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 of Computer Science and Multimedia designs the curriculum with great expertise. The starting up of a new program is discussed at the Programme Committee Meeting first, which is then placed at the Curriculum Committee Meeting. Once approved, the proposed/reviewed programme is forwarded to the Senate or 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 of Computer Science and Multimedia the administration and the governing board. The department plays a pivotal role in curriculum review. The Department takes the autonomy to frame & design the new program. It is the department only who consults with the dean of the faculty regarding merits and feasibility of the curriculum proposal for the department. Programme approval, monitoring and review processes at 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 and delivery process 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.

It's the sole autonomy of the department in deciding over the allocation of resources. In this process a faculty places a requirement with due justification. This is then forwarded to the finance section on due approval from the Dean. The Finance Director approval is followed by quotation placement, purchase order and purchase undertaken by the finance department.

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?

The faculty has full autonomy in reviewing curriculum. As the Curriculum Committee shall consists of all the academic staffs in the particular program and is chaired by Dean. The committee function include designing, initiating changes and revision to the course structure, syllabus, text books, assessment methods etc.

The recommendation and decisions from Curriculum Committee will be forwarded to the Senate which coordinates all academic matters across all Senate and non-Senates in the college.

Basically, full time staff shall take responsibility, including lecturers, tutorials, laboratory demo for at least one (1) subject. The assigned workload is between 15-18 hours per week by considering factors such as available teaching resources, subject requirement, and administrative duties of staff and course structure of the program.

The teaching load normally includes classroom teaching and final year project supervision on Dean's also involved with administrative duties time-taking and extra curriculum activities.

In general, the academic staffs have a free hand in the following functions:

1) Design the course delivery with reference to the approved syllabus by the college.
2) Propose to subjects to teach upon discussion with Dean.
3) Prepare the tutorial questions, assignment, examination questions, marking scheme (exam questions will be moderate by internal staff and external examiners)
4) Recommended relevant text/reference books for approval.
5) Conduct research in own selected research areas in line with college vision and missions.
6) Participate in Higher Education Provider Programs or external parties that are relevant to college vision and missions.

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.

Whenever there are issues that involve conflicts of educational principle with regard to the contributions of specific disciplines, this matter can be referred to the Senate that shall then determine the formation of a sub-committee to study these issues together with the relevant representatives of the Programme Committee. The sub-committee members shall comprise of subject matter experts from the relevant disciplines involved.

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?

LUC has declared the Faculty of Computer as separate faculty with a hierarchy includes Dean and Deputy Dean, coordinator and lecturer. Each lecturer was given with their own autonomy to perform the regular routine. The decisions on mentees are taken by the lecturer individually with the approval of Deputy Dean or Dean of the faculty.

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?

Before development of any new program, a market survey and need based study program is conducted. Academic and administrative staffs have a big role to decide the procedures, mechanisms, and process for curriculum review, they have responsibility to make each faculty's regulation related with curriculum and programme, and they will start working to set the regulation by the higher management and curriculum committee of the University College based from the mutual agreement from the meeting. They will work to compile and set the regulation for both parties who are students and lecturers / staff. Before issuing this regulation they have to go to higher management and submit the regulation to them to legalize it.

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

The knowledge is measured using written test in examinations and quizzes. Problem solving technique, information management and life-long learning can be measured by conducting the final year project with consideration of ethics and professionalism. Industrial training course refers to experience in the real working environment that is relevant to professional development prior to graduation and an aid to prospective employment. It is an essential element in the development process of professional skills and work ethics required to become an engineer. Communication is achieved through presentation in class exercise as well as presentation of final year project. One of the key ways in which students strengthen their communications skills is through engaging in cooperative learning in small group discussion.

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 multimedia technology within Malaysia and the neighbouring countries. The production and the demand of the Multimedia are increasing exponentially and currently makeshift engineers and technicians fill the positions in those activities. For Multimedia technology 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 multimedia 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 multimedia technology 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 Multimedia applications 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 behaviour in preparation for their learning, individual growth, future work and responsible citizenry (e.g., co-curriculum).

Students are encouraged to join extra-curricular activities such as attending seminars, exhibition, talks and visits to the industry for personal development and improving general knowledge. Various types of student clubs and societies have been established to encourage student's participation in extra-curricular activities. Officers in charge of such student activities will advise and supervise student's activities as prepared by them.

In addition students will also encourage to join the LUC special project division who will spear National event special project division and to improve their soft skills such as public speaking, leadership and entrepreneurship skills.

Apart from that, students are educated in Critical thinking concept and English Intermediate as part of colloquial activities to understand English as International Languages.

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 Multimedia applications programme is designed to touch every aspect of Multimedia technology to transit 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, and more importantly, towards the Multimedia technology.

As explained earlier, the curriculum for the Diploma in Diploma in Multimedia applications 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 Multimedia is also structured such that the students from Faculty of Multimedia from Lincoln University College and from engineering, environment, information technology, social sciences, and law students from outside of the Lincoln University College could enrol in the program to enrich their capacity in the field of Multimedia technology 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.

The Faculty also organises various Co-curriculum activities for the students as part of their complete study such as cultural events, traditional gatherings and sports activities regularly.

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:

1 Industry (Employers)

2.3 Meetings with the various industries.
(i) Industrial Training/Internship Reports from supervisors about student performance and industry expectations
(ii) Industrial/Market Feasibility Survey.
(iii) Graduate Employability Survey/Tracer Study.

2 Professional Bodies/Accreditation Boards (if relevant)

2.4 Professional requirement feedback/audit from the relevant professional bodies/accreditation boards.

3 External Examiners and Visiting Professors

- Feedback about curriculum design/delivery from external examiners and visiting professors.

