INFORMATION ON AREA 2: CURRICULUM DESIGN AND DELIVERY

2.1 Academic Autonomy

Benchmarked Standards

2.1.1 Describe the provisions and practices that ensure the autonomy of the department in curriculum design and delivery, and in allocation of resources. Provide supporting documents where appropriate.

The faculty reviews existing programmes at regular interval. These programmes are discussed at the Programme Committee Meeting, which is then placed at the Curriculum Committee Meeting. Once approved, the proposed/reviewed programme is forwarded to the Senate and LUC management for final approval. After approval, it is submitted to MQA and MOE for approval.

The process of establishing new curriculum recognizes the various roles of the faculty, the administration and the governing board. Programme approval, monitoring and review processes in the Lincoln University College often involve stakeholders, industrial liaison panels and external examiners. Such involvement may be through consultation about the curriculum and market survey prior to development. Needs assessment exercises are conducted before the establishment of any programme. Consultations are carried out with employers, staff, students, peers, professionals, industry and informed community members to ensure that the teaching–learning method of all programmes are appropriate and current in terms of content; consistent with the attainment of outlined programme outcomes. The Curriculum Committee examines all course proposals to ensure that they contribute to the mission, aims and objectives of the University College.

2.1.2 Show the relationship between the departmental board and the senate.

Departmental board closely related with senate regarding academic matter. Department board gives the report to senate about academic progress and developments. Furthermore senate will discuss any issues on the periodical senate session.

2.1.3 How does the department ensure that the academic staffs have sufficient autonomy in areas of his expertise?

All programmes at Lincoln University College are developed with the objectives of producing graduates with a solid grasp of knowledge in their discipline and cognitive thinking ability to think critically to solve problems as well as easily adapt to the various surroundings and prepare them for lifelong learning.

Thus, the mission, vision and objectives of each programme are developed in line with the vision and mission of Lincoln University College. All teaching, learning and research at departments and faculties are parallel with that required under the Lincoln University College. Furthermore, the Curriculum Committee has the authority to review and evaluate all course proposals to ensure that they contribute to the mission, aims and objectives of the University College.

Recently in line with the requirement of MQF, all programmes are required to formulate their programme goal and programme outcomes which will be measured at the end of each programme. The programme goal and outcome are in the programme specification.

Information on Enhanced Standards

2.1.4 State the departmental policies and practices to address conflict of interest, for example, staff involvement in private practice, part-time employment and consultancy services.

The LINCOLN UNIVERSITY COLLEGE (LUC) has Outreach Division whereby lecturers are allowed to have consultancy and private practice with the following terms and condition;

- LUC activities are top priority
- If a staff/lecturer has time, he / she is allowed to do consultancy and private practice
- 60% are meant to be taken by the staff and 40% goes to the Lincoln University College.

The Outreach Division provides opportunities for personal development and enrichment, technical upgrading, and professional growth. Utilizing state of the art equipment and facilities, we focus on flexible and responsive delivery methods, providing qualified trainers, and top – notch materials.

2.1.5 What are the HEP's plans to expand the autonomy of the academic staff? What is the department's role and how does it support this?

We are providing qualified and dedicated tutors and lecturers of different specialty area from the Malaysia and international support (if required) for our students and encouraging our students to excel in all aspects including education, research and their future career. In general, these are the ways we are reaching our mission, vision and objectives. The department Computer Science would conduct regular meetings involving lecturers to make any such decisions.

2.2 Programme Design and Teaching-Learning Methods

Benchmarked Standards

2.2.1 Describe the processes, procedures, and mechanisms for curriculum development. How are the academic and administrative staffs involved in this process?

LUC basic guideline in curriculum design shall be based on the 8 learning domains of MQA. The 8 domains are incorporated in program objectives and outcomes. Based on these broad learning objectives and outcomes the individual units or subjects of the program are developed. This will ensure that each unit contributes to the overall attainment of the program learning objectives and outcomes. The 8 domains are:

1. Knowledge,
2. Communication and technical skill,
3. Professionalism and attitude,
4. Analytical,
5. Critical & creative thinking skills,
6. Social responsiveness and responsibility,
7. Management and entrepreneurship,
8. Positive attitude towards life-long learning.

All curriculum design is also benchmarked against Malaysian IPTA and IPTS to cater for the local market needs. In addition, if relevant, it will also be benchmarked against any professional bodies and guidelines in curriculum design

The Curriculum Development Process can be represented by the following Flow Chart:

ACADEMIC STAFF

⇩

CURRICULAM DEVELOPMENT COMITTEE

⇩

ACADEMIC QUALITY ASSURENCE

⇩

MANAGEMENT

2.2.2 What are the various teaching and learning methods used in curriculum delivery to achieve the programme learning outcomes? Describe them.

Lincoln University College always takes assessment for every subject that the student take related with the real work life situations and the recent issues in the market and society. The purpose of those teaching and learning methods is to train them in respect of what is going on around them and to prepare their life and skills later on.

There are a total of eight (8) programme outcomes (PO) (at the Faculty of Computer Science) which correspond with those set by the Malaysian Qualifications Framework (MQF):

PO1 Knowledge

PO2 Practical skills

PO3 Social skills and responsibilities

PO4 Ethics, professionalism and humanities

PO5 Communication, leadership and team skills

PO6 Scientific methods, critical thinking and problem solving skills

PO7 Lifelong learning and information management

PO8 Entrepreneurship and managerial skills

The course-learning outcome of all courses in a particular programme must contribute to the programme outcome. This is monitored through mapping of courses to programme learning outcomes.

The programme incorporates multi-disciplinary topics of local, national and international importance. These topics are incorporated into the curriculum through the following processes:

(a) Directive from the Ministry of Higher Education, Malaysia.
(b) Inputs from the academic staff, at departmental or faculty level.
(c) Feedback from professional bodies and stakeholders, such as the practical training partners.

The Faculty CDC will initiate and develop curriculum and components of the programs as the need arises within the faculty or development including setting up on ad-hoc committee within the Faculty to review the program.

Existing course are subject to regular review to ensure that quality and relevant academic standards are maintained.

Wherever necessary, revision of the existing curriculum is recommended and forwarded by Faculty CDC to SENATE and BOD for approval and endorsement.

Generally for new courses CDC will be guided by the following criteria:

1. Learning objective and outcomes
2. Academic content standard
3. Vocational relevance in accordance with the objective of the course
4. Learning and teaching mode
5. Progression of graduates to advance courses/ continuing education
6. Employment opportunities for graduates
7. Relevance of the course in relation to industry and national development needs
8. Comparative study on IPTA/IPTS similar course ad benchmarked purpose
9. External advisor-expertise related fields
10. Human resource/building facilities resource
11. Guidelines for quality assurance in education by MOE and MQA and professional bodies, if any.
12. Accreditation of professional body and MQA and JPA, where necessary.

2.2.3 Show evidence that the department have considered market and societal demand for the programme as well as sufficient resources to run it.

There is currently a considerable shortage of professionals in the field of Computer Science within Malaysia and the neighboring countries. The production and the demand of the computer science are increasing exponentially and currently makeshift engineers and technicians fill the positions in those activities. For Computer or IT industry to flourish, trained professionals are needed so that the industry can grow in a systematic and efficient manner. Moreover, because of the lack of trained professionals in the field of computer science technology, many of the local resources that could contribute significantly to the development of the nation remains untapped and or underutilized costing the nation not only in employment opportunities but also in export potentials. Without these trained professionals, it will be difficult for any nation to make a smooth transition into computer science economy and to realize full potential of these opportunities

2.2.4 Explain how the programme promotes critical enquiry, develop problem solving, decision making,

and analytical thinking skills, as well as encourages students to take active responsibility for their learning, and prepares them for lifelong learning.

The development of scientific methods, critical thinking, and problem solving skills will be promoted and imparted through independent studies in scientific research, in tackling the social issues related to energy and environment, in developmental project for technology deployment, in influencing legislative policies, and in building the computer or IT infrastructure. The students will be given opportunity for formulating the issues, formulating solutions through critical thinking, and assessing the results of their own work. Students will be trained to solve problems logically and analytically and to think critically for every decision they make so that their decisions lead to making a positive difference in whatever profession they choose after graduation. LUC makes it compulsory for all students to take part in problem solving and action oriented work. Thus students become more critical and possess analytical mind to make it easier for them to meet the challenges of national as well as global competitive environment.

The curriculum for the Diploma in Mobile Computing has a mechanism built into it that requires the students to continue learning, to continue gathering new information, and to make use of the information to improve upon the technologies, to broaden the sphere of technology applications, developing novel means of improving the environment, contributing to sustainable economy and improving the quality of life of less fortunate, to make new inventions for the betterment of the society, and to utilize the learning to bring prosperity to the masses. Meritocracy will be guiding principle and a goal that each student must attain through lifelong learning and from making good use of the information. The lifelong learning will also integrate formal, non – formal, and informal education outside of the school environment so as to create ability for continuous lifelong personal development of quality of life. Learning therefore will become an integral part of life which takes place at all times and in all places.

2.2.5 Describe the diverse learning methods and sources, within and outside the classroom, where students acquire knowledge, technical skills, and develop attitudes and behavior in preparation for their learning, individual growth, future work and responsible citizenry (e.g., co-curriculum).

The Diploma in Mobile Computing is a well-balanced programme designed to impart knowledge in the basic science of computer along with specialization in research and development, public advocacy, and entrepreneurship. Each student must complete the core courses to gain basic understanding about the computer technology and how it is harnessed. Once completing the core courses, the students can choose to specialize in any one of the three concentrations including research and development, public advocacy,

and entrepreneurship. The concentration requires equal number of courses as the core courses. After completing those, the students must either take additional courses from the remainder of the concentrations for broadening the learning horizons or choose to pursue research and development in the area of their concentration or develop a concept paper that encourages independent thinking in the area of addressing policy issues, learning the intricacies of computer science technology, and addressing some of the pressing issues of the time including energy deprivation of masses in the developing countries. During the independent studies, the students will be encouraged to work with industry leaders, civic leaders, government leaders, governmental as well as non-governmental development agencies, and general public to assure that all outcomes of their independent thinking are linked with their individual growth as well as with the betterment of the society. At every stage of learning, the students will be encouraged to invent new ideas in the field of computer science that would benefit the masses and that will enable the nation to take full economic advantage when the world economy transitions into the computer technology. The students will be encouraged to participate in workshops, seminars, and conferences as well as to publish in refereed journals.

Information on Enhanced Standards

2.2.6 Show how the programme encourages a multi-disciplinary approach and co-curricular activities in enhancing and enriching the personal development of the learner.

The Diploma in Mobile Computing programme is designed to touch every aspect of the human endeavour since it is necessary to transit into completely new economy, shifting the entire nation and all economic activities into the industrialization of the computer science. Therefore, this programme by its very definition is meant to encourage multi-disciplinary approach and co-curricular activities to enhance and to enrich not only the students but of every other individual with whom the students would make contacts during their learning. The outcomes of the proposed programme are designed to contribute significantly towards societal outlook and environmental responsibility, improved quality of life of the population, and more importantly, towards the economic development and prosperity of the nation and its populace.

As explained earlier, the curriculum for the Diploma in Mobile Computing is structured such that it compliments other academic pursuits at the Lincoln University College. A greater portion of the curriculum is devoted to teaching the relationship between the environment and the development of technology in a manner that the students from other technology related department can understand and devise solutions and programs for mitigation that would ultimately have these two disciplines working side by side. The curriculum for computer science is also structured such that the students from Faculty of Computer Science from Lincoln University

College and from engineering, environment, information technology, social sciences, and law students from outside of the Lincoln University College could enroll in the program to enrich their capacity in the field of Computer Science in order to broaden their sphere of opportunities in the marketplace. The emphasis of the programme is on improving the quality of life that cuts across all the academic disciplines at Lincoln University College. The ability of the proposed program is to integrate scholars from all the academic disciplines at Lincoln University College as well as attracting scholars from diverse disciplines from the other institutions all over the world that would enable the programme to meet its broad mandate to encourage multi-disciplinary approach and co-curricular activities to enrich the students. Also, the programme requirement of interactions with outside agencies and private sector would only add to strengthen this mandate.

2.2.7 How are external sources engaged in the needs analysis for this programme? How are their commentaries utilized to improve the programme?

External sources (professional bodies) will monitor our programme and check everything related and shall support the programme. Other than that, external sources also see how the programme runs. After that they analyze upon the programme.

Reports from professional bodies are used for accreditation purposes and their reports are utilized for further improvement of the programme. Reports from external examiners are used by the department to improve the curriculum to address shortcomings and add current and relevant materials.

The following are examples of modes of interaction with these stakeholders:

(a) Industry (Employers)

(i) Meetings with the various industries.

(ii) Industrial Training/Internship Reports from supervisors about student performance and industry expectations

(iii) Industrial/Market Feasibility Survey.

(iv) Graduate Employability Survey/Tracer Study.

(b) Professional Bodies/Accreditation Boards (if relevant)

(i) Professional requirement feedback/audit from the relevant professional bodies/accreditation boards.

(c) External Examiners and Visiting Professors

(i) Feedback about curriculum design/delivery from external examiners and visiting professors.

(d) The Ministry of Higher Education/ MQA and IPTAs/IPTSs

(i) Quality requirements and audits from MOE and MQA.

(ii) Benchmarking and comparisons with other IPTAs and IPTSs.

(e) Alumni/Student Representatives

1. Meetings with representatives of the student body.

2.2.8 What are the co-curricular activities that enrich student-learning experience, and foster personal development and responsibility?

Once admitted, the student body would result in a diverse mix of individuals who have pursued studies in diverse disciplines in their earlier learning and are now sharing their expertise and experiences on a common platform. This would automatically set a tone for co-curricular exchange of ideas and notions to increase the learning experience of every student enrolled in the programme. The diversity would also create an atmosphere of compromise, which, in itself, would become a catalyst for fostering personal development and responsibility. Moreover, the computer science curriculum would open up opportunity for the LUC students enrolled in other graduate degree programs to select some of the computer science courses as electives in order to become more aware of their surroundings and opportunities.

Additionally, we receive responses and feedback from students. Good responses from students about the facilities and opportunities in co-curriculum options are continuously improved and made better. Negative responses are critically reviewed and improvements made where necessary. This remains an ongoing process at LUC.

The camaraderie amongst the students in various faculties is encouraged by directing them to organize and manage sports and cultural events. It is not only theoretical knowledge applied when organizing events but the practical aspects and experience gained will be much useful in their career and professional life thereafter.

2.3 Curriculum Content and Structure

The department is required to complete Table 1 and 2 to highlight the core subject matter essential for the understanding of the concepts, principles and methods that support the programme outcomes, as well as the

requirements of the discipline for an award, taking into account the appropriate discipline standards and international best practices for the field.

Information on Benchmarked Standards

2.3.1 Classification of subjects (Provide information where applicable in Table 1):

Table 1: Components of the programme and its value

	Subject Classification	**Credit Value**	**Percentage**
1.	Compulsory modules	12	13.04
2.	Core/Major/Concentration:	42	45.65
	• Courses/modules • projects/ thesis /dissertation	6	6.52
3.	Optional / elective courses/modules	6	6.52
4.	Minor courses/modules	18	19.57
5.	Industrial training	8	8.70
6.	Others (specify)		
	Total Credit Value	**92**	**100%**

2.3.2 List the subjects offered in the programme, and include their classification. Arranged by year and semester offered as in the course/module offered in the programme.

YEAR ONE

YEAR ONE SEMESTER ONE						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1.	DMC 1113	Y1 S1	Fundamentals of Mobile Computing	Major	3	Datuk Ir. Ismail Bin Hassan
2.	DMC 1123	Y1 S1	Mathematics	Major	3	Nur Ayuni bt Yon
3.	DMC 1133	Y1 S1	Business English	Compulsory	3	Kholoud Ycoub Mansour Naser Aldeen
4.	DMC 1143	Y1 S1	Calculus	Major	3	Nur Ayuni bt Yon
5.	MPU 2113 / MPU 2153	Y1 S1	Malaysian Studies / Malay Language Communication 2	Compulsory	3	Siti Maria Mohamad / Jay Dee Allen James
			Total Credits		15	
YEAR ONE SEMESTER TWO						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1.	DMC 1213	Y1 S2	Introduction to basic Programming	Major	3	Mr. Midhun Chakkaravarthy
2.	DMC 1223	Y1 S2	Basic Statistics	Major	3	Mr. Vivekanandam
3.	DMC 1233	Y1 S2	Data Structure	Major	3	Mrs. Reihaneh
4.	MPU 2222	Y1 S2	Creative Problem Solving	Compulsory	2	Siti Maria Mohamad
5.	DMC 1243	Y1 S2	IT and Applications	Minor	3	Mr. Balaganesh
			Total Credits		14	
YEAR ONE SEMESTER THREE						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1	DMC 1313	Y1 S3	Multimedia Development	Major	3	Mr. Azisul
2	DMC 1323	Y1 S3	Mobile and Wireless Network Security	Minor	3	Datuk Ir. Ismail Bin Hassan
3	DMC 1333	Y1 S3	Mobile Operating System	Major	3	TBA
4	DCM 243	Y1 S3	Multimedia Management System	Minor	3	Mr. Azisul
5	DMC 1353	Y1 S3	Mobile Usability Design	Minor	3	TBA

			Total Credits		15	

YEAR TWO

YEAR TWO SEMESTER FOUR						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1	DMC 2413	Y2 S4	Mobile Database Design	Major	3	Ms. Noorshyliza
2	BEL 5003	Y2 S4	Research methodology	Major	3	Mr.Midhun Chakkaravarthy
3	DMC 2433	Y2 S4	System Analysis and Design for Mobile Application	Major	3	Ms. Noorshyliza
4	MPU 2332	Y2 S4	Constitution and Community	Compulsory	2	Mr Jaydee
5	DMC 2453	Y2 S4	Computer Animation	Major	3	Ms. Noorshyliza
			Total Credits		14	
YEAR TWO SEMESTER FIVE						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1	DMC 2513	Y2 S5	Mobile Commerce	Major	3	TBA
2	DMC 2523	Y2 S5	Mobile Design	Major	3	TBA
3	MPU 3442	Y2 S5	Co-Curriculum	Compulsory	2	Nazira Alis
4	DMC 2543	Y2 S5	Mobile Game Development	Minor	3	Datuk Ir. Ismail Bin Hassan
5	DMC 2553	Y2 S5	Mobile Device Programming	Minor	3	Mr. Midhun Chakkaravarthy
			Total Credits		14	
YEAR TWO SEMESTER SIX						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1	DMC 2613	Y2 S6	Project report	Project	6	All
	ELECTIVES (Choose any 2)					
2	DMC 2623	Y2 S6	Mobile Technology	Elective	3	Ms. Noorshyliza
3	DMC 2633	Y2 S6	VB. Net Programming	Elective	3	Mr. Balaganesh
4	DMC 2643	Y2 S6	Internet Programming	Optional	3	Mrs. Reihaneh
5	DMC 2653	Y2 S6	Enterprise Mobility	Elective	3	TBA
6	DMC 2663	Y2 S6	Windows Phone Application Development	Elective	3	TBA

			Total Credits		12	

YEAR THREE

YEAR THREE SEMESTER SEVEN						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1.	DMC 3718	Y3 S7	Industrial Training	Industrial Training	8	NA
			Total Credits		8	
Grand Total Credits					92	

Part time Module

YEAR ONE SEMESTER ONE						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**

1.	DMC 1113	Y1 S1	Fundamentals of Mobile Computing	Major	3	Datuk Ir. Ismail Bin Hassan
2.	DMC 1123	Y1 S1	Mathematics	Major	3	Nur Ayuni bt Yon
3.	DMC 1133	Y1 S1	Business English	Compulsory	3	Kholoud Ycoub Mansour Naser Aldeen
4.	DMC 1143	Y1 S1	Calculus	Major	3	Nur Ayuni bt Yon
			Total Credit		12	
YEAR ONE SEMESTER TWO						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1.	MPU 2113 / MPU 2153	Y1 S1	Malaysian Studies / Malay Language Communication 2	Compulsory	3	Siti Maria Mohamad / Jay Dee Allen James
2.	DMC 1213	Y1 S2	Introduction to basic Programming	Major	3	Mr. Midhun Chakkaravarthy
3.	DMC 1223	Y1 S2	Basic Statistics	Major	3	Mr. Vivekanandam
4.	DMC 1233	Y1 S2	Data Structure	Major	3	Mrs. Reihaneh
			Total Credits		12	
YEAR TWO SEMESTER THREE						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1.	MPU 2222	Y1 S2	Creative Problem Solving	Compulsory	2	Siti Maria Mohamad
2.	DMC 1243	Y1 S2	IT and Applications	Minor	3	Mr. Balaganesh
3.	DMC 1313	Y1 S3	Multimedia Development	Major	3	Mr. Azisul
4.	DMC 1323	Y1 S3	Mobile and Wireless Network Security	Minor	3	Datuk Ir. Ismail Bin Hassan
			Total Credits		11	
YEAR TWO SEMESTER FOUR						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1	DMC 1333	Y1 S3	Mobile Operating System	Major	3	TBA
2	DCM 243	Y1 S3	Multimedia Management System	Minor	3	Mr. Azisul
3	DMC 1353	Y1 S3	Mobile Usability Design	Minor	3	TBA

4.	DMC 2413	Y2 S4	Mobile Database Design	Major	3	Ms. Noorshyliza
			Total Credits		12	
YEAR THREE SEMESTER FIVE						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1.	BEL 5003	Y2 S4	Research methodology	Major	3	
2.	DMC 2433	Y2 S4	System Analysis and Design for Mobile Application	Major	3	Ms. Noorshyliza
3.	DMC 2453	Y2 S4	Computer Animation	Major	3	Ms. Noorshyliza
4.	DMC 2513	Y2 S5	Mobile Commerce	Major	3	TBA
			Total Credits		12	
YEAR THREE SEMESTER SIX						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1.	MPU 2332	Y2 S4	Constitution and Community	Compulsory	2	Mr Jaydee
2.	DMC 2523	Y2 S5	Mobile Design	Major	3	TBA
3.	MPU 3442	Y2 S5	Co-Curriculum	Compulsory	2	Nazira Alis
4.	DMC 2543	Y2 S5	Mobile Game Development	Minor	3	Datuk Ir. Ismail Bin Hassan
5.	DMC 2553	Y2 S5	Mobile Device Programming	Minor	3	Mr. Midhun Chakkaravarthy
					13	
YEAR FOUR SEMESTER SEVEN						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1	DMC 2613	Y2 S6	Project report	Project	6	All
2	**ELECTIVES (Choose any 2)**					
3	DMC 2623	Y2 S6	Mobile Technology	Elective	3	Ms. Noorshyliza
	DMC 2633	Y2 S6	VB .Net Programming	Elective	3	Mr. Balaganesh
	DMC 2643	Y2 S6	Internet Programming	Optional	3	Mrs. Reihaneh
	DMC 2653	Y2 S6	Enterprise Mobility	Elective	3	TBA
	DMC 2663	Y2 S6	Windows Phone Application Development	Elective	3	TBA

4			Total Credit		12	
YEAR FOUR SEMESTER EIGHT						
Sl. No.	**Subject Code**	**Year, Semester**	**Subject**	**Status**	**Credit**	**Name of the Lecturer**
1.	DMC 3718	Y3 S7	Industrial Training	Industrial Training	8	NA
			Total Credits		8	
Grand Total Credits					92	

2.3.3 Basic information of each course/module

1	**Name of Course/Module :** Fundamentals of Mobile Computing
2	**Course Code:** DMC 1113
3	**Name(s) of academic staff:** Datuk Ir. Ismail Bin Hassan

<table>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course will provide the students with the knowledge of mobile computing which is going to be the next generation state of the art technology. This course is essential to understand systems support mechanisms for mobile computing systems including client-server web/database/file systems, and mobile ad hoc and sensor networks for achieving the goal in wireless mobile environments.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 1</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, student will be able to:
(Cognitive) Knowledge:
• Gain concepts of mobile computing to learn about mobile computing applications, technologies and wireless communications.

