 50.6 | 9.0 | 4.5 | 95.9 | 160.0 |
| Credit Hours | 4.00 | | | | |
| **Main References:**  Ahmad Hanis Mohd Shabli, 2017, Surviving Android Programing with Android Studio, E-BOOK, UUM  **Additional References:**  Android Programming for Beginners, 2015, John Horton, Packt Publishing  Hello, Android Introducing Googles Mobile Development Platform 4th Edition, 2016, Ed Brunette.  Head First Android Development, A Braind Friendly GUide, 2015, Dawn Griffith | | | | | |