4 The Ministry of Higher Education/ MQA and IPTAs/IPTSs

(i) Quality requirements and audits from MOHE and MQA.
(ii) Benchmarking and comparisons with other IPTAs and IPTSs.

5 Alumni/Student Representatives

- Meetings with representatives of the student body.

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

The Faculty also organises various Co-curriculum activities for the students as part of their complete study such as Workshops, Seminars, Meet-ups, cultural events, traditional gatherings and sports activities regularly.

2.9 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	9	10
2.	Core/major/Concentration: • Courses/modules	77	85.5
	• Projects/ **thesis** /dissertation	4	4.5
	Total Credit Value	90	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.

SEMESTER ONE					
S.No	**Subject Code**	**Year, semester**	**Subject**	**Credit**	**Name of the Lecturer**
1	DCM 115	Y1,S1	Fundamental of Computer Applications & Technology Studies	3	Mr.Vivekanandam
2	DCM 116	Y1,S1	Internet Fundamental & Applications	3	Mr.Balaganesh
3	DCM 113	Y1,S1	Principle of Multimedia	3	Mr.Azizul
4	ENG 413	Y1,S1	English I	3	Ms.Kholoud
5	MPU 2113/MPU 2153	Y1,SI	Malaysian Studies 2/ Malay Language Communication 2	3	Ms.Norsyafiqah
			TOTAL CREDITS	**15**	

SEMESTER TWO					
S.No	**Subject Code**	**Year, semester**	**Subject**	**Credit**	**Name of the Lecturer**
6	DCM 121	Y1,S2	Digital Audio & Video	3	Mr.Azizul
7	DCM 126	Y1,S2	Web Design & Publishing	3	Mr.Durugand
8	DCM 122	Y1,S2	Digital Animation Techniques	3	Ms.Noorsyahliza
9	DCM 127	Y1,S2	Quantitative Method	3	Mr.Vivekanandam
10	ENG 423	Y1,S2	English 2	3	Ms.Gita
			TOTAL CREDITS	**15**	

SEMESTER THREE					
S.No	**Subject Code**	**Year, semester**	**Subject**	**Credit**	**Name of the Lecturer**
11	DCM 135	Y1,S3	Fundamentals of Graphics Design	3	Ms.Swati
12	DCM 136	Y1,S3	Operating System	3	Ms.Swati
13	DCM 137	Y1,S3	Introduction to Database Systems	3	Mr.Balaganesh
			TOTAL CREDITS	**9**	

SEMESTER FOUR					
S.No	**Subject Code**	**Year, semester**	**Subject**	**Credit**	**Name of the Lecturer**
14	DCM 216	Y2,S4	C++ Programming	3	Mr.Vivekanandam
15	DCM 212	Y2,S4	Visual Reality & VRML	2	Ms.Noorsyahliza
16	DCM 214	Y2,S4	Human Computer Interaction	3	Mr.Dinesh
17	DCM 217	Y2,S4	Essential of E-Commerce	3	Mr.Durugand
18	DCM 215	Y2,S4	Networking Essential	3	Mr.Dinesh
			TOTAL CREDITS	**14**	

SEMESTER FIVE					
S.No	**Subject Code**	**Year, semester**	**Subject**	**Credit**	**Name of the Lecturer**
19	DCM 226	Y2,S5	E-Learning Development	3	Ms.Noorsyahliza
20	DCM 225	Y2,S5	Visual Programming	3	Mr.Durugand
21	DCM 223	Y2,S5	Multimedia Management Skill	3	Mr.Azizul
22	DCM 228	Y2,S5	Java Programming	3	Mr.Midhunchakkaravarthy
23	MPU 2222	Y2,S5	Creative Problem Solving	2	Ms.Norsyafiqah
			TOTAL CREDITS	**14**	

SEMESTER SIX					
S.No	**Subject Code**	**Year, semester**	**Subject**	**Credit**	**Name of the Lecturer**
24	DCM 232	Y2,S6	3D Modelling & Animation	3	Ms.Noorsyahliza
25	MPU2442	Y2,S6	Community Service	2	Mr.Mohd. Nadzri
26	DCM 233	Y2,S6	Multimedia Authoring	3	Mr.Azizul
			TOTAL CREDITS	**8**	

SEMESTER SEVEN					
S.No	**Subject Code**	**Year, semester**	**Subject**	**Credit**	**Name of the Lecturer**
27	DCM 313	Y3,S7	Multimedia Project	4	Mr.Azizul
28	DCM 314	Y3,S7	Cyber Law	3	Ms.Noorsyahliza
29	DCM 318	Y3,S7	Introduction to Cyberpreneurship	3	Ms.Noorsyahliza
30	MPU 2332	Y3,S7	Constitution and Society	2	Ms.Noor Diana
31	DCM 312	Y3,S7	Game Design	3	Ms.Noorsyahliza
			TOTAL CREDITS	**15**	