(Psychomotor) Skills:
• Discuss the mobile application development, mobile operating systems and mobile databases related to mobile computing

(Affective) Perceptions of Values:
• Apply Mobile Technologies to create new value for businesses and provide technical support to analyze engineering techniques, tools and resources.</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

This course will introduce students to mobile computing and mobile application development. Mobile computing will be discussed from three perspectives: mobile technology, application development and user interaction. The courses will first overview various mobile computing applications, technologies and wireless communication. Next, students will learn about common paradigms in mobile computing. Students will be introduced to the use of mobile application frameworks and development environments to reinforce concepts covered in lectures. User interface and user experience will be discussed and application development guidelines from various vendors will be analyzed.

13 **Mode of Delivery:** Lectures, Tutorials.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15 **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
√	√	√	√	

16 **Mapping of the course/module to the Programme Learning Outcomes:**

Course Outcomes	Program Outcomes							
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
Gain concepts of mobile computing to learn about mobile computing applications, technologies and wireless communications		√	√					√
Discuss the mobile application development, mobile operating systems and mobile databases related to mobile computing	√				√		√	
Apply Mobile Technologies to create new value for businesses and provide technical support powerful mobile applications and a more robust mobile network infrastructure.		√		√				√

7 **Content Outline of the course/module and the SLT per topic**

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	**Overview** Mobile Technology Anatomy of a Mobile Device	2.5	1.5			4	8
2	Survey of Mobile Devices Applications of Mobile Computing	2.5	1.5			4	8
3	**Application Design** Context Information Architecture	2.5	1.5			4	8
4	Design Elements Mobile Web VS Native Applications	2.5	1.5			4	8
5	**Development Environments** Introduction to Objective-C The Model-View-Controller Model	2.5	1.5			4	8

	6	The Delegate Pattern The iPhone, Android and Blackberry SDKs	2.5	1.5			4	8
	7	Mid Term Examination				2	5	7
	8	**Application Environments** Limited Resource Computing	2.5	2			4	8.5
	9	Memory Management Low Power Computing Fault Tolerance and Persistence Security Issues	2.5	2			4	8.5
	10	**Wireless Communication Technologies** Cellular Networks Wireless (802.11) TCP/IP in the Mobile Setting Geolocation and Global Positioning System (GPS)	2	2			4	8
	11	**User Experience** The Small Screen Problem The Unified Look and Feel Paradigm	2	2			4	8
	12	The iPhone Human Interface Guidelines The Blackberry User Interface Guidelines Common User Interface Guidelines	2	2			4	8
	13	**The Future of Mobile Computing** Upcoming Technologies Convergence of Media and Communication Devices	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	21			65	
		Total Subject learning Time						120

	Total Credit Hour						3
18	**Main references supporting the course:** a) Mobile Computing. Asoke K Talukder, Hasan Ahmed and Roopa R Yavagal. (2010) Tata McGrawHill. b) Mobile Computing: Applications, Network, Platforms, Architecture and Security. Amjad Umar. (2004) NGE Solutions, Inc.						
	Additional references supporting the course: a) Ubiquitous Computing: SmartDevices, nvironments and Interactions. Stefan Poslad. (2009). Wiley. b) Beyond 3G: Bringing Networks, Terminals and The Web Together. Martin Sauter. (2009) Wiley.						
19	**Other Additional information: Nil**						

1	**Name of Course/Module : Mathematics**
2	**Course Code:** DMC 1123
3	**Name(s) of academic staff:** Nur Ayuni bt Yon
4	**Rationale for the inclusion of the course /module in the programme:**

<table>
<tr><td></td><td colspan="6">This is an introductory course on Mathematics is oriented toward Computer Science and Engineering. The course is essential to enhance learning, preparing the students for a future career or for further study.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 1</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, student will be able to:
(Cognitive) Knowledge:
• Discuss basic discrete mathematical PRINCIPLES, proofs and logic
• Demonstrate knowledge of mathematical modeling
(Psychomotor) Skills:
• Learn mathematical thinking, and Algorithmic thinking
(Affective) Perceptions of Values:
• Demonstrate the ability to solve problems, including applications of mathematics, by means of experience gained through the study of particular examples and mathematical models</td></tr>
<tr><td>10</td><td colspan="6">Transferable Skills:
• Problem Solving
• Thinking logically within constraints
• Ability to plan and organize theoretical learning as well as applied learning
• Evaluating results</td></tr>
</table>

<table>
<tr><td>11</td><td>Teaching –learning and assessment strategy
Lectures
Tutorials
At the end of the programme, students are given an opportunity to evaluate the course and the lecturer</td></tr>
<tr><td>12</td><td>Synopsis:
This course will cover basic mathematical skill required by programmers, and to develop an awareness of the need for accuracy in the manipulation of numeric data. It will also help the students to understand the part played by mathematics in good computing practice and to help them to see mathematics as a value set of support tools in the design, coding and testing of effective, efficient and reliable software.</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lectures, Tutorials.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:
<table><tr><td>Assignments</td><td>20%</td></tr><tr><td>Mid Exam</td><td>20%</td></tr><tr><td>Final Exam</td><td>60%</td></tr><tr><td>Total</td><td>100%</td></tr></table></td></tr>
<tr><td>15.</td><td>Mapping of the course/module to the Programme Aims:
<table><tr><td>PA1</td><td>PA2</td><td>PA3</td><td>PA4</td><td>PA5</td></tr><tr><td></td><td></td><td>√</td><td>√</td><td></td></tr></table></td></tr>
</table>

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Discuss basic discrete mathematical PRINCIPLES, proofs and logic	√			√	√			
Demonstrate knowledge of mathematical modeling		√					√	√
Learn mathematical thinking, and Algorithmic thinking	√	√			√			
Demonstrate the ability to solve problems, including applications of mathematics, by means of experience gained through the study of particular examples and mathematical models		√				√	√	

17. Content Outline of the course/module and the SLT per topic

No.	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Logic, Propositional Logic, Predicate Logic and Quantifiers	2.5		1.5		4	8
2	Methods of Proof, Proof Strategy, Sets, Set Operations	2.5		1.5		4	8
3	Functions, Sequences and Summation	2.5		1.5		4	8
4	Mathematical Induction, Proofs by Induction	2.5		1.5		4	8
5	The Basics of Counting, Pigeonhole Principle, Permutations and Combinations, Binomial Coefficients	2.5		1.5		4	8

	6	Discrete Probability, Probability Theory, Expected Value and Variance	2.5		1.5		4	8
	7	Mid Term Examination				2	5	7
	8	Algorithms, Growth of Functions, Complexity of Algorithms	2.5	2			4	8.5
	9	Integers and Division, Applications of Number Theory, Matrices, Recurrence Relations	2.5	2			4	8.5
	10	Relations, n-ary Relations, Representing Relations, Closures	2	2			4	8
	11	Equivalence Relations, Partial Orderings	2	2			4	8
	12	Boolean Functions, Representing Boolean Functions, Logic Gates	2	2			4	8
	13	Combinational Circuits, K-Maps	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	21		6	65	
		Total Subject learning Time						120
		Total Credit Hour						3

18	**Main references supporting the course:** a) Daniele Gardy and Abdelkader Mokkadem, 2012, Mathematics and Computer Science: Algorithms, Trees, Combinatorics and Probabilities (Trends in Mathematics), Birkhäuser. b) Jain R K, 2012, Advanced Engineering Mathematics 4/e, 4th edition, Narosa Publishing House Pvt. Ltd.
	Additional references supporting the course a) "Discrete Mathematics for Computer Scientists" - Cliff L Stein, Robert Drysdale , Kenneth Bogart, 1st Edition, 2010.
19	**Other Additional information: Nil**

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Business English</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 1133</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Kholoud Ycoub Mansour Naser Aldeen</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This programme enhances the English proficiency of the students so they gain confidence to speak in English to develop and promote multimedia applications. They are able to understand the lectures and comprehend the academic texts in English with much ease.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 1</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
On the completion of this course, students will be able to:
(Cognitive) Knowledge:
• Gain knowledge of the grammatically correct language for expressing business communication
(Psychomotor) Skills:
• Develop key communication skills – speaking, listening, reading, and writing which is necessary for communicating with specialists and non-specialists using appropriate media and technology.
(Affective) Perceptions of Values:
• Achieve ability to deliver a presentation, conduct a series of negotiations, socialize with clients with greater confidence and participate more actively in meetings.</td></tr>
</table>

<table>
<tr><td></td><td>

- Apply methods to the planning, starting, implementation of innovative processes and develops quality assurance

</td></tr>
<tr><td>10</td><td>

Transferable Skills:

- Reading – Students are exposed to a variety of different text types (e.g. magazine articles, websites, advertisements and task types such as MCQ, T/F and matching.
- Writing – Students are given an opportunity to focus on linking words and text organisation. Students are also exposed to a wide range of topics in various genres of writing. .
- Listening – Students are given plenty of opportunities to develop a wide range of listening skills both in terms of text types and task types.
- Speaking – Students learn how to work in pairs or groups to brainstorm ideas and prepare a speech or participate in problem solving activities
- Grammar – Students use the target structure in a guided way and then move on to freer oral and written grammar practice.

</td></tr>
<tr><td>11</td><td>

Teaching –learning and assessment strategy

At the end of the programme, students are given an opportunity to evaluate the course and the lecturer. Student's assessments comprise both formative and summative modes. Students' critical and cognitive skills are assessed by problem solving modes and group discussions.

</td></tr>
<tr><td>12</td><td>

Synopsis:

This course is designed specifically for undergraduate students. This subject covers the major aspects of Grammar, Reading, Writing, Listening and Speaking. Suitable language practices involving the integration of the four language skills will be provided through appropriate contexts so that students can effectively communicate in the field of mobile computing.

</td></tr>
<tr><td>13</td><td>

Mode of Delivery: Lectures, Tutorials, Group Discussions.

</td></tr>
<tr><td>14</td><td>

Assessments Methods and Types:

<table>
<tr><td>Listening Skills</td><td>20%</td></tr>
<tr><td>Oral Presentation Skills</td><td>20%</td></tr>
<tr><td>Mid Exam</td><td>30%</td></tr>
<tr><td>Final Exam</td><td>30%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
</table>

</td></tr>
</table>

15. Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
			√	√

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Gain knowledge of the grammatically correct language for expressing business communication	√						√	√
Develop key communication skills – speaking, listening, reading, and writing which is necessary for communicating with specialists and non-specialists using appropriate media and technology.		√		√		√		
Achieve ability to deliver a presentation, conduct a series of negotiations, socialize with clients with greater confidence and participate more actively in meetings.			√				√	√
Apply methods to the planning, starting, implementation of innovative processes and develops quality assurance		√			√	√		

17 Content Outline of the course/module and the SLT per topic

No	**Subject description**	**Face to face**			**Others**	**ILT**	**Total**
		Lectures	**Tutorials**	**Practical**			
1	Introduction: Objectives of the course. Lecturer and student expectations.	2.5	1.5			4	8
2	Writing Skills	2.5	1.5			4	8

	3	Reading comprehension and making notes, summarizing listening comprehension	2.5	1.5			4	8
	4	Rewriting: revising and editing Reading comprehension	2.5	1.5			4	8
	5	Linking words, pronouns, articles, synonyms vocabulary	2.5	1.5			4	8
	6	Reading comprehension listening for information Writing skills	2.5	1.5			4	8
	7	Mid Term Examination				2	5	7
	8	Reading comprehension and making notes	2.5	2			4	8.5
	9	Summary writing, punctuation, vocabulary	2.5	2			4	8.5
	10	Reading comprehension: listening comprehension, writing skills	2	2			4	8
	11	Summary of restatement fanning adjectives, vocabulary	2	2			4	8
	12	Library research listening comprehension writing skills	2	2			4	8
	13	Essay writing – revision and practice making notes Revision and practice adverbs of degree	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact Hours	28	21		6	65	
		Total Student Learning						120
		Total Credit Hours						3
18	**Main references supporting the course:**							

	a) Andrea B. Geffner, 2010, Business English: The Writing Skills You Need for Today's Workplace, 5th edition, Barron's Educational Series Inc b) George Burton Hotchkiss and Business Training Corporation, 2011, Business English: Being a First Unit of a Course in Business English, Volume 12, Nabu Press
	Additional references supporting the course a) Mary Ellen Guffey and Carolyn Seefer, 2013, Business English, 11th edition, South-Western b) Dona Young, 2012, Business English: Writing in the Global Workplace, McGraw Hill Education India Pvt Ltd
19	**Other Additional information: Nil**

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Calculus</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 1143</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Nur Ayuni bt Yon</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
Calculus portrays the fundamental nature of mobile computing mobility on the basic level. Thus the course provides a strong theoretic support to build the platform supporting mobile collaborative services. This course will teach the foundations of calculus, the study of functions and their rates of change.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 4</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
On completion of the module a student should be able to:

(Cognitive) Knowledge:

• Describe the consequences of Rolle's theorem and the Mean Value theorem for differentiable functions
• Acquire idea about various types of functions using the differentiation rules: Powers, Sum, Difference, Product, Quotient Rules, Implicit and Logarithmic Differentiation.

(Psychomotor) Skills:

• Develop a calculus vocabulary and enhance and reinforce the student's understanding of concepts through the use of technology when appropriate.
• Interpret a functionan algebraic, numerical, graphical and verbal perspective and extract information relevant to the fact modeled by the function.

(Affective) Perceptions of Values:</td></tr>
</table>

<table>
<tr><td></td><td>

Use concepts of calculus in problem-solving through integration of new material and modeling.
Integrate technology into mathematical processes.

</td></tr>
<tr><td>10</td><td>Transferable Skills:
Proficiency with methods of calculus that can be used to describe problems that arise in a wide range of application.</td></tr>
<tr><td>11</td><td>Teaching –learning and assessment strategy
Teaching and learning will be via lecture, lab, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.
Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.</td></tr>
<tr><td>12</td><td>Synopsis:
This module begins with functions and limits which this course includes techniques and applications of differentiations, indefinite and definite integrals and applications of integration. The course consists of model situations in order to solve problems for deeper understanding of this intriguing subject.</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lectures, Tutorials.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:
<table>
<tr><td>Assignments</td><td>30%</td></tr>
<tr><td>Mid Exam</td><td>30%</td></tr>
<tr><td>Final Exam</td><td>40%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
</table>
</td></tr>
<tr><td>15.</td><td>Mapping of the course/module to the Programme Aims:
<table>
<tr><td>PA1</td><td>PA2</td><td>PA3</td><td>PA4</td><td>PA5</td></tr>
<tr><td></td><td></td><td></td><td>√</td><td>√</td></tr>
</table>
</td></tr>
</table>

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Describe the consequences of Rolle's theorem and the Mean Value theorem for differentiable functions	√		√				√	
Acquire idea about various types of functions using the differentiation rules: Powers, Sum, Difference, Product, Quotient Rules, Implicit and Logarithmic Differentiation		√			√			√
Develop a calculus vocabulary and enhance and reinforce the student's understanding of concepts through the use of technology when appropriate.		√		√		√		
Interpret a functionan algebraic, numerical, graphical and verbal perspective and extract information relevant to the fact modeled by the function.		√			√	√		
Use concepts of calculus in problem-solving through integration of new material and modeling.		√		√				
Integrate technology into mathematical processes		√				√	√	

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Functions: Definition, properties of functions, graphing function & algebra of function	2.5	1.5			4	8
2	Linear function: Definition & computations	2.5	1.5			4	8
3	Limits: Definition, limits intuitive, limits and	2.5	1.5			4	8

			computations, continuity & trigonometric limits						
		4	Tangent line: Definition and application Derivative : Definition, difference between derivatives & differentiations	2.5	1.5			4	8
		5	Derivative of trigonometric function Chain Rule , product rule & quotient rule	2.5	1.5			4	8
		6	Differentiation Techniques Differentials: Definition & applications Inverse function: what is Inverse function?, application & computation	2.5	1.5			4	8
		7	Mid Term Examination				2	5	7
		8	Log & Exponential functions: Definition Implicit Differentiations	2.5	2			4	8.5
		9	Log & Exponential Derivatives Inverse Trigonometric Related rates	2.5	2			4	8.5
		10	L' Hospital's rule: what it is? How to use it? Increment, decrement & concavity Extrema Detailed graphing using first and second derivatives	2	2			4	8

	11	Maxima and minima: applied max and min Rectilinear motion Rolle's & mean value theorem	2	2			4	8
	12	Area: Definition & calculations Integral: Definition, applications. Substitution: u-Substitution sigma notation	2	2			4	8
	13	Definite integral Fundamental theorems of integral Average value Definite Integral substitution	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	21		6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) Howard A. Anton, Calculus: Early Transcendental Single Variable, 2005, 8th Edition, John Wiley & Sons ISBN: 0471482382							
	Additional references supporting the course: a) Micheal Spivak, Calculus, 2006, 3rd Edition, Cambridge University, ISBN: 9780521867443							
19	**Other Additional information: Nil**							

<table>
<tr><td>1.</td><td colspan="6">Name of Course/Module: MALAYSIAN STUDIES</td></tr>
<tr><td>2.</td><td colspan="6">Course Code: MPU 2113</td></tr>
<tr><td>3.</td><td colspan="6">Name(s) of academic staff: Siti Maria Mohamad</td></tr>
<tr><td>4.</td><td colspan="6">Rationale for the inclusion of the course/module in the programme :
Students will gain an understanding about history of the nation as well as the development of the society in terms of socio-cultural, political and economic perspectives. This course module focuses on the differentiation of the roles and functions of key components and the administrative machinery of the country, the efforts and contributions of individuals associated with the championing of sovereignty of Malaysia and key government policies as well as its contribution to national development.</td></tr>
<tr><td>5.</td><td colspan="6">Semester and Year offered: 1st Year, 2nd Semester</td></tr>
<tr><td rowspan="2">6.</td><td rowspan="2">Course Hours</td><td colspan="4">Face To Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L=Lecture
T=Tutorial
P=Practical
O=Others (Examination)
ILT= Individual Student Learning Time
TSLT= Total Student Learning Time</td><td>24</td><td>24</td><td>0</td><td>4</td><td>66</td><td>120</td></tr>
<tr><td>7.</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8.</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9.</td><td colspan="6">Learning Outcomes

On the completion of this module, students should be able to:
<u>Cognitive:</u>

• Describe the process of the formation of Malaysia and its impact on nation building
• Describe the major components of the system and administrative machinery

<u>Psychomotor:</u>

• Discuss the political process through which the country in achieving and the post-independence
• Analyze key government policies and discuss its contribution to national development

<u>Affective:</u>

• Apply the patriotism and self-esteem as a people who love their country.</td></tr>
</table>

10. Transferable Skills:

Transferable skills developed within this course include:

- Leadership and Administration Skills
- Information Management Skills
- Interpersonal Skills
- Assessing Values

11. Teaching-learning and assessment strategy

- Lectures
- Interactive group work Lectures with many Examples
- Conferences given by Professors from University
- Syndicate working on Case studies
- Individual Assignments

12. Synopsis

The course Malaysian Studies helps to produce citizens with loyalty and love for the country, a visionary, proud as a Malaysian, to meet the challenges and to achieve well-being. They will be able to appreciate the role of Malaysia in the international arena. The lecture coverage also includes discussion of several topics which are prehistoric Malaysia, Merdeka, Malaysia's formation, structure and system administration, democracy in Malaysia, the Constitution, major policies and current issues of social, economic and politics in Malaysia. Malaysia's relations with foreign countries as well as the current challenges faced by Malaysia

13. Mode of Delivery

Lectures, tutorials and Case study Analysis, Interactive group work, and Self-Study.