2.3.3 Basic information of each course/module

<table>
<tr><th>No</th><th colspan="10">Information on Course</th></tr>
<tr><td>1</td><td colspan="10">Name of the Course: Fundamental Computer Principle & Programming</td></tr>
<tr><td>2</td><td colspan="10">Course Code: DCM 115</td></tr>
<tr><td>3</td><td colspan="10">Name(s) of Academic Staff: B.Vivekanandam</td></tr>
<tr><td>4</td><td colspan="10">Rationale for the inclusion of the course in the programme:
This would cover various techniques on creating, testing, maintaining software applications and various ranges of computer languages.</td></tr>
<tr><td>5</td><td colspan="10">Semester and Year Offered: Semester 1 Year 1</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td colspan="4">Independent Learning</td><td rowspan="2">Total Guided and Independent Learning</td></tr>
<tr><td>L = Lecture
T = Tutorial
P = Practical
O = Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>28</td><td>14</td><td>10</td><td>5</td><td>28</td><td>14</td><td>-</td><td>25</td><td>124</td></tr>
<tr><td>7</td><td colspan="10">Credit Value:3</td></tr>
<tr><td>8</td><td colspan="10">Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO1: Acquire knowledge of basic principles and functions of hardware peripheral
devices (C 3, PLO1)
CLO2: Create basic documents, worksheets, presentations and databases(C6,P7)(PLO2)
CLO3: discuss with application of computer in modern business(C1,C6,A4,P4 and P5,(PLO7)
CLO4: Propose Properties of the more common high level programming languages
and their suitability For specific applications (C6,A3,A5 and PLO6)
CLO5: Analyze the Techniques and aids for the through testing of software, design
And Performance(C4 and PLO4)</td></tr>
<tr><td>9</td><td colspan="10">Transferable Skills:
• Knowledge and Entrepreneurship and Managerial skills
• Scientific methods, critical thinking and problem solving skills</td></tr>
<tr><td>10</td><td colspan="10">Teaching Learning Assessment Strategy:
<table>
<tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr>
<tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr>
<tr><td>Practical Skills</td><td>Practical</td><td>Lab Experiments</td></tr>
<tr><td>Entrepreneurship and Managerial skills</td><td>Tutorial</td><td>Assignment</td></tr>
<tr><td>Information management and life-long learning</td><td>Tutorial</td><td>Assignment</td></tr>
<tr><td>Scientific methods, critical thinking and problem solving skills</td><td>Tutorial</td><td>Assignment</td></tr>
</table></td></tr>
<tr><td>11</td><td colspan="10">Synopsis:
This course is a combination of fundamental computer principle and basic computer programming. This is a basic course which would cover various aspects of fundamental principles of basic computer and information principle program development.</td></tr>
<tr><td>12</td><td colspan="10">Mode of Delivery: Lecture, Tutorial, Practical.</td></tr>
</table>

13 Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60
	Classroom Preparation/Quiz	05
Assignment	Written Assignment (1500 words)	15

14 Mapping of course to Programme Aims:

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2	√			
CLO 3				√
CLO 4				√
CLO 5			√	

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PL 9
CLO 1	√								
CLO 2	√	√							
CLO 3							√		
CLO 4						√			
CLO 5				√					

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction to Computer** • History & Computer Generation • Types of Computer, • Computer Peripheral • Input and Output Devices • Storage Devices • Removal Storage • Backup System, • Central Processing Unit • What is CPU? • The Arithmetic / Logic Unit • Improving disk drive performance	6	3	-	-	6	3	-	-	18
ii	**Operating System** • What is an OS? • OS Goals • Computer System Components • Types of OS • OS Service • Functions of an OS	2	1	-	-	2	1	-	-	6

iii	**Microsoft Office** • Microsoft word • Introduction to Microsoft Word • How to used Microsoft Word • Introduction to Microsoft Excel • How to used Microsoft Excel • Introduction to Microsoft PowerPoint • How to used Microsoft PowerPoint	6	3	6	-	6	3	-	-	24
iv	I**nternet** • What is the Internet • Internet Features, • E – commerce • Definition and concepts • Infrastructure • Support Area • Types of Transactions • Benefit / Limitation of E – Commerce • Online Advertising Methods	4	2	2	-	4	2	-	-	14
v	**System Development Life Cycle** • Traditional waterfall / cascade approach • Early Stages • Feasibility Study • System Analysis • Design Phase • Testing • Implementation • Maintenance and Review	2	1	-	-	2	1	-	-	6
vi	**Programming Concepts** • High – Level Language Characteristics • High – Level Language Programming • Programming Features • Translation Software	2	1	-	-	2	1	-	-	6
vii	**Database** • Database Systems • Database Management system • Database Administrator • Data Dictionary • Database Languages • Data Modelling • Relational Database • Normalization	2	1	2	-	2	1	-	-	8

viii	**Computer Security and Risks** • Computer Virus • What are Computer Viruses • Types of Viruses • Symptoms • Steps to Safeguard • Anti –Virus. • Computer Crime • Software Sabotages • Hacking and Electronic Trespassing • Reducing Risks • Firewall, Encryption and Audits • Backup and Other Precautions • Human Security Controls: Law, Management and Ethics.	4	2	-	-	4	2	-	-	12
	Total	28	14	10	-	28	14	-	-	94

		Face to Face	Independent Learning	
	Lecture	28	28	
	Tutorial	14	14	
	Practical	10	-	
	Assignment (1500words)	-	10	
	Quizzes	01	03	
	Test	01	03	
	Final Examination	03	09	
	Total	57	67	
		124		
	Credit Hour	3		

17

Main Reference Supporting The Course:

1. V. Rajaraman, (2015) *Fundamentals of Computers* (6 th Ed) Vneeharika adabala publisher.

Additional references supporting the course:

2. Ashok Arora,(2015)Computer Fundamentals and Applications, Vikas Publishing House.

<table>
<tr><th>No</th><th colspan="10">Information on Course</th></tr>
<tr><td>1</td><td colspan="10">Name of the Course: INTERNET FUNDAMENTALS & APPLICATIONS</td></tr>
<tr><td>2</td><td colspan="10">Course Code: DCM 116</td></tr>
<tr><td>3</td><td colspan="10">Name(s) of Academic Staff:Mr.D.Balaganesh</td></tr>
<tr><td>4</td><td colspan="10">Rationale for the inclusion of the course in the programme:
This module looks at the development and applications of the Internet and the World Wide Web, focusing on the World Wide Web as an almost universal information access tool. There will be both technological and sociological issues discussed in this module.</td></tr>
<tr><td>5</td><td colspan="10">Semester and Year Offered: Semester 1 Year 1</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td colspan="4">Independent Learning</td><td rowspan="2">Total Guided and Independent Learning</td></tr>
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<tr><td>7</td><td colspan="10">Credit Value:3</td></tr>
<tr><td>8</td><td colspan="10">Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO1 Explain the function of the World Wide Web, and its foundation protocol, H in the Knowledge (C5, A3, and P2) (PLO 1).
CLO2 Develop professional-quality web client applications that conform to stand and able to execute in the Labs (C6) (PLO 2)
CLO3 Demonstrate competence working with the Document Object Model in mo browsers in Assignment using valid online resource (C3,A3,P5) (PL0 7)
CLO4 Demonstrate competence with the Hypertext Mark-up Language in compo documents for the web and will be implementing in Computer Labs (C3,A3 (PLO 6)
CLO5 Solve a wide range of common web client programming problems technic (C3,A5) (PLO 9).</td></tr>
<tr><td>9</td><td colspan="10">Transferable Skills:
• Scientific Methods and Critical thinking
• Information management and life-long learning</td></tr>
<tr><td>10</td><td colspan="10">Teaching Learning Assessment Strategy:
<table>
<tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr>
<tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr>
<tr><td>Practical Skills</td><td>Practical</td><td>Lab Experiments</td></tr>
<tr><td>Scientific Methods and Critical thinking</td><td>Tutorial</td><td>Assignment</td></tr>
<tr><td>Information management and life-long learning</td><td>Tutorial</td><td>Assignment</td></tr>
</table></td></tr>
<tr><td>11</td><td colspan="10">Synopsis:
This is a basic course which would cover various aspects of Internet fundamental applications.</td></tr>
<tr><td>12</td><td colspan="10">Mode of Delivery: Lecture, Tutorial, Practical.</td></tr>
</table>

13 Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60
	Classroom Preparation/Quiz	05
Assignment	Written Assignment (1500 words)	15

14 Mapping of course to Programme Aims:

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2	√			
CLO 3				√
CLO 4				√
CLO 5		√		

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	P
CLO 1	√								
CLO 2		√							
CLO 3							√		
CLO 4						√			
CLO 5									√

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction, Motivation and Tools:** • What is network? • Network components, • Complexity in network systems, Standards	1	1	-	-	1	1	-	-	4
ii	**Client –Server Interaction:** • Client – Server Paradigm • Characteristics of Client, • Characteristics of Server , • Transport protocols and client – server interaction, • Multiple services on the computer, • Identifying a service, • Identifying a client, • Multiple servers for single service, • Example of Client / Server: • An example service, • Program architecture, • Sockets and Blocking,	4	2	-	-	4	2	-	-	12

	• Using client with another service									
iii	**World Wide Web Pages and Browsing:** • Hypertext / Hypermedia, • Document representation, • HTML format, • Example HTML, • Embedded graphics, Links between documents, • Client – server interaction, • HTTP, Browser architecture, • Caching in browser.	2	1	2	-	2	1	-	-	8
iv	**Dynamic Web Document Technology:** • Document types • Common gateway Interface (CGI), • Output from CGI, • Parameter and environment variables, • State information, • CGI with long – term State, • CGI with short – term state, • Forms and interactions, • Server – Side scripting	2	1	2	-	2	1	-	-	8
v	**Active Web Document Technology** : • Continuous update through server push, • Active documents • Representing and executing active documents, • Java, Java library, Java runtime environment, • AWT graphics, • Java and browser, • Compile a Java program, • JavaScript technology	2	1	2	-	2	1	-	-	8
vi	**Web and Database :** Web and Database : Architecture • 2- tier Architectures, 3- tier Architectures, • The web server in N- tier Architectures, • Presentation Tier (HTML Forms) Web and Database : PHP • Business Logic Tier,	6	3	6	-	6	3	-	-	24

	• PHP Language Elements • PHP (Control structures), • PHP (Functions), • PHP (Classes and Objects), • PHP (Session), • PHP support for MYSQL Web and Database : MYSQL • Data repository, • Database server, • Database client, • Database Administration, • Database users, • Access controls, • Managing access controls, • Creating a database, • MYSQL (table modification), • Column data types, • Field option									
vii	**Domain Name System:** • Structure of DNS names, • Domain names within organization, • DNS hierarchy, • DNS and client – server computing, • DNS server hierarchy, • Linking DNS servers, • Name resolution, • DNS performance, • Improving DNS performance, • DNS entries	2	1	-	-	2	1	-	-	6
viii	**RPC and Middleware:** • Procedure call, • Procedure call graph, • Remote procedure call, • RPC mechanism, • External data representation, • Middleware. **IP Telephony:** • Mechanism, • Signalling systems, • Basic IP telephony, • SIP (methods), • Telephone number mapping and routing	3	2	-	-	3	2	-	-	10
ix	**XML:** • What is XML, XML tags, example XML,	2	1	2	-	2	1	-	-	8

	• Differences between HTML and XML, • XML components, • Document type definition (DTD), • XML parser, • Document object model (DOM), • XML application (price comparison)									
x	**Simple Network Management:** • Problem types, • Danger of hidden failures, • Tools for network manager, • Standard internet management protocol (SNMP), • SNMP representation, • Fetch-store paradigm, • MIB and object names, • MIB variables and arrays, • Array example	2	1	-	-	2	1	-	-	6
	Total	26	14	14	-	26	14	-	-	94

		Face to Face	Independent Learning
	Lecture	26	26
	Tutorial	14	14
	Practical	14	-
	Assignment (1500words)	-	10
	Quizzes	01	03
	Test	01	03
	Final Examination	03	09
	Total	59	65
		124	
	Credit Hour	3	