14. Assessment Methods and Types

Quizzes	10%
Assignment	20%
Mid Term	30%
Final Exam	40%
Total	100%

15. Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
√				√

16. Mapping of the course/module to the Programme Learning Outcomes

NO.	COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
1.	Describe the process of the formation of Malaysia and its impact on nation building	√				√			√
2.	Describe the major components of the system and administrative machinery		√		√			√	
3.	Discuss the political process through which the country in achieving and the post-independence	√		√			√		
4.	Analyze key government policies and discuss its contribution to national development	√			√				√
5.	Apply the patriotism and self-esteem as a people who love their country		√			√		√	

17.	Content outline of the course/module and the SLT per topic						
	No.	MODULE TITLE	Face to Face			ILT	Total
			Lectures	Tutorials	Practical		
	1	Topic 1: History and Politics in Malaya Subtopics: Early History of Malaya • The establishment of the Malacca Sultanate - The origins of the name of Malacca - The administrative structure - System administration, The legal system The heyday of the Malay Sultanate of Malacca The Age of decline Malay Sultanate of Malacca The establishment of the other Malay kingdoms	2	2		4	8
	2	Subtopics: Independence Struggle History • Introduction • Background - The initial phase - The final phase • Goals established • Features • The principle of Jus Soli - By the force of law - On the application and admission	2	2		4	8

	3	• The administrative structure of the Malayan Union • Resistance of the Malays • Establishment of political parties Topic 2: Topic 2: System and Structure of State Administration Subtopics: The Executive • Introduction • The role of the executive • Powers of the federal executive • State-level executive power	2	2		4	8
	4	Subtopics: Legislature • Federal Law - Senate - House of Representatives - The functions and powers of parliament - Privileges of Parliament The legislation • State laws Subtopics: Judiciary • History • System and judicial structures in Malaysia • The type of court	2	2		4	8

	5	- Federal Court - Court of Appeal - The High Court - The Sessions Court - Magistrates Court - Other Courts • Independence of the judiciary	2	2		4	8
	6	Topic 3 : The Constitution and the Political Process Subtopics : Administration National Machinery • Cabinet of Malaysia - Cabinet of the Federation of Malaya in 1955 - Cabinet of Malaysia 1957 - System cabinet - Benefits of the system cabinet - Disadvantages of the system cabinet	2	2		4	8
	7	• Ministry - The type of ministry - The role and power ministries • The role and authority of the department • Commission - Permanent Commission - The Non-Permanent • Public Corporation	2	2		4	8

	8	Subtopics: Key Provisions of the Constitution • Introduction • Parliamentary Democracy • The history of constitutional formulation of the Malayan Union Federation of Malaysia • Comparison between the administration - The Federal Government - The Government of the Union - The Government of the Confederation - Government Autocracy	2	2		4	8
	9	Topic 4: Construction Country Race Subtopics: Introduction Society Malaysia • Introduction • Community - Definition of a pluralistic society and community - Features and factors - Change and its impact on nation building • Culture - Definition of culture - Features culture - Changes and factors - Impact of changes to the nation building • Ethnic Relations in Malaysia - Factors ethnic relations - Approach toward integrating Malaysia - The importance of understanding ethnic relations	2	2		4	8
	10	Topic 5: National Key Policies Subtopics: Political Development Policy • Introduction • Alteration of Malaysia's Foreign Policy • The goal of the foreign policy of Malaysia • Development of Malaysia's foreign policy • Malaysia in Regional Organizations - ASA , judging ,ASEAN				4	8

		• Malaysia In International Organizations - COMMONWEALTH , UN , NAM , OIC - SOUTHERN COUNTRIES • Future Challenges	2	2			
	11	Subtopics: Economic Development Policy • Introduction • New Economic Policy • National Development Policy • NVP - Factors - Implementation - Achievements	2	2		4	8
	12	Subtopics: Social Development Policy • Introduction • National Education Policy • National Youth Policy • National Cultural Policy • Vision 2020 • National Integrity Plan - Philosophy - Implementation - Achievements	2	2		4	8
	13	Topic 6: National Care Issues Subtopics: Tragedy May 13, 1969: National Black History • Introduction • Racism Issues In Elections 1969 • Emergency Subtopics: Leader alternates, Eternal Freedom Eternal	2	2		4	8
	14	• Introduction • Prime Minister of Malaysia - Tunku Abdul Rahman - Tun Abdul Razak - Tun Hussein Onn - Tun Dr. Mahathir Mohamad - Tun Abdullah Ahmad Badawi - Dato 'Sri Najib Tun Razak	2	2		4	8

	15	Final Examination			4	12	16
		Total Contact hours	24	24		66	
		Total Subject learning Time					120
		Total Credit Hour					3
18.	Main references supporting the course: a) Mardiana Nordin & Hasnah Hussiin. (2001). Pengajian Malaysia. Kuala Lumpur.: Penerbit Oxford Fajar Sdn. Bhd. b) Mahdi Shuid & Mohd.Fauzi Yunus. (1998). Pengajian Malaysia. Kuala Lumpur : Longman. c) Nazaruddin M. Jali, Ma'rof Redzuan, Asnarulkhadi Abu Samah & Ismail Mohd Rashid. (2001). Pengajian Malaysia: Kenegaraan dan Kewarganegaraan Malaysia. Kuala Lumpur: Prentice-Hall Malaysia.						
	Additional references supporting the course: a) Zainal Abidin Abd. Wahid. (1991). Sejarah Malaysia. Bangi : UKM. b) International Law Books Services. (1991). Malaysia Kita. KL : International Law Books Services. c) Abu Samah dan Jayum A.Jawan (1997). Kenegaraan Malaysia Serdang : Universiti Putra Malaysia.						
19.	Other additional information: Nil						

1.	**Name of Course/Module: MALAY LANGUAGE COMMUNICATION 2**						
2.	**Course Code: MPU 2153**						
3.	**Name(s) of academic staff: Jay Dee Allen James**						
4.	**Objectives of the course/module in the programme:** This module focuses on proper and effective communication in Malay, communication skills of international students as far as Malay is concerned and also ensures that the international students enhance the knowledge of grammar and vocabulary enrichment						
5.	**Semester and Year offered: Year 1 Semester 2**						
6.	Course Hours	Face To Face				ILT	TSLT
		L	T	P	O		
	L=Lecture T=Tutorial P=Practical O=Others (Examination) ILT= Individual Student Learning Time TSLT= Total Student Learning Time	24	24	0	6	66	120
7.	Credit Value: 3						
8.	Prerequisite: Nil						
9.	Learning Outcomes Upon the completion of this course, students will be able to: **Cognitive:** • Identify usage of Malay language properly and effectively **Psychomotor:** • Discuss common phrases in Malay • Improve listening skills and writing in Malay **Affective:** • Improve essay writing using the grammar and vocabulary of the right						
10.	Transferable Skills: Transferable skills developed within this course include: • Leadership and Administration Skills • Information Management Skills • Interpersonal Skills						

11. Teaching-learning and assessment strategy

- Lectures
- Interactive group work Lectures with many Examples
- Conferences given by Professors from University
- Syndicate working on Case studies
- Individual Assignments

12. Synopsis

This course is aimed at intermediate level to enable students to communicate in Malay language correctly and effectively in a variety of formal and informal situations. The course content is based on the theme for interactive activities that enhance the skills of communication, in particular, verbal and listening skills. The course strengthens grammar and vocabulary skills and is also designed to enhance the level of mastery and confidence in the use of the Malay language.

13. Mode of Delivery:

Lectures, tutorials and Case study Analysis, Interactive group work, and Self-Study.

14 Assessment Methods and Types

Quizzes	10%
Assignment	20%
Mid Term	30%
Final Exam	40%
Total	100%

15 Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
	√			√

16 Mapping of the course/module to the Programme Learning Outcomes

NO.	COURSE OUTCOMES	PROGRAM OUTCOMES							
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8
1.	Identify usage of Malay language properly and effectively	√					√	√	
2.	Discuss common phrases in Malay		√			√			√
3.	Improve listening skills and writing in Malay			√				√	
4.	Improve essay writing using the grammar and vocabulary of the right	√				√			√

17. Content outline of the course/module and the SLT per topic

	No.	MODULE TITLE	Face to Face			ILT	Total
			Lectures	Tutorials	Other		
	1	Introduction	2	2		4	8
	2	Situational Conversation	2	2		4	8
	3	Talk on Phone	2	2		4	8
	4-5	The conversation at the counter	2	2		4	8
	6	Talk Shop and Restaurant	2	2		4	8
	7-8	Malay Tradition and Culture	4	4		8	16
	9-10	Malay customs and manners	4	4		8	16
	11-12	Arts Malaysia	2	2		4	8
	13	Malay Festivals	2	2		4	8
	14	Presentation	2	2		4	8
	15	Final Examination			4	12	16
		Total Contact Hours	24	24		66	
		Total Subject Learning Time					120
		Total Credit Hour					3
18.	Main references supporting the course: a) Zarina Othman., 2012. Communication Module Malay International, Washington, DC: National University of Malaysia. b) Chyn Yong Chye, Rohaidah Mashudi, Maarof Abd Rahman, 2012. National language for overseas students: Malay language for international students. Boston: Pearson Malaysia.						
19.	Other additional information: Nil						

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Introduction to basic Programming</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 1213</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff:</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course is designed to introduce students to the skill of computer programming. It also introduces the students to the scope of concept of iOS and X-code and basic Java programming.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 2</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite:</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this lesson, students will be able to:
(Cognitive) Knowledge:
• Understand the basic concepts and principles of structured programming
• Understand the fundamentals of object-oriented programming using the Java programming language
(Psychomotor) Skills:
• Achieve the skill to operate common data structure
(Affective) Perceptions of Values
• Design, write and test a Java program to implement a working solution to a given problem specification
• Analyze problems, develop object-oriented designs that solve those problems, and transform those designs to Java programs</td></tr>
</table>

10 Transferable Skills:

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	Lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	Lecturer's observation

11 Teaching –learning and assessment strategy

Teaching and learning will be via lecture, lab, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 Synopsis:

Introduction to algorithms and object-oriented programming using Java. It emphasizes developing fundamental programming skills and software engineering principles in the context of an object-oriented language. It includes overview of C Language, numeric data types, Javadoc, algorithms & design etc.

13 Mode of Delivery: Lectures, Tutorials, Practical

14 Assessments Methods and Types:

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15. Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
	√	√	√	√

16. Mapping of the course/module to the Programme Learning Outcomes:

	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Understand the basic concepts and principles of structured programming	√							
Understand the fundamentals of object-oriented programming using the Java programming language	√							
Achieve the skill to operate common data structures and algorithms		√				√		
Design, write and test a Java program to implement a working solution to a given problem specification		√				√		
Analyze problems, develop object-oriented designs that solve those problems, and transform those designs to Java programs		√		√		√		

17. Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Overview software, programming Objective-C Introduction Objective-C Language Common Foundation Classes Numeric Data Types	2.5		1.5		4	8
2	Selective Execution Functions Strings Loops	2.5		1.5		4	8
3	Nested Loops Reference Parameters	2.5		1.5		4	8
4	Algorithms & Design File Streams Arrays & Vectors Structs	2.5		1.5		4	8
5	Decision statements Relational operators Boolean expressions Comparing Strings	2.5		1.5		4	8

	6	Math & Character classes String & Random classes Writing static methods Javadoc, Graphics Interlude: Writing helper classes w/static methods.	2.5		1.5		4	8
	7	Mid Term Examination				2	5	7
	8	One dimensional arrays of primitives Two dimensional arrays Arrays of objects	2.5		2		4	8.5
	9	Array algorithms: sorting & searching Analyzing performance	2.5		2		4	8.5
	10	Basic of Xcode HelloWorld MVC Example Storyboard and Segues	2		2		4	8
	11	Interfaces Inheritance OO Design Recursion	2		2		4	8
	12	Introduction to iOS App Using Built-in iOS Controls App Architecture	2		2		4	8
	13	WebServices/API/Databases	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28		21	6	65	
		Total Subject learning Time						120
		Total Credit Hour						3

18	**Main references supporting the course:** a) Rizwan Qureshi, 2011, Introduction to Programming, LAP Lambert Academic Publishing b) Deepak Gupta, 2013, Introduction to Programming, S.K. Kataria & Sons.
	Additional references supporting the course: a) Learning iOS Programming From Xcode to AppStore. Alasdair Allan (2013) O'reilly Media.
19	**Other Additional information: Nil**

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Basic Statistics</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 1223</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Mr. Vivekanandam</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course develops basic competence and skills in problem solving and quantitative methods applied to public population analysis. This course introduces basic concepts of statistical data analysis and their practical application in mobile computing.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 2</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
Students will be able to:
(Cognitive) Knowledge:
• Gain basic knowledge of classic probability theory
• Familiar with the concept of data (samples & populations, different types of variables, accuracy)
(Psychomotor) Skills:
• Apply statistical skills to real life problems related to mobile computing
(Affective) Perceptions of Values:
• Develop estimation and hypothesis testing using the perception of probability theory and probability distributions.</td></tr>
</table>

10 **Transferable Skills:**

- Problem Solving
- Thinking logically within constraints
- Ability to plan and organize theoretical learning as well as applied learning
- Evaluating results

11 **Teaching –learning and assessment strategy**

- Lectures
- Tutorials
- At the end of the programme, students are given an opportunity to evaluate the course and the lecturer

12 **Synopsis:**

The course will help the students to design and conduct a data collection experiment with mobile phones

The course consists of performance of statistical data analysis of the collected data to write a technical report about the results and present it in the lecture.

13 **Mode of Delivery:** Lectures, Tutorials.

14 **Assessments Methods and Types:**

Assignments	20%
Mid Exam	20%
Final Exam	60%
Total	**100%**

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
		√	√	

16. **Mapping of the course/module to the Programme Learning Outcomes:**

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Gain basic knowledge of classic probability theory	√					√	√	
Familiar with the concept of data (samples & populations, different types of variables, accuracy)	√						√	

	Apply statistical skills to real life problems related to mobile computing		√		√				√
	Develop estimation and hypothesis testing using the perception of probability theory and probability distributions		√			√		√	

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Introduction to class, controlled experiments, observational studies	2.5	1.5			4	8
2	Sample surveys, histogram	2.5	1.5			4	8
3	Average, standard deviation, normal approximation	2.5	1.5			4	8
4	Correlation, regression	2.5	1.5			4	8
5	More regression, midterm review	2.5	1.5			4	8
6	RMS error for regression, regression line	2.5	1.5			4	8
7	Mid Term Examination				2	5	7
8	Law of averages, expected value, standard error	2.5	2			4	8.5
9	Normal approximation	2.5	2			4	8.5
10	Chance errors in sampling	2	2			4	8
11	Accuracy of percentages and averages	2	2			4	8
12	Hypothesis tests	2	2			4	8
13	More hypothesis tests	2	2			4	8
14	Final Examination				4	12	16
	Total Contact hours	28	21		6	65	
	Total Subject learning Time						120
	Total Credit Hour						3

18 Main references supporting the course:

a. Quantitative Methods for Business by David R. Anderson , Dennis J. Sweeney , Thomas A. Williams , Jeffrey D. Camm , James James J. Cochran, 12th Edition, 2012

Additional references supporting the course

a) Quantitative Methods: For Business, Management and Finance Louise Swift , Sally Piff, 3rd Edition, 2010

19 Other Additional information: Nil

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Data Structures</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 1233</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Mrs. Reihaneh</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
The course will teach the students the basics of programming in C, so that the student can write, debug and run simple programs in C and have some simple understanding of object-oriented design. Data structure and algorithm combinations will be studied and analyzed along with their relative merits using both mathematical and empirical measurements.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 5</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
Upon completion of this module, students should be able to:
(Cognitive) Knowledge:
• Describe the usage of various data structures and the operations for maintaining common data structure.
• Recognize the associated algorithms' operations and complexity.
(Psychomotor) Skills:
• Design appropriate data structures and algorithms for solving computing problems
(Affective) Perceptions of Values
• Develop computer programs to implement different data structures and related algorithms.</td></tr>
<tr><td>10</td><td colspan="6">Transferable Skills:
• Problem Solving
• Thinking logically within constraints</td></tr>
</table>

<table>
<tr><td></td><td>

Ability to plan and organize theoretical learning as well as applied learning
Evaluating results

</td></tr>
<tr><td>11</td><td>Teaching –learning and assessment strategy

Lectures
Tutorials
At the end of the programme, students are given an opportunity to evaluate the course and the lecturer

</td></tr>
<tr><td>12</td><td>Synopsis:
This course focuses on object-oriented methodologies in designing and implementing a variety of data structures and algorithms. Coverage includes recursion, trees, search structure, hashing, heaps, sorting algorithm, and graph algorithm.</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lectures, Practical.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:
<table>
<tr><td>Assignments</td><td>20%</td></tr>
<tr><td>Mid Exam</td><td>20%</td></tr>
<tr><td>Final Exam</td><td>60%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
</table>
</td></tr>
<tr><td>15</td><td>Mapping of the course/module to the Programme Aims:
<table>
<tr><td>PA1</td><td>PA2</td><td>PA3</td><td>PA4</td><td>PA5</td></tr>
<tr><td></td><td>√</td><td></td><td>√</td><td>√</td></tr>
</table>
</td></tr>
</table>

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Describe the usage of various data structures and the operations for maintaining common data structure.	√		√		√			
Recognize the associated algorithms' operations and complexity.	√	√			√			
Design appropriate data structures and algorithms for solving computing problems.				√			√	√
Develop computer programs to implement different data structures and related algorithms		√			√	√		

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Object-oriented design	2.5		1.5		4	8
2	Stacks	2.5		1.5		4	8
3	Queues, Priority Queues	2.5		1.5		4	8
4	Recursion	2.5		1.5		4	8
5	Lists and sequences	2.5		1.5		4	8
6	Dictionaries	2.5		1.5		4	8
7	Mid Term Examination				2	5	7
8-9	Trees	5		4		8	17
10	Sorting, sets and selection	2		2		4	8
11	Text Processing & Graphs	2		2		4	8
12	Arrays and Strings	2		2		4	8
13	Pointers	2		2		4	8
14	Final Examination				4	12	16

		Total Contact hours	21		28	6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) Isrd Group, 2012, Data Structures Using C, 2nd edition, McGraw Hill Education India Pvt Ltd. b) Seymour Lipschutz, 2014, Data Structures (SIE), Tata McGraw-Hill Publishing Company							
	Additional references supporting the course a) A.A. Puntambekar, 2014, Data structures, Technical Publications							
19	**Other Additional information: Nil**							

<table>
<tr><td>1.</td><td colspan="6">Name of Course/Module: CREATIVE PROBLEM SOLVING</td></tr>
<tr><td>2.</td><td colspan="6">Course Code: MPU 2222</td></tr>
<tr><td>3.</td><td colspan="6">Name(s) of academic staff: Siti Maria Mohamad,</td></tr>
<tr><td>4.</td><td colspan="6">Rationale of the course/module in the programme:
This course will acquaint the students with the problem solving model and reviewing of the creative process that will enhance their creative thinking. Students will also learn about the idea generation techniques and increase their learning by analyzing practice creative problem solving through the activities of individuals and teams.</td></tr>
<tr><td>5.</td><td colspan="6">Semester and Year offered: Year 1, Semester 3</td></tr>
<tr><td rowspan="2">6.</td><td rowspan="2">Course Hours</td><td colspan="4">Face To Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L=Lecture
T=Tutorial
P=Practical
O=Others (Examination)
ILT= Individual Student Learning Time
TSLT= Total Student Learning Time</td><td>24</td><td>0</td><td>0</td><td>4</td><td>52</td><td>80</td></tr>
<tr><td>7.</td><td colspan="6">Credit Value: 2</td></tr>
<tr><td>8.</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9.</td><td colspan="6">Learning Outcomes
Upon the completion of this course, students will be able to:
• Identify the problem-solving model
• Discuss individual problem-solving and decision-making style
• Identify and articulate problems clearly
• Develop techniques to solve problems
• Develop new ideas individually and collectively to get the results and solutions.</td></tr>
<tr><td>10.</td><td colspan="6">Transferable Skills:
Transferable skills developed within this course include:
• Creative thinking skills
• Innovative thinking skills
• Problem solving skills</td></tr>
<tr><td>11.</td><td colspan="6">Teaching-learning and assessment strategy
• Lectures
• Interactive group work Lectures with many Examples
• Conferences given by Professors from University
• Syndicate working on Case studies
• Individual Assignments</td></tr>
</table>

12. Synopsis

This course will introduce a range of tools and techniques to solve problems. This course covers models of problem solving and idea generation techniques. It will also explore the need to develop thinking ability to combine both left and right brain approach to develop innovative ideas and solutions to meet the challenges of the global economy. Active creative team will be generated to give students the opportunity to use the concepts, models and techniques.