17	Main Reference Supporting The Course: Anshuman Sharma, (2016). Fundamentals of Internet Applications, Lakhanpal Publications.
	Additional Reference Supporting The Course: Olivier, H., & David, B. (2015). The Internet of Things: Key Applications and Protocols. 2nd edition. Wiley. USA

<table>
<tr><td>1</td><td colspan="7">Name of Course/Module : Principle of Multimedia</td></tr>
<tr><td>2</td><td colspan="7">Course Code: DCM 113</td></tr>
<tr><td>3</td><td colspan="7">Name(s) of academic staff: Mr.Azizul</td></tr>
<tr><td>4</td><td colspan="7">Rationale for the inclusion of the course /module in the programme:
Principles of Multimedia are focused on the planning and creation of interactive Multimedia presentations. The goal of the subject is to introduce students to both the theory and concepts underlying Multimedia research and practice.</td></tr>
<tr><td>5</td><td colspan="7">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>L= Lecture
T=Tutorial
P=Practical
O=Others
TSLT=Total student learning time</td><td>28</td><td></td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="7">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="7">Course Learning Outcomes
At the end of this course, the student should be able to:
CLO1 Analyzes knowledge in fundamentals of multimedia content, including information storage and compression techniques. (C4), (PLO 6)
CLO2 Create comprehensive technical expertise in fundamental of multimedia. (C6,P7) (PLO 2).
CLO3 Create Function individually or in teams, effectively, with a capability to be a leader.(C6,P7) (PLO 4)
CLO4 Demonstrate the responsibilities of Multimedia designer. (C3,A3,P5) (PLO 9).</td></tr>
<tr><td>9</td><td colspan="7">Transferable Skills:
▪ Time management
▪ Information technology
▪ Traditional visualization skills
▪ Creativity</td></tr>
<tr><td>10</td><td colspan="7">Teaching –learning and assessment strategy

<table><tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr><tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr><tr><td>Lifelong learning and information Management</td><td>Tutorial</td><td>Assignment</td></tr><tr><td>Practical Skills</td><td>Practical</td><td>Lab Experiments</td></tr><tr><td>Scientific Methods and Critical thinking</td><td>Lecture, Tutorial</td><td>Written Tests</td></tr><tr><td>Social skills and Responsibilities.</td><td>Tutorial</td><td>Assignment</td></tr></table></td></tr>
<tr><td>11</td><td colspan="7">Synopsis:
i. Multimedia skills</td></tr>
</table>

ii. MM Hardware and software
iii. Multimedia Authoring Tools
iv. Planning and Costing
v. Graphic Design
vi. Designing and Producing
vii. Delivering the Finished Project
viii. Content and Talent
ix. Scripting
x. Text
xi. Sound
xii. Animation
xiii. The Internet and How It Works
xiv. Digital Video
xv. Tools for the WWW
xvi. Designing for the WWW
xvii. Dynamic Web Pages

12 Mode of Delivery: Lecture, Tutorial, Practical and Presentation

13 Assessments Methods and Types:

Quiz	10%
Coursework	20%
Mid Semester	20%
Final Exam	50%
Total	100%

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

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1				√
CLO 2				√
CLO 3			√	
CLO 4		√		

15 Mapping of the course/module to the Programme Learning Outcomes:

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1						√			
CLO 2		√							
CLO 3				√					
CLO 4									√

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

No	Subject description	Face to face			ILT	Total
		Lectures	Tutorials	Practical		
i	What are multimedia, functions, importance and advantages of Multimedia. Usage of Multimedia in various places — like schools, business, home and public places etc.	2		1.5	3.5	7

	ii	Introduction to Making multimedia, requirements: Hardware, software, creativity and organization Multimedia skills, the team, the project manager, Interface designer, writer, video specialist, audio specialist, Multimedia programmer, Producer, multimedia for the web	2		1.5	3.5	7
	iii	Basic software tools, OCR, text editing and word processing tools, printing and drawing tools, 3D modeling animation tools, image editing tools, animation video and digital tools	2		1.5	3.5	7
	iv	Making instant Multimedia: Linking multimedia objects, Office suits, spreadsheets, database, presentation tools	2		1.5	3.5	7
	v	**Midterm Examination**	2		1.5	3.5	7
	vi	Multimedia authoring tools: Types of authoring tools, card and page based authoring tools, Icon based authoring tools, and time based authoring tools, cross plat form authoring tools. Multimedia building blocks: Texts: fonts and faces, texts in multimedia and computers and faces, font editing and design tools, Hypermedia and Hypertext	2		1.5	3.5	7
	vi	Sound: Multimedia system sounds, MIDI versus digital audio, making MIDI audio,	2		1.5	3.5	7

	Production tips Images -. still images, color, image file formats					
viii	Animation: techniques, principles, applications	2		1.5	3.5	7
ix	Video: Function and application, Broadcast video standards, Integrating computers and television, shooting and editing video, recording formats, digital video	2		1.5	3.5	7
x	Multimedia and the internet: importance of internet, Tools for WWW: web server, web browser, web page makers, Plug ins and delivery vehicles.	2		1.5	3.5	7
xi	Designing for WWW: working on the web: text, images animation and sound for the web	2		1.5	3.5	7
xii	Assembling and delivering a project: Planning and costing, estimating Designing and Producing	2		1.5	3.5	7
xiii	Content and Talent: Using content created by others, locating pre-existing contents, copyrights.	2		1.5	3.5	7
xiv	Delivering: Testing, alpha, beta and gold testing, preparing for delivery, delivery on CD-ROM, CD technology, Delivering on WWW	2		1.5	3.5	7
xv	Assessment		6		16	22
	Total Contact Hours	28		21	65	
	Total Student Learning					120
	Total Credit Hours					3

17	Main references supporting the course: Tay Vaughan,(2014) Multimedia: Making It Work, McGraw-Hill Education; 9 edition.
	Additional references supporting the course Ze-Nian Li, Mark S. Drew, Jiangchuan Liu (2014), Fundamentals of Multimedia, Springer Science & Business Media.

<table>
<tr><td>1</td><td colspan="7">Name of Course/Module : Digital Audio and Video</td></tr>
<tr><td>2</td><td colspan="7">Course Code: DCM 121</td></tr>
<tr><td>3</td><td colspan="7">Name(s) of academic staff: Mr.Azizul</td></tr>
<tr><td>4</td><td colspan="7">Rationale for the inclusion of the course /module in the programme:
This course focuses more on the elements of audio and video. This module will cover the history, workings and applications of various technologies that have commonly become known as ‘audio/sound’ and ‘video/movies’.</td></tr>
<tr><td>5</td><td colspan="7">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 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
TSLT=Total student learning time</td><td>28</td><td></td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="7">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="7">Course Learning Outcomes
At the end of this course, the student should be able to:
CLO1 Analyzes comprehensive technical expertise in Digital Audio and Video (C4), (PLO 6)
CLO2 Recognize the need for the resources (hardware software, support) available to audio and video developers. (C6,P7) (PLO 2).
CLO3 Create Function individually or in teams, effectively, with a capability to be a leader.(C6,P7) (PLO 4)
CLO4 Self motivate and enhance entrepreneurship skills for career development. (C3,A3,P5) (PLO 9).</td></tr>
<tr><td>9</td><td colspan="7">Transferable Skills:
▪ Time and project management skill
▪ Information technology
▪ Presentation skills
▪ Research skills</td></tr>
</table>

10 Teaching –learning and assessment strategy

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Lifelong learning and information Management	Tutorial	Assignment
Practical Skills	Practical	Lab Experiments
Scientific Methods and Critical thinking	Lecture, Tutorial	Written Tests
Social skills and Responsibilities.	Tutorial	Assignment

11 Synopsis:

i. Introduction to Digital Audio
ii. Audio Basics
iii. Audio Recording
iv. Audio Processing
v. Audio Compression
vi. Introduction to Digital Video
vii. Digital Video Capture and Conversion
viii. Video Formats and Standards
ix. Video Editing and Effects
Video Compression and Transmission

12 Mode of Delivery: Lecture, Tutorial, Practical and Presentation

13 Assessments Methods and Types:

Quiz	10%
Coursework	20%
Mid Semester	20%
Final Exam	50%
Total	100%

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

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1				√
CLO 2				√
CLO 3			√	
CLO 4		√		

15 Mapping of the course/module to the Programme Learning Outcomes:

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1						√			
CLO 2		√							
CLO 3				√					
CLO 4									√

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

No	Subject description	Face to face			ILT	Total
		Lectures	Tutorials	Practical		
1	**Course Information** • Understand audio at a more detailed level • Understand video at a more detailed level • Manipulate both in a cohesive, synergetic manner • Use various audio/video processing software	2		1.5	3.5	7
2	**Introduction to Digital Audio** • Science of sound • History of audio and the transition to digital audio	2		1.5	3.5	7
3	**Audio Recording** • Analog to digital conversion • Pulse Code Modulation • Digital audio file size calculation • Workings and different types of digital recording media	2		1.5	3.5	7
4	**Audio Processing** • Hiss/noise reduction and click removal • Normalization • Dynamics processing • Equalization • Stretching • Surround sound	2		1.5	3.5	7
5	**Midterm Examination**	2		1.5	3.5	7
6	**Audio Compression** • Concept of audio compression • General compression techniques	2		1.5	3.5	7

		• MPEG audio compression • Newer audio compression technology					
	7	Sound: Multimedia system sounds, MIDI versus digital audio, making MIDI audio, Production tips Images -. still images, color, image file formats	2		1.5	3.5	7
	8	**Introduction to Digital Video** • History of digital video • Imaging concepts • Basics of video technology	2		1.5	3.5	7
	9	**Digital Video Capture & Conversion** • Basics of analog and digital video • Capture options when converting analog to digital video • Quality issues	2		1.5	3.5	7
	10	**Digital Video Capture & Conversion (Cont)** • Video conversion issues • Video storage options	2		1.5	3.5	7
	11	**Video Formats & Standards** • Various analog and digital formats • Differences between these formats	2		1.5	3.5	7
	12	**Video Editing and Effects** • History of special effects in video • Special effects techniques commonly employed in digital video	2		1.5	3.5	7
	13	**Video Editing and Effects (Cont)** • Important concepts related to video editing	2		1.5	3.5	7
	14	**Video Compression**	2		1.5	3.5	7

		• Concept of video compression • Various compression techniques • Various compression standards					
	15	Assessment		6		16	22
		Total Contact Hours	28		21	65	
		Total Student Learning					120
		Total Credit Hours					3
17	Main references supporting the course: Ken C. Pohlmann (2013)Principles of Digital Audio, Sixth Edition (Digital Video/Audio) McGraw-Hill Education						
	Additional references supporting the course Stephen J. Solari(2014) Digital Video and Audio Compression, McGraw-Hill Professional Publishing.						