13. Mode of Delivery:

Lectures, tutorials and Case study Analysis, Interactive group work, and Self-Study.

14. Assessment Methods and Types

Quizzes	10%
Assignment	20%
Mid Term	30%
Final Exam	40%
Total	100%

15 Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
√			√	

16. Mapping of the course/module to the Programme Learning Outcomes (CLO):

NO.	COURSE OUTCOMES	PROGRAM OUTCOMES							
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
1.	Identify the problem-solving model	√				√			
2.	Discuss individual problem-solving and decision-making style			√			√		√
3.	Identify and articulate problems clearly		√		√			√	
4.	Develop techniques to solve problems			√		√			√
5.	Develop new ideas individually and collectively to get the results and solutions.		√		√		√		

17.	Content outline of the course/module and the SLT per topic							
	No.	MODULE TITLE	Face to Face				ILT	Total
			Lectures	Tutorials	Practical	Others		
	1	Topic 1:The Importance and Obstacles to Creativity Importance of Creativity Developing creativity Identify the relationship Development of a Functional Perspective Use of the mind or brain function Barriers to Creativity Expect perfection Not open space for trying Consider mistakes as an offense Depending on logical thinking	4				8	12
	2	Topic 2: The Concept of Creativity and Problem Concept of Creativity • The nature of the (natural) creative process • The process of creative thinking • Four stages in the creative process Background information collection The process of incubation (incubation) Experience Ideas Evaluation and Implementation	4				8	12
	3	Topic 3: Intelligence, Personality and Creativity • The definition of emotional intelligence • The components of emotional intelligence Self-Awareness Self -Regulation Empathy Skills international	4				8	12

	4	Topic 4: Culture , Environment and Creativity Definition of culture Factors influencing creativity family upbringing factors peer factors teacher and school factors Factor technology resources	4				8	12
	5	Topic 5: Creativity Techniques : Lateral and analogical Topic 6: Engineering Creativity : Brainstorming and Synatic	4				8	12
	6	Topic 7: The Creative Problem Solving Process: Troubleshooting Topic 8: Creative Problem Solving Process : Defining the Problems	2				4	6
	7	Topic 9: Creative Problem Solving Process : Exploration Ideas Topic 10: The Creative Problem Solving Process : Implementing Actions	2				4	6
	8	Final Examination			4		4	8
		Total Contact hours	24		4		52	
		Total Subject learning Time						80
		Total Credit Hour						2
18.		Main references supporting the course: a) Engel, A., Problem-Solving Strategies, Springer-Verlag, New York, 1998. b) Yoshikawa, E., translation, Musashi , Gramedia , Jakarta , 2001.						
19.		Other additional information: Nil						

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : IT and Applications</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 1243</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Mr. Balaganesh</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
In this course, students will learn and have the knowledge about the importance, function, components and tasks of computer and use of information technology and internet in aviation management fields. Students will also learn to use word processing software, spreadsheet, presentation package in jobs and information technology service to access the information.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 3</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3 credit hours</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this subject, students be able to:
(Cognitive) Knowledge:
• Describe the components of the computer system.
(Psychomotor) Skills:
• Produce a reports and present results of the studies related to information technology.
(Affective) Perceptions of Values
• Apply the applications software and systems software.</td></tr>
<tr><td>10</td><td colspan="6">Transferable Skills:
Students will gain skills to use all the software applications and systems software, the service of WWW, works in groups to implement the case studies and prepare reports and present results.</td></tr>
<tr><td>11</td><td colspan="6">Teaching –learning and assessment strategy</td></tr>
</table>

	Teaching and learning will be via lecture, laboratory, collaborative learning and group discussion. Students will also be required to do their own self-study and research for certain topics and assignments. **Assessment strategy:** Students will be assessed using tests, laboratory, assignments and examination
12	**Synopsis:** At the end of this course, students will be able to understand clearly the importance, functions, components and computer tasks and use of information technology on the internet. The topics included are Information Technology, Learn Computer, History of computer, Generation of computer, Classification of computers, System Units, Representative data, Central Processing Unit, Hardware and Computer Systems, Input Devices , Storage Devices, Software Applications , Software System, Communication and network, Network of World Web, Other Internet services, Multimedia Super Corridor Internet Introduction Network of World Web and others.
13	**Mode of Delivery:** Lectures, Practical.
14	**Assessments Methods and Types:**

Assignments	20%
Mid Exam	20%
Final Exam	60%
Total	**100%**

15. Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
√	√			

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Describe the components of the computer system.	√	√				√		
Produce a reports and present results of the studies related to information technology			√		√		√	
Apply the applications software and systems software		√					√	√

17 **Content Outline of the course/module and the SLT per topic**

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	**Introduction** Information Technology Learn Computer	2.5		1.5		4	8
2	History of computer Generation of computer Classification of computers	2.5		1.5		4	8
3	System Units Representative data Central Processing Unit Memory Other components in the system unit	2.5		1.5		4	8
4	**Hardware and Computer Systems** Input Devices , Output Devices ,Storage Devices	2.5		1.5		4	8
5	Software Applications Software applications Word processing software	2.5		1.5		4	8
6	Spreadsheet software Presentation graphics software Integrated Packages and Set of Software	2.5		1.5		4	8
7	Mid Term Examination				2	5	7
8	**Software System** Software system	2.5		2		4	8.5
9	Operating System Function of operating systems	2.5		2		4	8.5

	10	DOS Microsoft Windows Utilities Software	2		2		4	8
	11	Database	2		2		4	8
	12	**Communication and network** Communication Use of communication Channels of communication and transmission Network	2		2		4	8
	13	Internet and WWW Internet Introduction Network of World Web Other Internet services, Multimedia Super Corridor Internet Introduction Network of World Web Other Internet services	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28		21		65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) Discovering Computers 2010: Living in a Digital World: Shelly, G.B., Cashman T.J., Vermaat M.E. and Walker T.J. (2010), Cambridge b) Williams, Brian; Sawyer, Stacey. (2010). Using Information Technology, Complete Edition. McGraw-Hill.							
	Additional references supporting the course: a) Jalan Pantas Teknologi Maklumat Mokhtar Ahmad (2005). Penerbitan Seribu Dinar, Kuala Lumpur. b) Information Technology and Traditional Legal Concepts by Richard Jones and Roksana Moore, Routledge , Kindle Edition, (2013).							
19	**Other Additional information: Nil**							

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Multimedia Development</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 1313</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Mr. Azisul</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course will provide the students with the theoretical and practical knowledge of multimedia development using the latest multimedia technology. The course is essential to understand skills and techniques needed to create professional-looking videos, visual effects, motion graphics and animations.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: 1 year 3 semester</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, student will be able:
(Cognitive) Knowledge:
• Understand multimedia development in the business world, for successful development of detailed business planning phase
(Psychomotor) Skills:
• Identify multiple, comprehensive multimedia strategies explaining the problem within a given context.
(Affective) Perceptions of Values:
• Develop basic multimedia applications for latest Web and Internet technologies</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to complete the assignment	lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during board participant session	lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, lab and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

This course embraces the development of multimedia application ranging from concepts to the final production. The students will be able to learn to use the basic multimedia technologies, hyper-linking concepts and subsequently to produce multimedia application.

13 **Mode of Delivery:** Lectures, Tutorials.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15 **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
	√	√	√	

16 **Mapping of the course/module to the Programme Learning Outcomes:**

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Understand multimedia development in the business world, for successful development of detailed business planning phase	√					√	√	
Identify multiple, comprehensive multimedia strategies explaining the problem within a given context.		√	√	√				√
Develop basic multimedia applications for latest Web and Internet technologies		√					√	

17 **Content Outline of the course/module and the SLT per topic**

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	**Introduction** Terminologies of multimedia Evolution of multimedia	2.5	1.5			4	8
2	Categories of multimedia applications Applications of multimedia	2.5	1.5			4	8
3	**Multimedia Development Process** Phase 1 : Planning	2.5	1.5			4	8
4	Phase 2 : Development Phase 3 : Testing	2.5	1.5			4	8
5	**Hardware, Multimedia Elements and Authoring Tools** Playback System Development System	2.5	1.5			4	8
6	Elements of Multimedia Multimedia Authoring Tools	2.5	1.5			4	8

	7	Mid Term Examination				2	5	7
	8	**Multimedia Design** Interface Design Principles	2.5	2			4	8.5
	9	Interaction Design Principles	2.5	2			4	8.5
	10	**Multimedia System Management** Multimedia Management Issues Management Process	2	2			4	8
	11	**Multimedia Delivery** Storage Media Process of Production	2	2			4	8
	12	**Introduction** Terminologies of multimedia Evolution of multimedia	2	2			4	8
	13	Categories of multimedia applications Applications of multimedia	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	21		6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) Multimedia In Action. Shuman, J.E. (2010) IT Publishing. b) Multimedia System Design. Andleigh, P.K. and Thakrar, K. (2009) Prentice Hall.							
	Additional references supporting the course: a) Multimedia In Practice. Jeffcoate, J. (2009) Prentice Hall. b) Experience Multimedia. Sprankle and Johnson, C. (2009) Prentice Hall.							
19	**Other Additional information: Nil**							

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Mobile and Wireless Network Security</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 1323</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Datuk Ir. Ismail Bin Hassan</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This subject provides students with the knowledge about the various ways of mobile network attacks and protections. The course will help the students to analyze important security and privacy problems in the realms of wireless networks and mobile computing.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 3</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: DMC 1143 Mobile Operating System</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this lesson, students will be able to:
(Cognitive) Knowledge:
• Describe various mobile network problems and protections to design a robust mobile system.
(Psychomotor) Skills:
• Discuss on relevant concepts, such as the various approaches that define emerging security and privacy in mobile and wireless environment.
(Affective) Perceptions of Values
• Apply security services in wireless and mobile networks: authentication, authorization, data confidentiality, data integrity and access control</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	Lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	Lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, lab, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

This course will address various issues (attacks and defense strategies) in wireless and mobile security, including WEP and WPA, wireless jamming attacks, device fingerprinting, location based access control, location privacy, wireless pairing, mobile health security, RFID hacking and authentication and smart phone system security.

13 **Mode of Delivery:** Lectures, Tutorials.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
	√	√	√	

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Describe various mobile network problems and protections to design a robust mobile system.	√	√			√			
Discuss on relevant concepts, such as the various approaches that define emerging security and privacy in mobile and wireless environment.	√			√				√
Apply security services in wireless and mobile networks: authentication, authorization, data confidentiality, data integrity and access control		√	√			√		

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	**Introduction** Basic security concepts Crypto review 1EP and WPA	2.5	1.5			4	8
2	**Wireless Jamming Attacks**	2.5	1.5			4	8
3	**Device Fingerprinting and wireless Pairing**	2.5	1.5			4	8
4	**Attack Detection** Types of Attacks	2.5	1.5			4	8
5	**Attack Detection** Attack Detection	2.5	1.5			4	8
6	**Location based** Access Control	2.5	1.5			4	8

	7	Mid Term Examination				2	5	7
	8	**Location based** Location Pricavy	2.5	2			4	8.5
	9	**Types of Security** Mobile Health Security	2.5	2			4	8.5
	10	Vehicle Network Security	2	2			4	8
	11	Smart Phone Security Smart Grid Security	2	2			4	8
	12	Security and Privacy in Wireless Networks	2	2			4	8
	13	**RFID Hacking and Authentication**	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	21		6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) 802.11 Wireless Metworks: The Definitive Guide. Matthew Gast (2011) O'reilly Media. b) Hacking Exposed Wireless. Johnny Cache, Joshua Wright and Vincent Liu (2010) McGraw Hill.							
	Additional references supporting the course: a) Wi-Foo: The Secrets of Wireless Hacking. Andrew Vladimirov, Konstantine V. (2004) b) Addison Wesley. Network Security Essentials. W. Stallings (2004) Prentice Hall.							
19	**Other Additional information: Nil**							

1	**Name of Course/Module :** Mobile Operating System

<table>
<tr><td>2</td><td colspan="6">Course Code: DMC 1333</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: TBA</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course will teach the students to build mobile apps for Android, iOS, and Windows 8. The course is essential to gain knowledge of mobile operating systems, and learn to write both web apps and native apps for Android, iOS, and Windows phones. This provides students with a stepping stone for application development in the mobile operating system.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 3</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>L= Lecture
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ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this lesson, students will be able to:
(Cognitive) Knowledge:
• Understand the basic OS architectures, functions and roles
(Psychomotor) Skills:
• Develops the skill of OS components for processes, devices, files and memory management
• Learn to write both web apps and native apps for Android using Eclipse and the Android SDK, native apps for iPhones, iPod Touches, and iPads using Xcode and the iOS SDK, and web apps for both platforms.
(Affective) Perceptions of Values:
• Develop app stores and markets for proper application security, efficient power management and mobile device security in the specific field</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	Lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	Lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, lab, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

This course will give the basic concepts on mobile operating system (OS), its functions and main components. Topics that will be given include the history and evolution of mobile OS, mobile OS architecture, process management, naming, consistency, replication, fault tolerance and security.

13 **Mode of Delivery:** Lectures, Tutorials, Practical

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
	√		√	√

16. **Mapping of the course/module to the Programme Learning Outcomes:**

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Understand the basic OS architectures, functions and roles	√					√		√

	Develops the skill of OS components for processes, devices, files and memory management		√	√	√				
	Apply concepts of resource allocation to case study problems					√		√	√

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Introduction to mobile devices and Administratrivia - Mobile devices vs. desktop devices - ARM and intel architectures - Power Management - Screen resolution - Touch interfaces	2.5		1.5		4	8
2	- Application deployment - App Store, Google Play, Windows Store - Development environments o XCode o Eclipse o VS2012 o PhoneGAP, etc - Native vs. web applications	2.5		1.5		4	8
3	HTML -Quick recap of technologies -Mobile-specific enhancements o Browser-detection o Touch interfaces o Geolocation o Screen orientation	2.5		1.5		4	8
4	Mobile OS Architectures	2.5		1.5		4	8

		-Comparing and Contrasting architectures of all three – Android, iOS and Windows						
	5	-Mobile browser "interpretations" Underlying OS (Darwin vs. Linux vs. Win 8)	2.5		1.5		4	8
	6	- Kernel structure and native level programming - Runtime (Objective-C vs. Dalvik vs. WinRT) - Approaches to power management - Security	2.5		1.5		4	8
	7	Mid Semester Examination				2	5	7
	8	Survival and basic apps Building a simple "Hello World" App in all three applications. Topics include: App-structure, built-in Controls, file access, basic graphics	2.5		2		4	8.5
	9	Android/iOS/Win8 actually useful apps Topics include: DB access, network access, contacts/photos/etc.	2.5		2		4	8.5
	10	Underneath the frameworks Native level programming on Android Low-level programming on (jailbroken) iOS Windows low level APIs	2		2		4	8
	11	Power Management Wake locks and assertions Low-level OS support Writing power-smart applications	2		2		4	8

	12	Augmented Reality via GPS and other sensors GPS Accelerometer Camera	2		2		4	8
	13	Mobile device security, in depth Mobile malware Device protections iOS "Jailbreaking", Android "rooting" and Windows' "defenestration"	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28		21	6	65	
		Total Subject learning Time						120
		Total Credit Hour						3

18 **Main references supporting the course:**

a) Mobile Operating System and Programming: Mobile Communications. Arash Habibi Lashkari (2011) VDM Publishing.

b) Connie Lawson, 2014, Mobile Operating Systems 95 Success Secrets - 95 Most Asked Questions on Mobile Operating Systems - What You Need to Know, Emereo Publishing

Additional references supporting the course:

a) William Stallings, 2013, Operating Systems: Internals and Design Principles, 7th edition, Pearson Education

b) William Stallings, 2013, Operating Systems: Internals and Design Principles, 7th edition, Pearson Education

19 **Other Additional information:** Nil

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Multimedia Management System</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DCM 243</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Mr. Azisul</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This program combines two elements of user interfaces and information presentation: multimedia content knowledge and content management. The course is therefore essential to get a firm grounding in computer graphics, computer interaction and software engineering. Moreover the students can choose to specialize in multimedia experience.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 1 Semester 3</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L= Lecture
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TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
On completion of the module a student should be able to:

(Cognitive) Knowledge:

• Evaluate and assess a variety of multimedia tools in terms of functionality, usability and compatibility;
• Use appropriate design methodologies applicable to interactive multimedia systems and demonstrate skills of using various methods and tools
(Psychomotor) Skills:

• Recommend staffing and resourcing requirements for multimedia projects with appropriate multimedia management system
• Propose a strategy for the production of a multimedia application</td></tr>
</table>

<table>
<tr><td></td><td>(Affective) Perceptions of Values

• Assess the various standards used for digitally compressing, storing and transmitting multimedia file types and use research & communication skills in producing a report on emergent technologies</td></tr>
<tr><td>10</td><td>Transferable Skills:
Proficiency with methods of calculus that can be used to describe problems that arise in a wide range of application.</td></tr>
<tr><td>11</td><td>Teaching –learning and assessment strategy
Teaching and learning will be via lecture, lab, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.
Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.</td></tr>
<tr><td>12</td><td>Synopsis:
The course will cover multimedia management system in Information Technology field.

The following course will be dealt in a systematic way so that students will be able to understand easily. The module consists of Introduction, multimedia skill, text, sound, images, animation, video, hardware, basic software tools, multimedia authoring tools, designing for the World Wide Web, planning and costing, designing and producing and content, talent and delivering</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lectures, Tutorials.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:

<table><tr><td>Tutorial/Assignment</td><td>15%</td></tr><tr><td>Test 1 & 2</td><td>20%</td></tr><tr><td>Class Preparation</td><td>5%</td></tr><tr><td>Final Examination</td><td>60%</td></tr><tr><td>Total</td><td>100%</td></tr></table></td></tr>
<tr><td>15.</td><td>Mapping of the course/module to the Programme Aims:
<table><tr><td>PA1</td><td>PA2</td><td>PA3</td><td>PA4</td><td>PA5</td></tr><tr><td></td><td></td><td></td><td>√</td><td>√</td></tr></table></td></tr>
</table>

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Evaluate and assess a variety of multimedia tools in terms of functionality, usability and compatibility	√	√		√				
Use appropriate design methodologies applicable to interactive multimedia systems and demonstrate skills of using various methods and tools			√			√	√	
Recommend staffing and resourcing requirements for multimedia projects with appropriate multimedia management system		√			√			√
Propose a strategy for the production of a multimedia application			√			√	√	
Assess the various standards used for digitally compressing, storing and transmitting multimedia file types and use research & communication skills in producing a report on emergent technologies		√			√			√

17. Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Introduction: Definition, CD-ROM, DVD, and the Multimedia, where to use Multimedia, Introduction to making multimedia, the stages of a project, hardware,	2.5	1.5			4	8

		software, creativity and organization						
	2	Multimedia skills: The team, project manager, multimedia designer, writer, video specialist, audio specialist, multimedia programmer, producer of multimedia for the the web Content, talent and delivering: Acquiring content, using content created by others, using talent, testing, preparing for delivery, delivering on CD-ROM, Compact disk technology, wrapping it up, delivering on the world wide web	2.5	1.5			4	8
	3	Text: The power of meaning, about fonts and faces, cases, serif, using text in multimedia, designing with text, choosing text fonts, menus for navigation, buttons for interaction, fields for reading, HTML documents, symbols and Icons, animating text, computer and text, font	2.5	1.5			4	8

		editing and design tools, hypermedia and hypertext						
	4	Sound: The power of sound, multimedia system sounds, digital audio, making MIDI audio, audio file formats, MIDI Versus Digital Audio, Music CDs, production Tips	2.5	1.5			4	8
	5	Images: Making stils amages, plan your approach, organize our tools, multiple monitors, bitmaps, vector drawing, 3-D drawing and rendering, Color, image file formats	2.5	1.5			4	8
	6	Animation: The power of motion, principles of animation, animation techniques, animation file formats, making animations that work	2.5	1.5			4	8
	7	Mid Term Examination				2	5	7
	8	Video: Using video, how video works, analog display standards, NTSC, PAL, SECAM, ATSC DTV, Digital	2.5	2			4	8.5

		display standard, digital video, video recording and text formats, shooting and editing video						
	9	Hardware: Macintosh versus windows, networking Macintosh and Windows, connections, memory and storage devices, input devices, output hardware and communication devices	2.5	2			4	8.5
	10	Basic software tools: Text editing and word processing tools, OCR software, painting and drawing tools, 3-D modeling and animation tools, sound editing tools, animation, video and digital movie tools	2	2			4	8
	11	Multimedia authoring tools: Making instant multimedia, types of authoring tools, card-and-Page-Based Authoring Tools, Icon-and Object-Based authoring tools,Time-based authoring tools, cross-platform authoring notes	2	2			4	8
	12	Designing for the World WideWeb: Working on the web, text for the web, images for the web,	2	2			4	8

		sound for the web, animation for the web						
	13	Planning and costing: The process of making multimedia, idea analysis, pretesting, task planning, prototype development, alpha development, beta development, delivery, scheduling, estimating, RFPs and Bid Proposals Designing and producing: Designing, designing the structure, designing the user interface, a multimedia design case story, producing, starting up, working with clients, tracking, copyrights, hazards and annoyances	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	21		6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) Multimedia Projects in Education: Designing, Producing, and Assessing by Karen S. Ivers and Ann E. Barron, Libraries Unlimited; 4th Edition (2010) b) Introduction to Data Compression, Fourth Edition (The Morgan Kaufmann Series in Multimedia Information and Systems... byKhalid Sayood, Morgan Kaufmann; 4th Edition (2012)							
	Additional references supporting the course:							

	a) Tay Vaughan, Multimedia making it works, 2008, 7th Edition, Osborne McGraw Hill, ISBN: 9780072264517 b) The DAM Book: Digital Asset Management for Photographers by Peter Krogh, O'Reilly Media; 2nd Edition (2013)
19	**Other Additional information: Nil**