No	Information on Course									
1	Name of the Course: WEB DESIGING AND PUBLISHING									
2	Course Code: DCM 126									
3	Name(s) of Academic Staff: Mr.Durganand									
4	Rationale for the inclusion of the course in the programme: This module looks at the development and applications of the Web, focusing on the World Wide Web as an almost universal information access tool.									
5	Semester and Year Offered: Semester 2 Year 1									
6	Student Learning Time (SLT)	Face to Face				Independent Learning				Total Guided and Independent Learning
	L = Lecture T = Tutorial P = Practical O = Others	L	T	P	O	L	T	P	O	124
		26	13	16	5	26	13	-	25	
7	Credit Value:3									
8	**Course Learning Outcomes** At the end of this course, the student should be able to: CLO1 Analyzes a web page and its elements and attributes. (C4), (PLO 6) CLO2 Create web pages using XHTML and Cascading Styles sheets in practica sessions. (C6,P7) (PLO 2). CLO3 Create dynamic web pages using JavaScript (client side programming) ar demonstrates in assignment.(C6,P7) (PLO 4) CLO4 Demonstrate the responsibilities of web administrator. (C3,A3,P5) (PLO 9									
9	Transferable Skills: • Lifelong learning and information Management • Scientific Methods and Critical thinking									

- Social skills and Responsibilities.

10 Teaching Learning Assessment Strategy:

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Lifelong learning and information Management	Tutorial	Assignment
Practical Skills	Practical	Lab Experiments
Scientific Methods and Critical thinking	Lecture, Tutorial	Written Tests
Social skills and Responsibilities.	Tutorial	Assignment

11 Synopsis:
This course will cover How to publish pages on the World Wide Web Design and structure the web site Editing and Creating the HTML, Art of linking, Getting graphic with images

12 Mode of Delivery: Lecture, Tutorial, Practical.

13 Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written Exam	Test	20
	Final Examination	50
Lab Experiments	Lab Reports	20
Assignment	Written Assignment (1000 words)	10

14 Mapping of course to Programme Aims:

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1				√
CLO 2				√
CLO 3			√	
CLO 4		√		

15 Mapping of course to Programme Learning Outcomes (PLO):

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	P
CLO 1						√			
CLO 2		√							
CLO 3				√					
CLO 4									√

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**The World Wide Web and Hypermedia Publishing.** • What is the World Wide Web?	6	3	4	-	6	3	-	-	22

	• Demographics of the web. • How web publishing works? • What is URL? What is a web browser? What is an HTTP server? • The HTML standard & extensions. • The four versions of HTML & HTML extensions. • Elements of HTML. • Microsoft Internet Explorer. Helper Applications & Plug ins. Publishing for Multiple Platforms & Browsers • Controlling layout in web: layout with HTML tags, using Java script and Jscript, VB Script & ActiveX Authoring & Publishing Tools Web Publishing Options Personalizing web pages Design and Structure the web site: Linear vs Hypermedia documents. • Goals and mapping the site 'Chunking' information. • Interface design and navigation, capturing the audience, developing a consistent look and feel, determining the navigation links, balancing access & system performance									
ii	**HTML :** • Creating and Editing HTML Documents • Options for creating HTML Documents • Basic document structure • Adding comments • The DOCTYPE Tag • The Head Tags, Title Tags, META Tags • The Body tags, Body Tags attributes, • Inserting inline graphic images. • Using the Paragraph Tag & its attributes. • Use Horizontal rules, use list, adding white space,	6	3	4	-	6	3	-	-	22

	formatting characters, specify font, adding special characters, using division. • Validating the document. - The art of linking, anchor tag, creating a link to a local page or file, the importance of local links, linking to local files, absolute & relative paths. • Creating a link to another site • Creating a link within a page • Creating a link with an image • Link to different types of URLs, using FTP • URLs • Gpher, News, Mailto, Telnet and Rlogin URLS • Verify Links • Tables, column and frames • Creating tables, caption and borders in a table, control the width & height of a table cell. Aligning tables & data in table cells, background colors to table cells, appearance of blank cells, adjusting cell borders and spacing, spanning a cell across rows and columns, nesting tables.									
iii	**Graphic with images** ▪ Web graphic fundamentals ▪ Pixels and bit-depth, resolution and screen space, the web –safe color palette, GIF format, JPEG format, PNG format ▪ Acquiring images files, images and copyright, professional Clip Art & Photo Images ▪ Scanning images & Digital cameras including inline images ▪ Providing alternative text for an image specifying the width & height of an image	2	1	2	-	2	1	-	-	8

	▪ Fading in high resolution images from low resolution images ▪ Position inline images ▪ Transparent pixel, image as bullets in a list ▪ Changing the background and foreground colors									
iv	**Editing & Optimizing Images** • Image Editor Adobe Photoshop, paint shop, Pro, Fractal design Painter • The electronic Canvas, RGB, CMYK & index modes • Gamma, dithering, anti aliasing • Editing existing images files • Creating interlaced GIF images with a transparent • GIF and JPEG compression • Creating an animated GIF • Publishing	2	1	1	-	2	1	-	-	7
v	**Style Sheets:** • Elements of styles, contextual selector, • Adding comments, specifying styles & inking to styles sheets adding inline styles, applying styles with span, creating unique styles with ClASS & ID, handling exceptions with ID. • Getting interactive with forms, submission of form, constructing a form, creating an entry field, drop down list box, text field, multiple selection boxes, check boxes and radio button, text areas.	2	1	1	-	2	1	-	-	7
vi	**Sound and Video:** • Adding scintillating sound & video, • Adding sound and video with the site, ending • The wait with streaming sound & video supporting multimedia plug-ins.	2	1	1	-	2	1	-	-	7

	• Interactive pages and scripting.									
vii	**Managing Web Server:** • Dynamic fonts front embedding, HTML tools, dynamic HTML animation, • Managing Web server, various services • Available, sharing space, costing, controlling and managing, server services and web pages, shopping for virtual server, • HTTP protocol, security issues, • Digital certificates • Choosing the web server, setting up and configuring an HTTP server, databases & servers, reading log files, HTMNL validation	4	2	2	-	4	2	-	-	14
viii	• **Extensible Martkup Language** (XML) & SGML,	2	1	1	-	2	1	-	-	7
	Total	26	13	17	-	26	13	-	-	94