1	**Name of Course/Module** : Mobile Usability Design						
2	**Course Code:** DMC 1353						
3	**Name(s) of academic staff:** TBA						
4	**Rationale for the inclusion of the course /module in the programme:** The course will improve Mobile Interface and User Experience Design Competences in global standards with interactive methods. The latest Mobile User Experience and Interface Design techniques, methodologies in the courses with sample applications will provide the opportunity to gain skill and practical information about automation tools. This course will guide the students through creating a novel mobile application - from generative design, usability, implementation and field evaluation.						
5	**Semester and Year offered:** Year 1 Semester 3						
6	**Course Hours**	**Face to Face**				**ILT**	**TSLT**
		L	**T**	**P**	**O**		
	L= Lecture **T=Tutorial** **P=Practical** **O=Others** **ILT=Individual student learning time** **TSLT=Total student learning time**	**28**	**0**	**21**	**6**	**65**	**120**
7	**Credit Value:** 3 credit hours						
8	**Prerequisite:** Nil						
9	**Learning Outcomes:** At the end of this subject, students be able to: (Cognitive) Knowledge:						

<table>
<tr><td></td><td>
Gain knowledge in visual and interaction design principles
(Psychomotor) Skills:
Learn to create a design narrative that leads to the development of the mobile design structure, the design details, and a prototype
(Affective) Perceptions of Values
Apply and validate the user experience (UX) of mobile usability design
</td></tr>
<tr><td>10</td><td>Transferable Skills:
Students will have skills in use the all software applications and systems software, the service of WWW, works in groups to implement the problem solving and prepare reports and present results.</td></tr>
<tr><td>11</td><td>Teaching –learning and assessment strategy
Teaching and learning will be via lecture, laboratory, collaborative learning and group discussion. Students will also be required to do their own self-study and research for certain topics and assignments.
Assessment strategy:
Students will be assessed using tests, laboratory, assignments and examination</td></tr>
<tr><td>12</td><td>Synopsis:
The course will help the students in designing mobile experiences that will add toward achieving business success. This course offers information of designing for people on the move and building effective strategies that unite channels and prioritize investments. The modules included are Usability Studies, Diary Studies, Usability Testing, Qualitative User, Mobile Strategy, Usability Varies by Mobile Device Category, Mobile Site vs. Full Site, Mobile-optimized Sites and others</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lectures, Practical.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:
<table>
<tr><td>Assignments</td><td>20%</td></tr>
<tr><td>Mid Exam</td><td>20%</td></tr>
<tr><td>Final Exam</td><td>60%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
</table>
</td></tr>
<tr><td>15.</td><td>Mapping of the course/module to the Programme Aims:
<table>
<tr><td>PA1</td><td>PA2</td><td>PA3</td><td>PA4</td><td>PA5</td></tr>
<tr><td>√</td><td>√</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

16. Mapping of the course/module to the Programme Learning Outcomes:

	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Gain knowledge in visual and interaction design principles		√					√	√
Learn to create a design narrative that leads to the development of the mobile design structure, the design details, and a prototype	√			√		√		
Apply and validate the user experience (UX) of mobile usability design		√	√		√			

17 Content Outline of the course/module and the SLT per topic

	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Usability Studies Diary Studies Usability Testing Qualitative User	2.5		1.5		4	8
2	Mobile Strategy Usability Varies by Mobile Device Category Mobile Site vs. Full Site Mobile-optimized Sites	2.5		1.5		4	8
3	Mobile Strategy Responsive Design Usability Guidelines and Dichotomies	2.5		1.5		4	8
4	Mobile Sites vs. Apps: The Coming Strategy Shift Current Mobile Strategy: Apps Best Future Mobile Strategy: Sites Best	2.5		1.5		4	8
5	Apps Mobile Apps are Intermittent-use Apps	2.5		1.5		4	8
6	Designing for the Small Screen Wasted Mobile Space Chrome Overloaded vs. Generic Commands	2.5		1.5		4	8

		Optimizing a Screen for Mobile Use						
	7	Mid Term Examination				2	5	7
	8	Designing for the Small Screen The *WSJ* Mobile App Startup Screen Better Design	2.5		2		4	8.5
	9	<u>Writing for Mobile</u> Mobile Content Defer Secondary Information to Secondary Screens Mobile Coupons Progressive Disclosure Linear Paging Alphabetical Sorting	2.5		2		4	8.5
	10	Transmedia Design for the Three Screens Transmedia User Experience	2		2		4	8
	11	Pervasive usability, topic Requirements analysis, Psychology of design	2		2		4	8
	12	Information design Visual culture	2		2		4	8
	13	Wireframes / Prototypes human and situation centered design Wireframes / Prototypes human and situation centered design	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28		21		65	
		Total Subject learning Time						120
		Total Credit Hour						3

18 Main references supporting the course:

a. Jakob Nielsen and Raluca Budiu (2012). Mobile Usability, 1st edition New Riders Publishers

b. Cameron Banga and Josh Weinhold (2014). Essential Mobile Interaction Design: Perfecting Interface Design in Mobile Apps (Usability). 1st edition, Addison-Wesley Professional.

Additional references supporting the course:

	a. Brian Fling (2009). Mobile Design and Development: Practical concepts and techniques for creating mobile sites and web apps (Animal Guide). 1st edition, O'Reilly Media. b. Theresa Neil (2014). Mobile Design Pattern Gallery: UI Patterns for Smartphone AppsPaperback. 2nd Edition, O'Reilly Media.
19	Other Additional information: Nil

1	**Name of Course/Module :** Mobile Database Design						
2	**Course Code:** DMC 2413						
3	**Name(s) of academic staff:** Mr. Vivekanandam						
4	**Rationale for the inclusion of the course /module in the programme:** In this course, students will learn and have the knowledge about mobile database design, mobile DBMS architecture, query processing, transaction management, and concurrency control and reliability protocol.						
5	**Semester and Year offered:** Year 2 Semester 4						
6	**Course Hours**	**Face to Face**				**ILT**	**TSLT**
		L	**T**	**P**	**O**		
	L= Lecture **T=Tutorial** **P=Practical** **O=Others** **ILT=Individual student learning time** **TSLT=Total student learning time**	**28**	**21**	**0**	**6**	**65**	**120**
7	**Credit Value:** 3						
8	**Prerequisite:** Nil						
9	**Learning Outcomes:** At the end of this lesson, students will be able to: (Cognitive) Knowledge:						

<table>
<tr><td></td><td>
Describe and define and the major components of the relational database model to database design
(Psychomotor) Skills:
Learn Structured Query Language (SQL) to design good databases
Learn about the principles and concepts of information integrity, security and confidentiality
(Affective) Perceptions of Values:
Analyze successful implementation of system with Data Storage for proper database design.
</td></tr>
<tr><td>10</td><td>Transferable Skills:
<table>
<tr><td>Skills</td><td>Development of the skills</td><td>Skills assessments</td></tr>
<tr><td>Teamwork</td><td>Students are required to work in groups to prepare the assignment.</td><td>Lecturer’s observation
Peer evaluation</td></tr>
<tr><td>Participation and communication</td><td>Written and oral communication in presenting during participation session</td><td>Lecturer’s observation</td></tr>
</table>
</td></tr>
<tr><td>11</td><td>Teaching –learning and assessment strategy
Teaching and learning will be via lecture, lab and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.</td></tr>
<tr><td>12</td><td>Synopsis:
This course emphasizes the mobile database concepts, mobile DBMS architecture, mobile database design, transaction management, concurrency control and reliability concept and protocol.</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lectures, Tutorials.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:
<table>
<tr><td>Assignments</td><td>30%</td></tr>
<tr><td>Mid Exam</td><td>30%</td></tr>
<tr><td>Final Exam</td><td>40%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
</table>
</td></tr>
</table>

15 **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
	√	√		√

16 **Mapping of the course/module to the Programme Learning Outcomes:**

	Program Outcomes							
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
Learn the significance of mobile and central database in creating mobile computing environment	√					√	√	
Gain skills for flexibility to design good databases to abstract the information gathered into a data model		√				√		√
Analyze successful implementation of system with Data Storage for proper database design.		√	√				√	

17 **Content Outline of the course/module and the SLT per topic**

No	**Subject description**	**Face to face**			**Others**	**ILT**	**Total**
		Lectures	**Tutorials**	**Practical**			
1	Database Fundamentals Overview Database Development Process	2.5	1.5			4	8
2	Mobile Database Concepts Mobile DBMS DBMS VS mobile DBMS Architecture Components of mobile DBMS	2.5	1.5			4	8
3	**Database Design From Requirement to Implementation**	2.5	1.5			4	8

		Database Modelling Database Design Data Modelling Today UML Diagrams For Database Design Enhanced ER Model						
	4	**Business Modelling and Requirement Definition** Business Use Case Model Business Object Model Moving From the Business Model to the System Model Inside the System Use Case	2.5	1.5			4	8
	5	**Analysis and Preliminary Design** The Class Diagram	2.5	1.5			4	8
	6	**Analysis and Preliminary Design** Supporting Diagram and Activities	2.5	1.5			4	8
	7	Mid Term Examination				2	5	7
	8	**Preparing For Transformation To The Database Design Model** Mapping Model Mapping Classes To Tables Mapping Attributes To Columns	2.5	2			4	8.5
	9	Making Entities Persistent Transformation Of Attributes	2.5	2			4	8.5
	10	**Database Design Models** UML Profile For Database Design	2	2			4	8

		Diagram Elements Table and Column Elements 6Creating Tables From Classes						
	11	Physical Database Design Basic SQL Advanced SQL Database Administration and Data Warehousing	2	2			4	8
	12	**Query Processing** Introduction Query Optimization Query Decomposition Data Localization **Transaction Management, Concurrency Control and Recovery**	2	2			4	8
	13	Logical Database Design and the Relational Model	2	2			4	8
	14	Assessment				6	16	22
		Total Contact hours	28	21			65	
		Total Subject learning Time						120
		Total Credit Hour						3

18 **Main references supporting the course:**

a) Wujuan Lin and Bharadwaj Veeravalli, 2014, Object Management in Distributed Database Systems for Stationary and Mobile Computing Environments: A Competitive Approach (Network Theory and Applications), Springer

b) Zigurd Mednieks, G. Blake Meike, Laird Dornin and Zane Pan, 2013, Enterprise Android: Programming Android Database Applications for the Enterprise, John Wiley & Sons

Additional references supporting the course:

a) Tim Roadley, 2013, Learning Core Data for iOS: A Hands-On Guide to Building Core Data Applications (Addison-Wesley Learning), Addison Wesley

	b) Lars Frank, 2010, Design of Distributed Integrated Heterogeneous or Mobile Databases, LAP Lambert Academic Publishing
19	**Other Additional information: Nil**

1.	**Name of Course/Module:** Research Methodology						
2.	Course Code: BEL 5003						
3.	Name(s) of academic staff: Mr. Midhun Chakkaravarthy						
4.	Rationale for the inclusion of the course/module in the programme : This course has been designed to equip students on writing the correct and appropriate thesis or project paper related to supply chain and logistics management. This course deals with business research using both qualitative and quantitative methods that would help the students to understand, describe and analyze the complex business environment in logistics and supply chains.						
5.	Semester and Year offered: Semester 4 Year 2						
6.	Course Hours	Face To Face				ILT	TSLT
		L	T	P	O		
	L=Lecture T=Tutorial P=Practical O=Others TSLT=Total Student Learning Time	28	21		16	65	120
7.	Credit Value: 3						
8.	Prerequisite: Nil						

9.	Learning Outcomes: At the end of this course, students will be able to: **Cognitive**: • Understand fundamental principles of knowledge creation in supply chain and logistic research and distinguish the different strategies and arrangement **Psychomotor**: • Demonstrate some of key skills needed in review and formulate proposal preparation and presentation **Affective**: • Identify the key issues to be dealt with in each stage of development of the supply chain and logistic industry • Explain common research methodologies in business and management related to supply chain and logistics
10.	Transferable Skills: Transferable skills developed within this course include: • Problem solving • Thinking logically within constraints • Using instrumentation to obtain results • Evaluating results
11.	Teaching-learning and assessment strategy • Lectures • Laboratory session and tutorials. • The varied methods enable students to develop more easily both course aims and transferable skills. • At the end of the programme, students are given an opportunity to evaluate the course and the lecturer.

12.	Synopsis: In this course the learner will become acquainted with research methodologies such as survey and field research, questionnaire design, content analysis, analysis of existing data, focus group, individual and group observation (including participatory observation) etc. The students will learn about the effective management of the entire supply chain forming an essential ingredient for business accomplishment in the global market. The course will deliver quality, research-led executive development procurement and supply activities to provide world class association between business, academic world and the profession of purchasing and supply.
13.	Mode of Delivery: Lectures, tutorials and Case study Analysis, Interactive group work, and Self-Study.
14.	Assessment Methods and Types:

Continuous Assessments	%
Assignment	20
Case Study Analysis	10
Quiz	10
Mid Term Exam	20
Final Exam:	40
Total:	100%

15. Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
√		√	√	

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Understand fundamental principles of knowledge creation in business and management research and distinguish the different philosophies of sciences	√				√			√
Demonstrate some of key skills needed in research proposal preparation and presentation		√		√		√		
Identify the key issues to be dealt with in each stage of the research process	√		√				√	
Explain common research methodologies in business and management		√			√			√

17. Content outline of the course/module and the SLT per topic

		Face-to-face				
No.	Subject Description	Lectures	Tutorials	Others	ILT	Total
1.	Introduction to research methodology	2	1.5		3.5	7
2.	The role of theory in Social and Health Science research	2	1.5		3.5	7
3.	Stating research questions and preparing the research statement	2	1.5		3.5	7
4.	Understanding the types and approaches in Research: quantitative vs. qualitative	2	1.5		3.5	7
5.	Stage one of the research process- Identification of Research Topic and formulating hypothesis	2	1.5		3.5	7
6.	Stage two of the research process – Choosing the Research Design	3	1.5		5	7

	7.	Mid-term test and Stage three of the Research Process – data Collection techniques	3	1.5		5	7
	8.	Stage four of the research process – Data Processing	3	1.5		5	7
	9.	Stage five of the research process – Data Analysis and Interpretation of Research Result	3	1.5		5	7
	10.	-do-	3	1.5		5	7
	11.	-do-	3	1.5		5	7
	12	Preparation of Research Proposal/Protocol	3	1.5		5	7
	13	-do-	3	1.5		5	7
	14	Publication of research findings	3	1.5		5	7
	15	Assessment			6	16	22
		Total Contact hours	28	21		65	
		Total Subject learning Time					120
		Total Credit Hour					3

8.	**Main references supporting the course:**	
	a.	Research Methods, Design, and Analysis Plus Mysearchlab with Etext -- Access Card Package by Larry B. Christensen, R. Burke Johnson and Lisa A. Turner, Pearson, (2013).
	Additional References supporting the course:	
	a.	Research Methods, Design, and Analysis Plus Mysearchlab with Etext -- Access Card Package by Larry B. Christensen, R. Burke Johnson and Lisa A. Turner, Pearson, (2013).
	b.	Introduction to Research Methods, Howitt.D, Cramer.D; Pearson, 3rd Edition, (2010).
	c.	Introduction to Research: Understanding and Applying Multiple Strategies, DePoy, E, Gitlin, N.L Elsevier Mosby, 4th Edition; (2011).
19.	**Other additional information:** All additional information will be provided by the module lecturer	

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : System Analysis and Design for Mobile Application</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2433</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Ms. Noorshyliza</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
The rationale of this unit is to introduce the students to the scope of systems analysis and design for mobile application. More and more, businesses rely on programmers and system analysts to provide the data that will help them make important business decisions and increasingly the IT department. As a result Information Management in mobile computing has become complicated. This course is essential to keep up with new challenges using limited resources.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 4</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this lesson, students will be able to:
(Cognitive) Knowledge:
• Gain knowledge of computer-aided software engineering to support the projects by computer-based tools
(Psychomotor) Skills:
• Learn about the concepts and techniques required for effective planning and design of software applications in mobile computing.
(Affective) Perceptions of Values:
• Utilize best practices in analysis and design for service-oriented enterprises</td></tr>
</table>

<table>
<tr><td></td><td>

- Apply computer perceptions in the fundamentals of mobile programming, networking and internet technologies

</td></tr>
<tr><td>10</td><td>Transferable Skills:
<table>
<tr><td>Skills</td><td>Development of the skills</td><td>Skills assessments</td></tr>
<tr><td>Teamwork</td><td>Students are required to work in groups to prepare the assignment.</td><td>Lecturer's observation
Peer evaluation</td></tr>
<tr><td>Participation and communication</td><td>Written and oral communication in presenting during participation session</td><td>Lecturer's observation</td></tr>
</table>
</td></tr>
<tr><td>11</td><td>Teaching –learning and assessment strategy
Teaching and learning will be via lecture, lab and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.</td></tr>
<tr><td>12</td><td>Synopsis:
This course covers the UML concept, basic and advanced structured modeling, class and object diagrams, behavioral modeling and architectural modeling. The module includes Mobile System Analysis and Design, analysis and design taking techniques for mobile systems, mobile data management, mobile user interface design, and so on.</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lectures, Tutorials.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:
<table>
<tr><td>Assignments</td><td>30%</td></tr>
<tr><td>Mid Exam</td><td>30%</td></tr>
<tr><td>Final Exam</td><td>40%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
</table>
</td></tr>
<tr><td>15</td><td>Mapping of the course/module to the Programme Aims:
<table>
<tr><td>PA1</td><td>PA2</td><td>PA3</td><td>PA4</td><td>PA5</td></tr>
<tr><td></td><td>√</td><td>√</td><td>√</td><td></td></tr>
</table>
</td></tr>
</table>

16 **Mapping of the course/module to the Programme Learning Outcomes:**

Course Outcomes	Program Outcomes							
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
Gain knowledge of computer-aided software engineering to support the projects by computer-based tools	√					√	√	
Learn about the concepts and techniques required for effective planning and design of software applications in mobile computing.		√			√		√	
Utilize best practices in analysis and design for service-oriented enterprises		√	√	√				
Apply computer perceptions in the fundamentals of mobile programming, networking and internet technologies	√				√			√

17 **Content Outline of the course/module and the SLT per topic**

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	**Introduction** Mobile System Analysis and Design, mobile data management, mobile user interface design,	2.5	1.5			4	8
2	Analysis and design taking techniques for mobile systems	2.5	1.5			4	8
3	**Planning Requirement Definition** Project Management	2.5	1.5			4	8
4	**Object-Oriented Analysis** Analyzing Classes and Objects Analyzing Structure	2.5	1.5			4	8
5	Analyzing Attributes Analyzing Services	2.5	1.5			4	8

	6	Assembling the Specification Template Analyzing Subjects Conceptual Model of UML	2.5	1.5			4	8
	7	Mid Term Examination				2	5	7
	8	**Design** Designing the Problem Domain Component Designing the Human	2.5	2			4	8.5
	9	Interface Component Designing Task and Data Management	2.5	2			4	8.5
	10	**Testing and Implementation** Coding, Testing and Installation	2	2			4	8
	11	**Testing and Implementation** Application System Testing	2	2			4	8
	12	**Maintenance** Maintenance Activities	2	2			4	8
	13	**Maintenance** Types of Maintenance	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	21		6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) Anup Kumar and Bin Xie, 2012, Handbook of Mobile Systems Applications and Services (Mobile Services and Systems), Auerbach Publications b) Samuel C. Yang, 2010, OFDMA System Analysis and Design (Mobile Communications), Artech House Publishers							
	Additional references supporting the course: a) Lu Luo, 2011, Designing Energy and User Efficient Interactions with Mobile Systems., Umi Dissertation Publishing							
19	**Other Additional information: Nil**							

<table>
<tr><td>1.</td><td colspan="6">Name of Course/Module: CONSTITUTION AND COMMUNITY</td></tr>
<tr><td>2.</td><td colspan="6">Course Code: MPU 2332</td></tr>
<tr><td>3.</td><td colspan="6">Name(s) of academic staff: Jay Dee A. James</td></tr>
<tr><td>4.</td><td colspan="6">Rationale for the inclusion of the course/module in the programme :
This course will enable the students to acquire an understanding of the concepts and theories of the constitution and society and learn about the historical and constitutional background of Malaysia, In addition the student will learn about about the basics and key provisions in the Constitution of Malaysia as well as the elements of tradition in the federal and state constitutions and constitutional issues.</td></tr>
<tr><td>5.</td><td colspan="6">Semester and Year offered: 2nd Year, 4th Semester</td></tr>
<tr><td rowspan="2">6.</td><td rowspan="2">Course Hours</td><td colspan="4">Face To Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L=Lecture
T=Tutorial
P=Practical
O=Others (Examination)
ILT= Individual Student Learning Time
TSLT= Total Student Learning Time</td><td>24</td><td>0</td><td>0</td><td>4</td><td>52</td><td>80</td></tr>
<tr><td>7.</td><td colspan="6">Credit Value: 2</td></tr>
<tr><td>8.</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9.</td><td colspan="6">Learning Outcomes

Upon the completion of this course, students will be able to:

<u>Cognitive:</u>

• Explain the basic concepts and theories of the constitution and society
• Outline the evolution of the constitution of Malaysia

<u>Psychomotor:</u>

• Identify the basic and key provisions in the Constitution of Malaysia

<u>Affective:</u>

• Increase their knowledge of the traditional elements of the federal and state constitutions and constitutional issues</td></tr>
</table>

<table>
<tr><td>10.</td><td>Transferable Skills:

Transferable skills developed within this course include:
• Understanding values
• Knowledge of traditional elements</td></tr>
<tr><td>11.</td><td>Teaching-learning and assessment strategy

• Lectures
• Interactive group work Lectures with many Examples
• Conferences given by Professors from University
• Syndicate working on Case studies
• Individual Assignments</td></tr>
<tr><td>12.</td><td>Synopsis

The course recognizes the importance of the Constitution that is understood by all the people, of the society and matters affecting the adoption of English legal history, the birth of modern Malaysia's constitution (the Constitution) the Federal Constitution, the separation of powers between the federal government and state government according to the constitution and the elements of tradition which is a part of the social contract that is included in the Constitution.</td></tr>
<tr><td>13.</td><td>Mode of Delivery:
Lectures, tutorials and Case study Analysis, Interactive group work, and Self-Study.</td></tr>
<tr><td>14.</td><td>Assessment Methods and Types

<table><tr><td>Quizzes</td><td>10%</td></tr><tr><td>Assignment</td><td>20%</td></tr><tr><td>Mid Term</td><td>30%</td></tr><tr><td>Final Exam</td><td>40%</td></tr><tr><td>Total</td><td>100%</td></tr></table></td></tr>
<tr><td>15</td><td>Mapping of the course/module to the Programme Aims:

<table><tr><td>PA1</td><td>PA2</td><td>PA3</td><td>PA4</td><td>PA5</td></tr><tr><td></td><td>√</td><td></td><td>√</td><td></td></tr></table></td></tr>
</table>

16. Mapping of the course/module to the Programme Learning Outcomes

NO.	COURSE OUTCOMES	PROGRAM OUTCOMES							
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8
1.	Explain the basic concepts and theories of the constitution and society	√				√		√	
2.	Outline the evolution of the constitution of Malaysia			√			√		√
3.	Identify the basic and key provisions in the Constitution of Malaysia		√		√		√		
4.	Increase their knowledge of the traditional elements of the federal and state constitutions and constitutional issues	√			√			√	

17. Content outline of the course/module and the SLT per topic

No.	MODULE TITLE	Face to Face			ILT	Total
		Lectures	Tutorials	Other		
1	Topic 1: Concepts and Theories of the Constitution • History of the Constitution of Malaysia • The purpose of the constitution • 15 Parts of the Constitution of Malaysia	2			4	6
2	Topic 2 : Islam and the Constitution • The position of Islam taking root in the Malay world • Islam and sharia should be exalted • The basics of Islam in the Constitution of Malaysia	2			4	6
3	Topic 3 : The Fundamentals of the Constitution • The concept of supremacy • The doctrine of separation of powers • Constitutional Convention	2			4	6

	4	Topic 4 : The Fundamentals of the Constitution • Federalism ,	2			4	6
	6	• Right to Freedom , • Discrimination Protection , • Social Contract	2			4	6
	7	Topic 5 : The Constitution of Malaysia • History and Background • Amendment of the Constitution of Malaysia	2			4	6
	8	Topic 6 : Provisions in the Constitution of Malaysia • The historical evolution of the Malayan Constitutional 1874 -1957	2			4	6
	9	• Some key points in the federal and state constitution - Freedom is the fundamental - Basic Services - Citizenship	2			4	6
	10	Topic 7 : Traditional Elements of the Constitution • Reasonable Traditional Elements In the Constitution • Islam as the official religion of the State • Malay as the national language	2			4	6
	11	Topic 8 : Traditional Elements of the Constitution • Malay rulers as a fundamental rule • Special Rights of the Malays	2			4	6
	12	Topic 9 : The constitution of the states in Malaysia Priority of the King and Yang Di- Pertuan Negeri (Governor) Federal guarantee of the State Constitution The privileges of the states	2			4	6
	13	Topic 10 : Current Issues of the Constitution • The overlap of powers between the federal and state •	2			4	6
	14	The overlap of powers between the executive, legislative and judicial	2			4	6

		Final Examination			4	4	6
		Total Contact hours	24		4	52	
		Total Subject learning Time					80
		Total Credit Hour					2
18.	Main references supporting the course: Mohamed Suffian Hashim (1984) . Know the Constitution of Malaysia. Second Edition. New York: John Wiley & Sons. Mohd Ayob Abdul Razid, (2011) . About the History and Foundations of the Constitution. Kuala Lumpur .Special Affairs Department.						
	Additional references supporting the course a) Know the Constitution of Malaysia. Second Edition New York: John Wiley & Sons. b) Legal Research Board. Constitution. Kuala Lumpur : International Law Book Series c) Legal Research Board. Constitution. Kuala Lumpur: International Law Book Series						
19.	Other additional information: Nil						

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Computer Animation</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2453</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Ms. Noorshyliza</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
In this course, students will learn and have the knowledge about computer graphics and animation. They will be exposed to authoring tools as well. This programme is oriented towards current industrial needs, technology and practice. The course will be a direct route into this high-profile modern, creative industry. This course will focus on both artistic graphical aspects of computer animation and the more technical side, including programming and scripting.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 4</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this lesson, students will be able to:
(Cognitive) Knowledge:
• Explain the basic terminology terms and concepts in design technique (2D or 3D)
• Identify the traditional & digital animation technique
(Psychomotor) Skills:
• Design basic multimedia system using 2D and 3D graphics with animation
• Learn high-end 3D computer animation software, technology and techniques for professionals use
(Affective) Perceptions of Values
• Demonstrate the application using graphics software</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	Lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	Lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, lab, discussion and problem-based learning. Students are also required to do their own self-study through case study, guided questions and assignments. Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

This course is intended to help students learn the theory and concepts of computer graphic and animation using multimedia software to provide them with the necessary skills to develop any animation presentation. The topics include are Introduction to Animation, Animation overview, The history of animation production, Animation basic concept, Traditional techniques to produce animation, Animation based on drawing, Model animation/ play-stop animation, Animation technique, Rotoscoping, Pixaliation, Limited Animation and others

13 **Mode of Delivery:** Lectures, Tutorials, Practical.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
√	√	√	√	

16. Mapping of the course/module to the Programme Learning Outcomes:

Course Outcomes	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Explain the basic terminology terms and concepts in design technique (2D or 3D)	√					√	√	
Identify the traditional & digital animation technique		√		√				√
Design basic multimedia system using 2D and 3D graphics with animation		√	√		√			
Learn high-end 3D computer animation software, technology and techniques for professionals use	√			√				√
Demonstrate the application using graphics software		√			√	√		

17. Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Introduction to Animation Animation overview How the animation is formed The history of animation production Animation basic concept	2.5		1.5		4	8
2	Traditional techniques to produce animation Animation based on drawing Cutout animation Model animation/ play-stop animation Other animation technique Rotoscoping Pixaliation Limited Animation Scan mate	2.5		1.5		4	8
3	**Techniques to produce animation in digital** Overview of digital animation Frame animation Path animation Object animation	2.5		1.5		4	8

		Screen or object transaction animation Icon and character animation Display and hide animation						
	4	**Terms in animation production** Keyframe, Tweenin , Onion skinning Frame-by-frame, Frame rate Aspect ratio	2.5		1.5		4	8
	5	**Introduction to 3D animation** Basic concept of 3D animation Processes to produce 3D animation 3D animation application in real life	2.5		1.5		4	8
	6	**3D animation processes (object modelling and mapping)** Modeling process & Modeling basic concept Modeling & advanced technique Mapping process Object surface features Texture mapping method	2.5		1.5		4	8
	7	Mid Term Examination				2	5	7
	8	**3D animation process (lighting, animation setting, rendering and post-production)** Lighting process Lighting basic concept in 3D animation production Type of lighting source Animation setting process Rendering process Technique in rendering process Working process in post-production phase	2.5		2		4	8.5
	9	**Animation special effect (techniques and technologies)** Traditional special effect technology Digital special effect technology	2.5		2		4	8.5

	10	Blue screen technology The use of blue screen technology Choosing blue color as the background	2		2		4	8
	11	Motion capture technology Strengths and weaknesses of mocap Type of mocap system Morphing, warping & virtual reality	2		2		4	8
	12	Web animation Overview on web animation technology GIF animation Flash movie Shockwave Dynamic HTML (DHTML) Java applet JavaScript Web data transfer technology	2		2		4	8
	13	Digital animation software 2D animation software 3D animation software Special animation software Web animation software Animation special effect software Compositing software	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	0	21	6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) Rick Parent, 2012, Computer Animation: Algorithms and Techniques, 3rd edition, Morgan Kaufmann b) Nadia Magnenat-Thalmann and Daniel Thalmann, 2012, Computer Animation: Theory and Practice (Computer Science Workbench), 2nd edition, Springer							
	Additional references supporting the course: a) Alberto Menache, 2011, Understanding Motion Capture for Computer Animation (The Morgan Kaufmann Series in Computer Graphics), 2nd edition, Morgan Kaufmann							
19	**Other Additional information: Nil**							

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Mobile Commerce</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2513</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: TBA</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course will provide students with the knowledge and understanding of the concepts, technology and application of m-commerce. With the tremendous growth of mobile communications Mobile Commerce, commercial transactions carried over a mobile platform, has started to become more and more important. Similar to e-commerce, where the success of Internet gave rise to many new businesses, m-commerce is also spawning new businesses and business models. This course is designed to disseminate students with a survey of mobile businesses, value chains, services offered over a mobile network, allowing technologies and future growth.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 5</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
By the end of this subject, students will be able to:
(Cognitive) Knowledge:
• Define mobile as a new selling channel while managing personalized marketing and extending m-commerce.
(Psychomotor) Skills:
• Identify the opportunities for the development and deployment of mobile applications
• Recognize the business models of m-commerce
(Affective) Perceptions of Values
• Utilize technical implications, market viability and alignment with strategic business initiatives</td></tr>
</table>

10 Transferable Skills:

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	lecturer's observation

11 Teaching –learning and assessment strategy

Teaching and learning will be via lecture, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 Synopsis:

This course will examine the concepts, technology and applications of m-commerce. The course will begin by setting the context for m-commerce within the domain of m-commerce. It will then examine m-commerce concepts from the perspective of information systems. Next, the course will discuss the technology needed for m-commerce including mobile client hardware and software, and wireless communications technology. Then the course will examine the range of m-commerce applications. Mobile security and payment will also be discussed.

13 Mode of Delivery: Lectures, Tutorials.

14 Assessments Methods and Types:

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15. Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
	√	√	√	

16. Mapping of the course/module to the Programme Learning Outcomes:

	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8

	Define mobile as a new selling channel while managing personalized marketing and extending m-commerce.	√				√			
	Identify the opportunities for the development and deployment of mobile applications		√		√			√	√
	Recognize the business models of m-commerce		√			√			√
	Utilize technical implications, market viability and alignment with strategic business initiatives			√	√		√		

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	**E-commerce Concepts** Dimensions of e-commerce E-commerce Business Models	2.5	1.5			4	8
2	E-commerce IS Functional Model	2.5	1.5			4	8
3	**M-commerce Concepts** Impact of Mobility on e-commerce M-commerce Business Models	2.5	1.5			4	8
4	M-commerce Value Chain strategy of multidimensional arrays M-commerce IS Functional Model	2.5	1.5			4	8
5	**M-commerce Technology** Mobile Client Mobile Client Software	2.5	1.5			4	8
6	**M-commerce Applications** Mobile Financial Services Mobile Advertising Mobile Business Services	2.5	1.5			4	8

		Mobile Entertainment Mobile Office						
	7	Mid Term Examination				2	5	7
	8	Vehicular Mobile Commerce Location-based Applications	2.5	2			4	8.5
	9	**Management of M-commerce Services** Content Development and Distribution	2.5	2			4	8.5
	10	Content Caching Pricing of M-commerce Services	2	2			4	8
	11	**M-commerce Trust, Security and Payment** Trust in M-commerce	2	2			4	8
	12	Encryption, Confidentiality, integrity and Non-repudiation Mobile Payment	2	2			4	8
	13	**M-commerce Issues** Technology Issues Application Issues Global M-commerce Issues	2	2			4	8
	14	Assessment				4	12	16
		Total Contact hours	28	21		6	65	
		Total Subject learning Time						120
		Total Credit Hour						3

18 **Main references supporting the course:**

a) Günter Silberer, Jens Wohlfahrt and Thorsten Wilhelm, 2012, Mobile Commerce: Grundlangen, Geschäftsmodelle, Erfolgsfaktoren, Gabler Verlag

b) Philipp Tuna, 2013, Mobile Commerce,Grin Verlag.

Additional references supporting the course:

a) Majeed Ahmad, 2013, Mobile Commerce 2.0: Where Payments, Location and Advertising Converge (Smartphone Chronicle), CreateSpace Independent Publishing Platform

	b) Prof Tawfik Jelassi, Dr Albrecht Enders and Dr Francisco J Martínez-López, 2014, Strategies for e-Business: Creating value through electronic and mobile commerce CONCEPTS AND CASES, 3rd edition, Pearson
19	**Other Additional information: Nil**

1	**Name of Course/Module :** Mobile Design
2	**Course Code:** DMC 2523
3	**Name(s) of academic staff:** TBA

<table>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course will instil the knowledge of interface and application design of mobile platforms. This course is taught with an example. The course is essential to understand the design process that will be applied to the app building. This will allow the students to gain very clear comprehension of every design principles.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 5</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
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O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
By the end of this subject, students will be able to:
(Cognitive) Knowledge:
• Develop mobile web apps, which will work across multiple platforms including Android, iOS, and others.
(Psychomotor) Skills:
• Design web development to create great cross-device mobile web experiences.
(Affective) Perceptions of Values
• Create and document mobile design prototypes to design mobile application according to the mobile design principles.</td></tr>
<tr><td>10</td><td colspan="6">Transferable Skills:
<table>
<tr><td>Skills</td><td>Development of the skills</td><td>Skills assessments</td></tr>
<tr><td>Teamwork</td><td>Students are required to work in groups to prepare the assignment.</td><td>lecturer’s observation
Peer evaluation</td></tr>
<tr><td>Participation and communication skill</td><td>Written and oral communication in presenting during participation session</td><td>lecturer’s observation</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>11</td><td>Teaching –learning and assessment strategy
Teaching and learning will be via lecture, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.
Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.</td></tr>
<tr><td>12</td><td>Synopsis:
An introduction to interface and application design for mobile platforms such as Smart Phones, iPad and tablets. This course will review the general interface design and prototyping process with special focus on the restricted mobile environment. A significant portion of the course is organized around critical engagement with the latest academic and design literature in the field.</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lectures, Tutorials, Practical.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:
<table><tr><td>Assignments</td><td>30%</td></tr><tr><td>Mid Exam</td><td>30%</td></tr><tr><td>Final Exam</td><td>40%</td></tr><tr><td>Total</td><td>100%</td></tr></table></td></tr>
<tr><td>15.</td><td>Mapping of the course/module to the Programme Aims:
<table><tr><td>PA1</td><td>PA2</td><td>PA3</td><td>PA4</td><td>PA5</td></tr><tr><td></td><td>√</td><td>√</td><td>√</td><td></td></tr></table></td></tr>
</table>

16. Mapping of the course/module to the Programme Learning Outcomes:

	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Develop mobile web apps, which will work across multiple platforms including Android, iOS, and others.	√						√	√
Design web development to create great cross-device mobile web experiences		√		√		√		
Create and document mobile design prototypes to design mobile application according to the mobile design principles		√	√		√			

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	**Design Process** Prototyping Steps in Design Process Evaluation Heuristics	2.5		1.5		4	8
2	**Mobile Design** Principles Constraints of Mobil Devices Evaluation	2.5		1.5		4	8
3	Observation Focus Groups Interview	2.5		1.5		4	8
4	Mobile Design Patterns	2.5		1.5		4	8
5	Multi-sensory Design	2.5		1.5		4	8
6	**Location-based Services** Location Context	2.5		1.5		4	8
7	Mid Term Examination				2	5	7
8	Privacy Issues	2.5		2		4	8.5

		CheckIn VS AlwaysOn						
	9	**Mobile Social** Flash Mobs Emergence Sociability	2.5		2		4	8.5
	10	**Augmented Reality** Virtual Reality	2		2		4	8
	11	Gaze Detection Location-based	2		2		4	8
	12	**Design For The Developing World** Resource Constraints	2		2		4	8
	13	Connectivity Accessibility	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28		21	6	65	
		Total Subject learning Time						120
		Total Credit Hour						3

18 **Main references supporting the course:**

a) Theresa Neil, 2014, Mobile Design Pattern Gallery: UI Patterns for Smartphone Apps, 2nd edition, O'Reilly Media

b) Designing Mobile Interface. Steven Hoober, Eric Berkman (2012) O'reilly Media, Inc.

Additional references supporting the course:

a) Build Mobile Web Sites and Apps For Smart Devices. Earle Castledine (2011) Site Point Pt Ltd.

b) Abhi Naha and Peter Whale, 2012, Essentials of Mobile Handset Design (The Cambridge Wireless Essentials Series), Cambridge University Press

19 **Other Additional information: Nil**

<table>
<tr><td>1.</td><td colspan="6">Name of Course/Module: CO-CURRICULUM</td></tr>
<tr><td>2.</td><td colspan="6">Course Code: MPU 2442</td></tr>
<tr><td>3.</td><td colspan="6">Name(s) of academic staff: Nazira Alis</td></tr>
<tr><td>4.</td><td colspan="6">Rationale for the inclusion of the course/module in the programme :
This course must be taken and passed by both Malaysian and international students that aims to produce students capable of the application of the soft skills</td></tr>
<tr><td>5.</td><td colspan="6">Semester and Year offered: Year 2 Semester 5</td></tr>
<tr><td rowspan="2">6.</td><td rowspan="2">Course Hours</td><td colspan="4">Face To Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L=Lecture
T=Tutorial
P=Practical
O=Others (Examination)
ILT= Individual Student Learning Time
TSLT= Total Student Learning Time</td><td>21</td><td>10</td><td>0</td><td>4</td><td>45</td><td>80</td></tr>
<tr><td>7.</td><td colspan="6">Credit Value: 2</td></tr>
<tr><td>8.</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9.</td><td colspan="6">Learning Outcomes
Upon the completion of this course, students will be able to:

<u>Cognitive:</u>
• Interpret the skills to think critically and to solve problems using the scientific approach
<u>Psychomotor:</u>
• Identify the skills to communicate effectively in various situations
<u>Affective:</u>
• Apply leadership skills in leading yourself and others and be able to work as a team
• Apply skills in information management and makes the process of lifelong learning as a means of learning</td></tr>
<tr><td>10.</td><td colspan="6">Transferable Skills:
• Leadership and Administration Skills
• Information Management Skills
• Interpersonal Skills
• Assessing Values</td></tr>
<tr><td>11.</td><td colspan="6">Teaching-learning and assessment strategy
• Lecture,
• Discussion in the class,
• Presentation,
• Quizzes and assignment</td></tr>
</table>

12. Synopsis:

This course will train students to apply four soft skills along with the development of Effective communication in a variety of situations with Critical thinking skills, problem solving and scientific approach. The course also helps to develop Leadership and teamwork skills, and Information management skills and lifelong learning. Applying the four skills will be implemented using this mode of learning contracts based projects, activities and services performed in groups. Students are required to apply to the four soft skills such as practical to consolidate and strengthen the elements of the soft skills in them. Practical aspects of this requirement will produce holistic students capable of contributing towards the community and organization

13. Mode of Delivery:

Lecture, Tutorials, Discussion

14. Assessment Methods and Types

Quizzes	10%
Assignment	20%
Mid Term	30%
Final Exam	40%
Total	100%

15 Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
	√			√

16. Mapping of the course/module to the Programme Learning Outcomes

NO.	COURSE OUTCOMES	PROGRAM OUTCOMES							
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
1.	Identify the skills to communicate effectively in various situations		√		√				√
2.	Interpret the skills to think critically and to solve problems using the scientific approach	√		√			√		
3.	Apply leadership skills in leading yourself and others and be able to work as a team		√		√				√
4.	Apply skills in information management and makes the process of lifelong learning as a means of learning			√		√		√	

17.	Content outline of the course/module and the SLT per topic					
	No.	MODULE TITLE	THE FRONT			TSLT
			Lectures	Tutorials	Other	
	1-2	Topic 1 : Introduction and distribution of topic and group	6	3		9
	3-4	Topic 2 : Discussion of the assignment title and methodology	6	3		9
	5	Summary	4	2		6
	6-7	Field study	5	2		7
	8	EVALUATION			4	14
		TOTAL	21	10	4	45
		OVERALL TOTAL	35 + 45 = 80			
18.	Main references supporting the course: N/A					
19.	Other additional information: Nil					

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Mobile Game Development</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2543</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Datuk Ir. Ismail Bin Hassan</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:

This course will help the students to understand the process of programs development and will guide them through creating their own computer program in a mobile game. The course is essential to understand the basic constructs that are used in many programming languages and will help to put this knowledge into practice by changing the game code. You'll have the freedom to create a game that's unique to you, with support from the community and educators if you get stuck. The course is essential to learn algorithms to solve problems and translate these into code, using the same tools as industry professionals worldwide.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 5</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>13</td><td>8</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Introduction to basic Programming</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, student will be able to:
(Cognitive) Knowledge:
• Develop detailed plan and the different play modes for to plan the intricate details of the game
• Design a program skeleton with game programming tools such as GameCanvas.
(Psychomotor) Skills:
• Use an Emulator to test the game, before releasing it and mobile device model to check the game on
(Affective) Perceptions of Values
• Analyze the coding and solve problem into smaller bits, so that handling becomes easier for the students</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

The course combine video introductions, on-screen examples, articles and discussions to help the student to understand the principles behind computer programs and the building blocks that are used to create them. The course will assist the student to apply knowledge to improve the game further, or even create new games on their own. The modules included are Game Development Essentials, Cross-platform, rapid application development techniques and prototyping, Utilizing code libraries for UI animation, sound, and physics, Handling touch and accelerometer input, Maintaining game performance, enabling GPU caching and others.

13 **Mode of Delivery:** Lectures, Tutorials, Practical.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	100%

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
√	√	√	√	

16. **Mapping of the course/module to the Programme Learning Outcomes:**

	Program Outcomes							
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
Develop detailed plan and the different play modes for to plan the intricate details of the game	√			√				√
Design a program skeleton with game programming tools such as GameCanvas		√			√	√		
Use an Emulator to test the game, before releasing it and mobile device model to check the game on			√			√	√	
Analyze the coding and solve problem into smaller bits, so that handling becomes easier for the students		√			√			√

17 **Content Outline of the course/module and the SLT per topic**

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Game Development Essentials	2.5	1.5			4	8
2	Cross-platform, rapid application development techniques and prototyping.	2.5		1.5		4	8
3	Utilizing code libraries for UI animation, sound, and physics.	2.5		1.5		4	8
4	Handling touch and accelerometer input.	2.5		1.5		4	8
5	Maintaining game performance – profiling frame rate, preventing memory leaks, and enabling GPU caching.	2.5		1.5		4	8
6	Publishing an app to one or more mobile app marketplaces	2.5	1.5			4	8
7	Mid Term Examination				2	5	7
8	Programming expertise in C OOPs and C++	2.5	2			4	8.5
9	Visual Programming DirectX Game Programming	2.5	2			4	8.5

	10	Mobile UI conventions - lists, buttons, segmented controllers, pickers, drawers, switches, pop-up windows	2	2			4	8
	11	Mobile Navigation - tab bars, flip views, drill-down navigation	2	2			4	8
	12	Handling Touch and Gesture Input Sensors: Acceleromter and Geolocation Building "Hybrid" Apps that use both native and browser APIs - Google maps and StageWebView	2		2		4	8
	13	Utilizing Web Services, RSS, and RIT's MIS (Map Information Service) API. Working with XML and JSON data	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	13	8	6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a. Kimberly Unger, Jeannie Novak (2011). Game Development Essentials: Mobile Game Development Paperback. 1st edition, Cengage Learning. b. Mario Zechner and Robert Green (2012). Beginning Android Games Paperback. 2nd edition Apress Publishers							
	Additional references supporting the course: a. Pascal Rettig (2012). Professional HTML5 Mobile Game Development. 1st edition Wrox Publishers b. Patrick Alessi (2011). Beginning iOS Game Development Paperback. 1st edition, Wrox Publishers							
19	Other Additional information: Nil							

1	**Name of Course/Module :** Mobile Device Programming

<table>
<tr><td>2</td><td colspan="6">Course Code: DMC 2553</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Mr. Midhun Chakkaravarthy</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
These course expertises students for building mobile device applications using the Android platform and modern, iterative, software engineering techniques. The module is based on practice-oriented learning which encompasses the most recent technologies, platforms and development in mobile computing.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 5</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: DMC 1213- Introduction of Programming</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this lesson, students will be able to:
(Cognitive) Knowledge:
• Know the basic concepts and technique of developing applications for the Android phone
• Describe the resources and security information needed for various different types of Android applications features and services
(Psychomotor) Skills:
• Achieve the skill of coding native apps, implementing mobile security and even the management part of enterprise mobility
(Affective) Perceptions of Values
• Develop applications that incorporate both programming methods to efficiently construct a single application task</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	Lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	Lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, lab, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

This course introduces the student to programming using Android application development as the context. It includes layouts, intents & filters, widgets, input method framework, preferences, databases, java libraries, network communication services. After completion of this course student will gain the technical knowledge and design, develop and manage mobile strategies, services and applications either as start-ups, SMEs or for the enterprises.

13 **Mode of Delivery:** Lectures, Tutorials, Practical

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
	√	√	√	

16. Mapping of the course/module to the Programme Learning Outcomes:

	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Know the basic concepts and technique of developing applications for the Android phone Know the basic concepts and technique of developing applications for the Android phone	√		√			√		
Describe the resources and security information needed for various different types of Android applications features and services	√			√				√
Achieve the skill of coding native apps, implementing mobile security and even the management part of enterprise mobility		√				√		√
Develop applications that incorporate both programming methods to efficiently construct a single application task		√		√		√		

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Introduction Setup	2.5		1.5		4	8
2	Hello Android Layouts Widgets	2.5		1.5		4	8
3	Containers Input Method Framework	2.5		1.5		4	8
4	Lists Containers II Webkit	2.5		1.5		4	8
5	Menus Pop-Up Messages Events	2.5		1.5		4	8

	6	Rotation Threads Intents & Filters	2.5		1.5		4	8
	7	Mid Term Examination				2	5	7
	8	Activities ,Resources,Styles , Screens and Devices	2.5		2		4	8.5
	9	Honeycomb UI, Action Bar	2.5		2		4	8.5
	10	Fragments, Changes, Files	2		2		4	8
	11	Preferences, Databases, Java Libraries Network Communication, Services	2		2		4	8
	12	Notifications, Permissions, Location Mapping	2		2		4	8
	13	Telephony, Fonts, Development Tools Alternatives, Devices, More Resources	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28		21	6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** c) Erica Sadun, 2013, iOS Auto Layout Demystified (Mobile Programming), 2nd edition, Addison Wesley d) Maximiliano Firtman, 2013, Programming the Mobile Web, 2nd edition, O'Reilly							
	Additional references supporting the course: b) Erik Hellman, 2013, Android Programming: Pushing the Limits, Wiley c) John David N. Dionisio and Ray Toal, 2012, Programming with JavaScript: Algorithms and Applications for Desktop and Mobile Browsers, Jones and Bartlett Publishers.							
19	**Other Additional information: Nil**							

1	**Name of Course/Module:** Project Report						
2	**Course Code:** DMC 2613						
3	**Name(s) of academic staff:** ALL						
4	**Rationale for the inclusion of the course/module in the program:** The course will help to understand new mobile computing applications, including location-aware and context-aware applications. The students will improve networking communication protocols to support evolving needs of mobile computing applications along with the enhancement of embedded operating systems for resource-constrained mobile computing devices to provide better Internet backbone services to support next-generation mobile computing.						
5	**Semester and Year offered:** Year 3 Semester 6						
6	**Course Hours**	**Face to Face**				**ILT**	**TSLT**
	L=Lecture **T=Tutorial** **P=Practical** **O=Others (Examination)** **TSLT= Total Student Learning Time**	**L** **-**	**T** **-**	**P** **84**	**O** **-**	**36**	**120**
7	**Credit Value**: 3						
8	**Prerequisite (if any):** Pass in all Core subjects						

9	**Learning outcomes:** At the end of this course, students will be able to: (Cognitive) Knowledge: • Understand essential technologies of wireless networks and mobile computing (Psychomotor) Skills: • Develop technical writing and oral presentation skills (Affective) Perceptions of Values • Understand present research trends in wireless networks and mobile computing
10	**Transferable Skills:** Transferable skills developed within this course include: • Problem solving • Thinking logically within constraints • Using instrumentation to obtain results • Evaluating results
11	**Teaching-learning and assessment strategy:** • Independent Managerial work • At the end of the programme, students are given an opportunity to evaluate the course and the lecturer.
12	**Synopsis:** In this class, students will understand the basics and research trends of wireless networks and mobile computing. The course will address topics related to radio propagation, multiple radio access, mobile communication system, ad hoc networks, vehicular networks, sensor networks, wireless LAN, and cognitive radio. Students will be expected to lead discussions in classes on several topics. Each student will collaborate with other students toward the completion of the research project related to mobile computing.
13	**Mode of Delivery** Lecture, Tutorial, Workshop, Seminar.

14	**Assessment Methods and Types** Project supervisor's report: 50% Project report: 50% Total: 100%
15	**Mapping of the course/module to the Program Aims:**

PA1	PA2	PA3	PA4	PA5
	√		√	

16 **Mapping of the course/module to the Program Learning Outcomes:**

	Program Outcomes							
	PO1	PO2	PO3	PO4	PO 5	PO 6	PO 7	PO8
Understand essential technologies of wireless networks and mobile computing		√				√		√
Develop technical writing and oral presentation skills		√	√		√			
Understand present research trends in wireless networks and mobile computing	√						√	

17	**Content outline of the course/module and the SLT per topic**						
	Title	Details/Topics	Hours				
			L	T	Others	ILT	TSLT
	1	Content outline of the course/module and the SLT per topic					
		Project research	-	-	12 hrs	6 hrs	18 hrs
		Topic: As per subject chosen, To be announced later by the concerned lecturer.	-	-	24 hrs	6 hrs	30 hrs
		Project Theory work	-	-	24 hrs	6 hrs	30 hrs
		Project Field Work	-	-	22 hrs	8 hrs	30 hrs
		Project Report Presentation	-	-	2 hrs	10 hrs	12hrs
	Total hours				84	36	
	Total lecture						120
	Total credit hours		3				
18	**Main references supporting the course:** NA						

19	**Other Additional Information:** Writing Guide for Project Report Submission This is a guide for you to follow when creating the report for project. If this guide is not followed, points can be lost. <u>Standard Document Formatting Guidelines</u> As a general rule, documents should be professionally type written (this means spell-checked and grammar-checked) and printed. Pages must be stapled together at the top left corner of the pages. Margins - 1-1.5" on all sides; Font type and size - dark, clear, readable, 12-pt. font; Pagination - numbered consecutively in top right corner beginning with first page Title page – The title of the report must be centered within the title page. Directly under the title, name and date of submission should be placed directly under that. Executive summary – After the title page, there should be an abstract. This is a brief synopsis of the material found in the report. The summary should not extend beyond one page, but in that one page, the reader must get an idea of the substance of the report. Headings – Discounting the title page and the works cited page, the report will consist of 4 major sections: planning, organizing, leading, controlling. Each must have its own heading in capital letters and centered. Subheadings are also helpful. Subheadings serve two purposes. They enable the student to more carefully organize their thoughts, and they enable the reader to more clearly follow the thoughts. If the examiner is unable to clearly follow the presentation of the ideas, the student will lose points, even if the student believe that he/she have covered everything. It is likely that the project will not proceed in a precisely linear fashion (from planning to organize to leading to controlling). It is up to the student to decide how to best present the material so that the examiner have an accurate view of the project. Line spacing – Within each paragraph, text must be single-spaced. Between paragraphs, there must be a double space. This means that line-spacing in the document will be similar to line-spacing within this writing guide. Content information – Within the body of the report, student will refer to concepts discussed in class. It is NOT enough to simply use terms correctly. The student must demonstrate that they know the meaning of each term, and this is accomplished by defining the term within the text. Table and Graph – The report may contain one table and one graph depicting the progress. The student must use a computer program to create the table and graph. Handwritten tables and/or graphs will not be acceptable. Works cited – The last page of the document will be a works cited page. It will be labeled as such. For this section, the works cited label will be centered at the top of the last page, and entries will be single-spaced within and double-spaced between. The student must list the source of all information used. The student will be provided some time in class to meet their objectives, but not enough to fully conduct their project. They must use their time efficiently in order to be effective. If one group does not work efficiently, they may not accomplish the goals of the project. Too little class time will not be an excuse for incomplete or insufficient group work.

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Mobile Technology</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2623</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Ms. Noorshyliza</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course will provide the students with the knowledge of current mobile technologies. It covers wireless communication, wireless transmission, telecommunication systems and support for mobility.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 6</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, student will be able:
(Cognitive) Knowledge:
• Gain knowledge of mobile database and the types of mobile devices.
(Psychomotor) Skills:
• Develops the skills of computing and the Internet into the wireless medium and provide greater flexibility in communication, collaboration and information sharing.
(Affective) Perceptions of Values:
• Integrate mobile learning for research, communication, collaboration, and productivity.
• Develop apps for Android devices, IOS devices</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

This course will introduce the students to various mobile technologies, wireless transmission, wireless LAN, Medium access control, telecommunication systems, mobile network layer, mobile transport layer and mobility support.

13 **Mode of Delivery:** Lectures, Tutorials.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15 **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
		√	√	√

16 **Mapping of the course/module to the Programme Learning Outcomes:**

Course Outcomes	Program Outcomes							
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
Gain knowledge of mobile database to access information to enable interactivity with others.	√				√	√		

	Develops the skills of computing and the Internet into the wireless medium and provide greater flexibility in communication, collaboration and information sharing.		√	√				√	
	Apply different working process in internal communication to enhance sales and marketing effectiveness.		√		√				√
	Learn mobile technology to support computing on the move, using portable devices through wireless networks	√	√				√		

17 Content Outline of the course/module and the SLT per topic

	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	**Introduction to Wireless Communications** Need and Application of Wireless Communication	2.5	1.5			4	8
2	Wireless Data Technologies Market For Mobile	2.5	1.5			4	8
3	**Wireless Transmission** Frequency for Radio Transmission Signal Antennas Signal Propagation Multiplexing Spread and Cellular Systems	2.5	1.5			4	8
4	**Medium Access Controls** Specialized MAC,SDMA	2.5	1.5			4	8
5	**Medium Access Controls** TDMA ,CDMA	2.5	1.5			4	8
6	**Telecommunication Systems** GSM DECT systems – architecture and protocols Tetra Frame Structure UMTS basic architecture and UTRA modes	2.5	1.5			4	8

	7	Mid Term Examination				2	5	7
	8	**Wireless LAN** Infrared VS Radio Transmissio Infrastructure Ad-hoc Network IEEE 802.11	2.5	2			4	8.5
	9	**Wireless LAN** Hyper LAN ,BlueTooth	2.5	2			4	8.5
	10	**Mobile Network Layer and Mobile Transport Layer** Mobile IP, DHCP,TCP	2	2			4	8
	11	Fast and Selective Re-transmission and recovery Transaction oriented TCP	2	2			4	8
	12	**Support for Mobility** File Systems World Wide Web	2	2			4	8
	13	Wireless Application Protocol	2	2			4	8
	14	Final Examination				4	12	16
		Total Contact hours	28	21		6	65	
		Total Subject learning Time						120
		Total Credit Hour						3

18	**Main references supporting the course:** a) Martin Rieser, 2011, The Mobile Audience: Media Art and Mobile Technologies: 5 (Architecture - Technology - Culture), Editions Rodopi B.V. b) Stefan Raab and Madhavi Chandra, 2013, Mobile IP Technology and Applications (paperback) (Networking Technology), Cisco Press.
	Additional references supporting the course: a) Robert Virkus, Daniel Kranz, Anna Alfut and Ian Thain, 2014, Mobile Developer's Guide To The Galaxy, 14 edition, Enough Software
19	**Other Additional information: Nil**

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : VB .Net Programming</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2633</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Mr. Balaganesh</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
The Visual Basic programming language is used to teach business computer programming using a visual programming approach; includes fundamental programming principles for event-driven programming.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 6</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td><td></td><td></td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this lesson, students will be able to:
Begin a Visual Basic .NET project that is based on the Windows Application template.
(Cognitive) Knowledge:
• Apply general programming knowledge and human interface guidelines in the field of developing windows based application.
(Psychomotor) Skills:
• Create a simple application in Visual Basic .NET.
• Use the standard toolbar, programming tools, and programming windows in the development environment to work with applications.
(Affective) Perceptions of Values
• Use the standard toolbar, programming tools, and programming windows in the development environment to work with applications.</td></tr>
</table>

10 Transferable Skills:

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	Lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	Lecturer's observation

11 Teaching –learning and assessment strategy

Teaching and learning will be via lecture, lab, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 Synopsis:

visual programming language concepts applied to a business environment including: form design, common form tool controls, input-process-output model, arithmetic operations and assignment statements, predefined object methods & functions, decision structures, looping structures, list controls, array and table processing, sub procedures and user-defined functions, and database programming.

13 Mode of Delivery: Lectures, Practical.

14 Assessments Methods and Types:

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15. Mapping of the course/module to the Programme Aims:

PA1	PA2	PA3	PA4	PA5
		√	√	√

16. Mapping of the course/module to the Programme Learning Outcomes:

	Program Outcomes							
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8

	Apply general programming knowledge and human interface guidelines in the field of developing windows based application.		√			√			√
	Create a simple application in Visual Basic .NET.	√	√					√	
	Use the standard toolbar, programming tools, and programming windows in the development environment to work with applications.		√		√		√		
	Use the standard toolbar, programming tools, and programming windows in the development environment to work with applications			√		√			√

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Introduction to Visual Basic. User Interface	2.5		1.5		4	8
2	Variables, Constants, and Calculations	2.5		1.5		4	8
3	Decisions and Conditions	2.5		1.5		4	8
4	Menus, Common Dialog Controls, Context Menus	2.5		1.5		4	8
5	Sub Procedures and Functions. Lists and Loops	2.5		1.5		4	8
6	Arrays and Collections.	2.5		1.5		4	8
7	Mid Term Examination				2	5	7
8	Windows Database Programming – Multiple Document Interface.	2.5		2		4	8.5
9	Window based applications	2.5		2		4	8.5
10	Data access with .NET	2		2		4	8

	11	.NET FRAMEWORK Architecture	2		2		4	8
	12	Assemblies	2		2		4	8
	13	**Shared assemblies** **CLR hosting** **Appdomains** Reflection	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28		21	6	65	
		Total Subject learning Time						120
		Total Credit Hour						3
18	**Main references supporting the course:** a) Bradley, Julie Case and Anita C. Millspaugh. PROGRAMMING VISUAL BASIC 2010, Boston, MA: McGraw-Hill, Copyright 2011, **b)** VB.NET Programming with the Public Beta Paperback by Billy Hollis, Rockford Lhotka							
	Additional references supporting the course: a) Fundamentals of Microsoft .NET Programming Paperback by Rod Stephens							
19	**Other Additional information: Nil**							

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Internet Programming</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2643</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Mrs. Reihaneh</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
In this course, students will learn and have the knowledge about WWW based on the latest technologies. Relate the appropriate use of important components in developing web applications. Identify and develop a web application by using the important components in web applications which are Client Site Technology, Server Site Technology, Database Server and Web Server.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: 2 year 6 semester</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>0</td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: none</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, students will be able to
(Cognitive) Knowledge:
• Describe the basic features of web browsers, such as Internet Explorer and Firefox;
• Understand the generic principles of computer programming as applied to implementing basic web-based applications
(Psychomotor) Skills:
• Select such Internet tools as email, ftp, and search engines;
• Identify both of algorithmic functions and of computer programming in web-based application settings
(Affective) Perceptions of Values
• Demonstrate the implications of Internet on society, primarily in the aspects of communication, commerce, crime, ethics, and privacy
• Be able to create simple web pages using HTML and CSS</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	Teacher's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during board participant session	Teacher's observation

11 **Teaching –learning and assessment strategy**

Lectures, laboratory works and problem-based learning

Examinations, quizzes, exercises, assignments and presentations.

12 **Synopsis:**

This course is intended to help students learn HTML, giving them both the solid understanding of the fundamentals on how to work with HTML and other scripting language in order to create a dynamic and interactive website.

13 **Mode of Delivery:** Lectures, Tutorials.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	**100%**

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
√	√		√	

16. Mapping of the course/module to the Programme Learning Outcomes:

	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Describe the basic features of web browsers, such as Internet Explorer and Firefox	√		√					
Understand the generic principles of computer programming as applied to implementing basic web-based applications	√		√			√		
Use such Internet tools as email, ftp, and search engines		√			√		√	
Select such Internet tools as email, ftp, and search engines		√	√					
Identify both of algorithmic functions and of computer programming in web-based application settings		√		√			√	
Demonstrate the implications of Internet on society, primarily in the aspects of communication, commerce, crime, ethics, and privacy			√		√		√	
Be able to create simple web pages using HTML and CSS	√					√		√

17 **Content Outline of the course/module and the SLT per topic**

No	Subject description	Face to face			ILT	Total
		Lectures	Tutorials	Practical		
1	Introduction to Networks Components of network Types of networks	2.5		1.5	4	8
2	Category of networks Network topologies	2.5		1.5	4	8
3	Introduction to Internet Internet history ,Definition of internet	2.5		1.5	4	8
4	Internet application Introduction to scripting language	2.5		1.5	4	8
5	Basic HTML Introuction to Html ,Create and edit a webpage ,Choosing an editor Headings, ,paragraphs, breaks and horizontal rules	2.5		1.5	4	8
6	Formatting a character List, Image ,Links	2.5		1.5	4	8
7	Mid Term Examination				5	7
8	Table ,Forms ,Frames	2.5		2	4	8.5
9	Cascading Style Sheets (CSS) Syntax,structures and format	2.5		2	4	8.5
10	Implementing stylesheets	2		2	4	8
11	Javascript Introduction to javasript ,Syntax Operation and basic ,statements in javascript Screen output ,Applying javascript in HTML	2		2	4	8
12	Active Server Page (ASP) Introduction to ASP ,Personal Web Server	2		2	4	8
13	Application of ASP ,User input Accessing a database from ASP Applications of PHP	2		2	4	8
14	Final Examination				12	16
	Total Contact hours	28		21	65	
	Total Subject learning Time					120
	Total Credit Hour					3

18	**Main references supporting the course:** a) Peter Lubbers, Frank Salim and Brian Albers, 2011, Pro HTML5 Programming: Powerful Apis for Richer Internet Application Development (Professional Apress), 2nd Edition, APress b) Porter Scobey and Pawan Lingras, 2012, Web Programming and Internet Technologies: an E-commerce Approach, Jones and Bartlett Publishers
	Additional references supporting the course: a) Dr. K. Kuppusamy and Dr. S. Murugan, 2014, Internet Concepts and Programming Tools for Professionals, Shroff/The X Team
19	**Other Additional information: Nil**

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Enterprise Mobility</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2653</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: TBA</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
The Mobile industry is changing at a rapid pace and so is the behavior of enterprise workforce which uses mobile technologies. Enterprise Mobility deals with the technology trends of the market, the competitive landscape, and the mobile worker adoption trends. This module is necessary for students to understand the scenario-planning mobile companies and the methodology to formulate their product strategy and the method of development of enterprise mobility.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 6</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, student will be able:
(Cognitive) Knowledge:
• Learn the new trends in IT Service Management, managing devices and building applications.
• Gain knowledge about business technology, consumer devices and other on-demand services for business purposes
(Psychomotor) Skills:
• Gain access to information, services, and applications related to consumer technology
(Affective) Perceptions of Values
• Formulate consumerization with accuracy, and intimacy of consumer technology.</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

The course deals with the long-term product planning, with the innumerable evolutionary trends to determine to determine the probable product functionality and their introduction timing in the lifecycle of the product. One has to look at the technology trends of the market, the competitive scenario, and the mobile worker adoption trends. The course consists of the topics Mobility - Emerging Challenges, Technology - Enabling Capabilities, Work - Facing Paradoxes, Creativity - Fluid Performances, Collaboration - Transparent Interdependencies, Control - Effective Interventions, Portfolios - Amplified Mobility, Challenges - Managing Mobile Performances and others.

13 **Mode of Delivery:** Lectures, Tutorials.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	100%

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5

16. **Mapping of the course/module to the Programme Learning Outcomes:**

	Program Outcomes							
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
Learn the new trends in IT Service Management, managing devices and building applications.	√				√			√
Gain knowledge about business technology, consumer devices and other on-demand services for business purposes	√		√				√	
Gain access to information, services, and applications related to consumer technology		√		√			√	
Formulate consumerization with accuracy, and intimacy of consumer technology		√				√		√

17 **Content Outline of the course/module and the SLT per topic**

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	Mobility - Emerging Challenges A world of mobility	2.5	1.5			4	8
2	Technology - Enabling Capabilities -Connectivity -Portability -Memory -Pervasiveness	2.5	1.5			4	8
3	Technology – Enabling Capabilities -Intimacy -Priority -Portfolios -Affordances -Services	2.5	1.5			4	8
4	Work - Facing Paradoxes -Mobility , Work ,Defining mobile work, Paradox	2.5	1.5			4	8

		-Performance						
	5	Work - Facing Paradoxes -Asymmetry -Boundaries and fluidity -Creativity -Collaboration -Control	2.5	1.5			4	8
	6	Creativity - Fluid Performances -Intimate technology performances -Mobile and anchored -Mobile trade-offs -The unbearable lightness of situations -Rhythms of interaction -Cultivating fluidity -Managing interruptions -Mobile overload	2.5	1.5			4	8
	7	Mid Semester Exam				2	5	7
	8	Collaboration - Transparent Interdependencies -Mobile policing and technologies -Constant coupling and rhythms of collaboration -From batch-time to real-time reporting with RFID	2.5	2			4	8.5
	9	Collaboration - Transparent Interdependencies -Symmetry and asymmetry in collaboration -Individual and collective working	2.5	2			4	8.5

	-Transparency in collaboration Cultivating collaboration						
10	Control - Effective Interventions -Remote control and local discretion -Direct observation and indirect control -Organizing mobility -Trust and enterprise mobility -Cultivating boundaries	2	2			4	8
11	Portfolios - Amplified Mobility -Ecologies, infrastructures and portfolios -Mobile services diversity -Unpacking mobile service diversity -Affordances, mechanisms and materiality	2	2			4	8
12	Challenges - Managing Mobile -Performances -Emerging and planned performances -Managing mobility practic	2	2			4	8
13	-Mobile Technologies, Work and Enterprise Mobility -Convergence and Innovation in Digital Services -Customer Managed Relations and Marketing in the Digital Age	2	2			4	8
14	Final Examination				4	12	16
	Total Contact hours	28	21			65	
	Total Subject learning Time						120
	Total Credit Hour						3

18	**Main references supporting the course:** a. Jithesh Sathyan, Anoop N., Navin Narayan, Shibu Kizhakke Vallathai (2012). A Comprehensive Guide to Enterprise Mobility (Infosys Press) Hardcover, 2014 Edition, CRC Press. b. Jack Madden, Brian Madden (2013). Jack Madden Enterprise Mobility Management: Everything you need to know about MDM, MAM, and BYOD, 2014 Edition, Jack Madden.
	Additional references supporting the course: a. Carsten Sørensen (2011), Enterprise Mobility: Tiny Technology with Global Impact on Work (Technolology, Work, and Globalization) Hardcover, 1st edition, Palgrave Macmillan. b. Sami Muneer and Chetan Sharma (2008). Enterprise Mobility: Applications, Technologies and Strategies, IOS Press, Chapter Contribution Enterprise mobile product strategy using scenario planning.
19	Other Additional information: Nil

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Windows Phone Application Development</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 2663</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: TBA</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
This course is essential for the development of knowledge regarding C#/XAML to build apps for Windows Phones. This course will help the students to move forward in Microsoft's overall mobile strategy and to embrace opportunities. This course will help the students to deal with C#/XAML to build cool apps and games for Windows Phone 8.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 2 Semester 6</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td>ILT</td><td>TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td></td><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>28</td><td>21</td><td>0</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, student will be able to:
(Cognitive) Knowledge:
• Construct highly graphical and responsive user interfaces quickly and easily using these features
(Psychomotor) Skills:
• Create effective networked applications, leverage GPS capabilities
• Interact with the phone's built-in functionalities (camera, contacts, maps, accelerometer, video and web browser)
(Affective) Perceptions of Values
• Apply the packaging and distributing applications for the distribution and commercial sale.</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	lecturer's observation Peer evaluation
Participation and communication	Written and oral communication in presenting during participation session	lecturer's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, tutorial and discussion. Students are also required to do their own self-study through case study, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test /assignment and active participation in class.

12 **Synopsis:**

This course is designed to help the students to learn how to use Microsoft tools and technologies to build engaging new applications for Windows Phone. The course provides a remarkable opportunity for Windows developers to create up to date mobile applications using their existing skills and a familiar toolset. The course consists of the topics Introduction to Windows Phone and the Windows Phone Platform, Building Windows Phone Applications, Using Cloud Services As Data Stores, Catching and Debugging Errors Packaging, Publishing, and Managing Applications, Working with the Accelerometer, Creating Trial Applications and others.

13 **Mode of Delivery:** Lectures, Tutorials.

14 **Assessments Methods and Types:**

Assignments	30%
Mid Exam	30%
Final Exam	40%
Total	100%

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
√	√	√	√	

16. **Mapping of the course/module to the Programme Learning Outcomes:**

	Program Outcomes							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Construct highly graphical and responsive user interfaces quickly and easily using these features		√		√				√
Create effective networked applications, leverage GPS capabilities	√				√		√	
Interact with the phone's built-in functionalities (camera, contacts, maps, accelerometer, video and web browser)		√	√			√		
Apply the packaging and distributing applications for the distribution and commercial sale		√		√				√

17 **Content Outline of the course/module and the SLT per topic**

No	Subject description	Face to face			Others	ILT	Total
		Lectures	Tutorials	Practical			
1	-Introduction to Windows Phone and the Windows Phone Platform -Building Windows Phone Applications	2.5		1.5		4	8
2	-Using Cloud Services as Data Stores -Catching and Debugging Errors Packaging, Publishing, and Managing Applications -Working with the Accelerometer	2.5		1.5		4	8
3	Creating Trial Applications -Internationalization - Storage -Using Location Services -Media	2.5		1.5		4	8
4	-Application Bar -Web Browser Control -Working with Controls and Themes	2.5		1.5		4	8

		-Integrating Applications with the Windows Phone OS						
	5	-Working with the Camera and Photos -Push Notifications	2.5		1.5		4	8
	6	-XAML Overview -Controls	2.5		1.5		4	8
	7	Mid Term Examination				2	5	7
	8	-Databases and Storage -Multitasking	2.5		2		4	8.5
	9	-Services -Making Money	2.5		2		4	8.5
	10	-Enterprise Phone Apps	2		2		4	8
	11	-Writing Phone Application -Developing for the Phone	2		2		4	8
	12	Phone Hardware -Phone Integration	2		2		4	8
	13	-Reactive Extensions for .NET -Security	2		2		4	8
	14	Final Examination				4	12	16
		Total Contact hours	28		21		65	
		Total Subject learning Time						120
		Total Credit Hour						3

18	Main references supporting the course: a. Henry Lee, Eugene Chuvyro (2012). Beginning Windows Phone App Development. Aprèss for professionals by professionals b. Shawn Wildermuth (2013). Essential Windows Phone 8 (Microsoft Windows Development Series), 2nd edition, Addison-Wesley Professional.
	Additional references supporting the course: c) Charles Petzold (2010). Free ebook: Programming Windows Phone 7, Devon Musgrave d) Adam Nathan (2013). Windows 8.1 Apps with XAML and C#, 1st edition, Sams Publishing.
19	Other Additional information: Nil

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Industrial Training</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DMC 3718</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: NA</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
The knowledge of this subject is required of all diploma holders wishing to choose industry/field as a career option. This course is designed to develop understanding of various functions of management, role of workers and engineers and providing knowledge about mobile computing. Safety and labour, industrial laws and management in different areas.</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 3 Semester 7</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>L= Lecture
T=Tutorial
P=Practical
O=Others
ILT=Individual student learning time
TSLT=Total student learning time</td><td>42</td><td>28</td><td>140</td><td></td><td>110</td><td>320</td></tr>
<tr><td>7</td><td colspan="6">Credit Value: 8</td></tr>
<tr><td>8</td><td colspan="6">Prerequisite: Nil</td></tr>
<tr><td>9</td><td colspan="6">Learning Outcomes:
At the end of this course, student will be able:

Cognitive) Knowledge:

• Analyze this subject to opt for industry/field as a career option related to mobile computing

(Psychomotor) Skills:

• Design the research and the ability to obtain information in accordance with the requirements of the end user

(Affective) Perceptions of Values

• Apply concepts learned in real situations and appropriate in evaluating the information obtained</td></tr>
</table>

10 **Transferable Skills:**

Skills	Development of the skills	Skills assessments
Teamwork	Students are required to work in groups to prepare the assignment.	Teacher's observation Peer evaluation
Participation and communication skill	Written and oral communication in presenting during board participant session	Teacher's observation

11 **Teaching –learning and assessment strategy**

Teaching and learning will be via lecture, tutorial and discussion. Students are also required to do their own self-study through study case, guided questions and assignments.

Assessment will be done individually and group. Individual assessments are in form of quizzes/ test assignment and active participate in class.

12 **Synopsis:**

The student will be required to produce a report to detail their findings and observations. This report will develop their skills in delivering a project in written English and also their ability to locate information and analyze this to make observations, draw conclusions and/or make suggestions on how this data could be interpreted. It may also provide the opportunity to allow the student to make suggestions for improvements within the organization.

13 **Mode of Delivery:** Practical.

14 **Assessments Methods and Types:**

Observation report (supervisor)	25%
Trainer's review	25%
Report writing	30%
Presentation	20%
Total	**100%**

15. **Mapping of the course/module to the Programme Aims:**

PA1	PA2	PA3	PA4	PA5
		√	√	√

16. Mapping of the course/module to the Programme Learning Outcomes:

	Program Outcomes							
	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8
Analyze this subject to opt for industry/field as a career option related to mobile computing	√	√				√		
Design the research and the ability to obtain information in accordance with the requirements of the end user		√			√			√
Apply concepts learned in real situations and appropriate in evaluating the information obtained			√	√				√

17 Content Outline of the course/module and the SLT per topic

No	Subject description	Face to face			ILT	Others	Total
		Lectures	Tutorials	Practical			
1	Practical training	6	7	35	20		68
2	Report writing	12	7	35	30		84
3	Presentation	12	7	35	30		84
4	Observation report	12	7	35	30		84
	Total Contact hours	42	28	140	110		320
	Total Subject learning Time						320
	Total Credit Hour						8

18 Main references supporting the course:

a) Dino Esposito, 2012,Architecting Mobile Solutions for the Enterprise (Developer Reference), 1st edition, Microsoft Press;

b) Shambhu Upadhyaya, Abhijit Chaudhury, Kevin Kwiat, 2013, Mobile Computing: Implementing Pervasive Information and Communications Technologies (Operations Research/Computer Science Interfaces Series) Mark Weiser-Springer

Additional references supporting the course:

a) Mitchell Cogert, 2011, Mobile Marketing: 101 Inexpensive & Profitable Ideas for Small Business, CreateSpace Independent Publishing Platform

19 Other Additional information: Nil

2.3.4 What are the department's plan to periodically review the programme to keep abreast with scientific, technological and knowledge development of the discipline, and with the needs of society?

The Faculty of Social Sciences, Arts and Humanities will check and review the programme periodically. From that review, the Faculty of Social Sciences, Arts and Humanities will identify the weaknesses and strength of the existing programme. Those weaknesses and strengths can bring forth improvements to the programme. Any improvement of the programme must consider scientific factors, technological factors, current concepts and trends pertaining to the discipline and other factors so that students get sufficient knowledge to persist in the society.

Information on Enhanced Standards

2.3.5 Show evidence that the department has the mechanism in place to access to the latest development in the field of study.

The Faculty of Social Sciences, Arts and Humanities of Lincoln University College will employ various external mechanisms to access the latest development.

(a) Feedback from the Industry/ training partners

Reports from employers - students on attachments or industrial training at their respective industries will indicate the level of competencies among the students. At the end of the attachment, the field supervisor will assess the students' competencies and skills. These assessments are reviewed by the coordinator and reported to the Faculty of Social Science, Arts and Humanities for further action. This indicator will help the Faculty of Social Science, Arts and Humanities to look at their programme's strengths and weaknesses, and thus will help in determining their niche areas.

(b) External Examiners

The external examiner is required to visit the Lincoln University College. During the visit, the examiner comments on question papers set for examinations, interviews for feedback from the students and academic staff. The external examiner will prepare a report and submit to the will do the necessary improvements based on the comments in the report. From the input provided, the Faculty of Social Science, Arts and Humanities can improve and refine the important components of the programs.

(c) Reports from Professional Bodies

Professional courses such as Nursing and Medicine are accredited by local and external bodies. The accreditation reports are used for further improvement of the programme.

A the end of each semester all Heads of Faculty of Social Science, Arts and Humanities shall distribute to students, survey forms and make it mandatory to fill the forms with regards to the following:

- Lecturer's performance
- Research facilities
- Recreational facilities
- Amenities
- Others

Head of Faculty of Social Science, Arts and Humanities shall collect the student's survey forms, analyze all feedback, comments and shall discuss with the Vice Chancellor and initiate appropriate remedial measures. Similarly lecturers shall be informed to take changes for better performance in future.

2.4 Management of the Programme

Benchmarked Standards

2.4.1 Provide a sample of the Student Study Guide, Student Handbook and Student Project Handbook, where applicable.

Sample of the Student Study Guide, Student Handbook.

2.4.2 State the manner in which the academic management of the programme is carried out, including those pertaining to curriculum development, programme management and student feedback.

Students evaluation at the mid semester is carried out and thus help to understand and feedback to curriculum and programs management.

We use 2 (two) systems which are student's survey form (for students) to measure the lecturer's performance in the students point of view and for lecturers we use KPI which able to measure the lecturer performance based from the performance / task that they had done in every semester.

2.4.3 State the designation, responsibility and authority of the main academic officer and committee responsible for the programme. Do they have adequate resources? Show evidence.

The designation of the of the academic staff is minimum a lecturer, responsibility and authority of the in academic officer and committee responsible for the programme is to assess the students ability, to help and guide the student, with time to time evaluation of the answer scripts and assignments.

2.4.4 Describe the review and evaluation process for the programme and the utilization of the results.

The review and evaluation process for the program are based on the student assignment, departmental seminars, midterm and final examination. All student results will be taken in to a meeting by the Faculty of Social Science, Arts and Humanities.

According to the MQF, review of the programme must involve External Examiners. In order to enhance the standards of programmes under Lincoln University College, particularly those programmes of a professional nature, programme review and evaluation are conducted by external expertise on both the national and international level.

2.4.5 Show how the learning environment nurtures scholarly and creative achievements.

Lincoln University College emphasised on scholarly and creative achievements of students by creating a friendly environment. Besides developing a course curriculum, there are other important components that must be realized providing a suitable environment where the scholarly and creative aspects can be fostered.

First there is the delivery process of the academic programmes by highly eminent academic staff. LUC has a well-managed human resource section for recruitment of staff, and ensures the best available teaching staffs are recruited. LUC also maintain a better ratio of teaching staff and students. In recent years the staffs are undergoing their higher studies. It is expected that there is a strong correlation on quality of the academic staff and the quality of teaching. As in any HEP delivery system, LUC has also developed and focuses on other major service aspects, such as infrastructural and service resources that range from students accommodation, transport, well equipped laboratories, lecture halls, library, computer system and network and other related education support systems.

Thus, it is expected that the overall quality of resources that encompasses from the quality of staff and to various core processes of LUC such as quality of infrastructure and services will help to enhance and nurture scholarly development of students.

Information on Enhanced Standards

2.4.6 Describe the department's initiative to encourage innovations to teaching-learning.

Lincoln University College takes initiative in different teaching and learning process at a regular basis.

For example,

LUC conduct workshop on OBE (Observation Based Learning) for the academic staffs.

LUC provide ebrary facility for all staff and student members, by which the students can avail facility to explore a number of books.

Setting up a Digital English Language Laboratory in 2011,

Introduction of Interactive White Board for delivering lectures.

2.4.7 Show how the department engages external expertise in the review and evaluation of the programme.

Lincoln University College shall appoint external expertise from other universities to review and evaluate the program. The external expertise will review the program's objectives, course structure and learning outcomes. After reviewing, external expertise shall provide a comprehensive report and if any changes are needed, University College shall take appropriate measures to fulfill the requirements of the external experts report.

2.5 Linkages with External Stakeholders

Information on Benchmarked Standards

2.5.1 Describe the links that exist between the department and its external stakeholders for the purpose of curriculum improvement.

The Faculty of Social Science, Arts and Humanities would make collaboration with international universities, for the purpose of curriculum development and standards as well as to develop world class research and development center. The endeavor to learn more is expatiated by having in process signing of Memorandums of Understanding (MoU) with these Universities.

The Faculty of Social Science, Arts and Humanities also take feedback from their Industry training partners for curriculum development. The industry will also become a resource for building the actual research and development capacity on the LUC campus to compliment the classroom training.

Information on Enhanced Standards

2.5.2 State the existing mechanism to obtain and utilize feedback from employers for the improvement of the curriculum, training and workplace exposure.

Lincoln University College always seeks feedback from the students for improvement. To obtain feedback of students, LUC will engage the students' parents, student's council, external examiners, and external supervisors for this purpose. Besides receiving reports from the external stakeholders university college staff shall conduct interviews with the employer personally to review the competency of LUC students' abilities.

2.5.3 What opportunities are available to students to have linkages with external stakeholders?

The students shall obtain positive feedbacks on career opportunities, career enhancements and the mechanism to succeed and acquire skill to different novel techniques. In addition, the students in the programme shall be encouraged to create new opportunities in the expanding field of Public Administration and policies and to assume pioneering role in the creation of global industrial infrastructures within the country