		Face to Face	Independent Learning	
	Lecture	26	26	
	Tutorial	13	13	
	Practical	16	-	
	Assignment (1500words)	-	10	
	Quizzes	01	03	
	Test	01	03	
	Final Examination	03	09	
	Total	60	64	
		124		
	Credit Hour	3		
17	Main references supporting the course: Tommy, C. (2013). *The Non-Technical Guide to Web Technologies.* Create Space Independent Publishing Platform.			
	Additional references supporting the course Deborah, N., & Duncan, T. L. (2013). *XML and Web Technologies for Data Sciences with R (Use R!).* Springer			

1	Name of Course/Module : Digital Animation Techniques						
2	Course Code: DCM 122						
3	Name(s) of academic staff: Ms.Noorsyahliza						
4	Rationale for the inclusion of the course /module in the programme: This is a practical module and will provide students with the opportunity to develop their skills to an advanced level in 2D computer animation techniques, principles and concepts with particular reference to commercial production practices of 2D computer animation. The focus of the module is to equip students with the skills necessary for them to work effectively in the industry either as part of a creative team or as an animator producing 2D computer animation.						
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 TSLT=Total student learning time	28		21	6	65	120
7	Credit Value: 3						

8 **Course Learning Outcomes**

At the end of this course, the student should be able to:

CLO1 Analyzes knowledge of hardware and software infrastructure for production of computer animation. (C4), (PLO 6)

CLO2 Create comprehensive technical expertise in the production process in particular the management of computer animation projects. (C6,P7) (PLO 2).

CLO3 Create Function individually or in teams, effectively, with a capability to be a leader.(C6,P7) (PLO 4)

CLO4 Demonstrate the entrepreneurship skills for career development. (C3,A3,P5) (PLO 9).

9 Transferable Skills:

- Create professional quality multimedia presentations.
- Take responsibility for own learning and time management
- Communicate effectively using appropriate interpersonal
- Publish and understand various animation file outputs and what they are used for.

10 Teaching –learning and assessment strategy

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Lifelong learning and information Management	Tutorial	Assignment
Practical Skills	Practical	Lab Experiments
Scientific Methods and Critical thinking	Lecture, Tutorial	Written Tests
Social skills and Responsibilities.	Tutorial	Assignment

11 Synopsis:

- Introduction
- Flash workflow and workspace
- Using imported artworks
- Drawing
- Working with color, strokes, and fills
- Working with graphic objects
- Using symbols, instances, and library assets
- Creating Animation
- Special Effects
- Working with text
- Working with sound
- Action Scripts
- Exporting from Flash
- Printing with Flash

12 Mode of Delivery: Lecture, Tutorial, Practical and Presentation

13 Assessments Methods and Types:

Coursework	30%
Mid Semester	20%
Final Exam	50%
Total	100%

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

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1				√
CLO 2				√
CLO 3			√	
CLO 4		√		

15 Mapping of the course/module to the Programme Learning Outcomes:

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1						√			
CLO 2		√							
CLO 3				√					
CLO 4									√

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

No	Subject description	Face to face			ILT	Total
		Lectures	Tutorials	Practical		
1	**Introduction** ▪ Getting started ▪ Installation **Flash workflow and workspace** ▪ Overview ▪ Customize the workspace ▪ Save, delete, and switch between workspaces **Creating and managing documents** ▪ Working with projects ▪ Adding media to the library ▪ Working with timelines ▪ Working with scenes ▪ Templates	2		1.5	3.5	7
2	**Using imported artworks** ▪ Placing artwork into Flash ▪ Working with Illustrator AI files	2		1.5	3.5	7

	▪ Working with Photoshop PSD files ▪ Imported bitmaps					
3	**Drawing** ▪ Basic ▪ Tools ▪ Pen tool ▪ Reshaping lines and shape outlines ▪ Snapping	2		1.5	3.5	7
4	**Working with color, strokes, and fills** ▪ Working with colors ▪ Modifying color palettes ▪ Strokes, fills, and gradients	2		1.5	3.5	7
5	**Midterm Examination**					
6	**Working with graphic objects** ▪ Selecting objects ▪ Moving, copying, and deleting objects ▪ Arranging Objects ▪ Transforming Objects	2		1.5	3.5	7
7	**Using symbols, instances, and library assets** ▪ Working with symbols ▪ Symbol instances **Library Assets** ▪ Using library assets ▪ Using shared library assets **Working with button symbols** ▪ Create a button ▪ Enable, edit, and test buttons **Scaling and caching symbols** ▪ Edit movie clip symbols with 9-slice scaling ▪ About runtime bitmap caching movie clip and	2		1.5	3.5	7

	button symbols ▪ Symbols and ActionScript					
8	**Creating Animation** ▪ Basic ▪ Timeline Effects ▪ Tweened Animation **Special Effects** ▪ Filters ▪ Blend Modes	2		1.5	3.5	7
9	**Working with text** ▪ Creating text ▪ Setting text attributes **Creating Multilanguage text** ▪ Encoding text formats ▪ Authoring Multilanguage text	2		1.5	3.5	7
10	**Working with sound** ▪ Exporting Sounds ▪ Sound and Action Script	2		1.5	3.5	7
11	**Working with Video** ▪ Creating and publishing Flash Video ▪ Importing and modifying Flash Video files ▪ About digital video and Flash ▪ Encoding video ▪ Using Action Script to play external Flash Video	2		1.5	3.5	7
12	**Action Scripts** ▪ Working with Action Script ▪ Script Assist mode and behaviors ▪ Writing and managing scripts ▪ Debugging Action Script 1.0 and 2.0 ▪ Debugging Action Script 3.0 ▪ Action Script publish settings	2		1.5	3.5	7
13	**Publishing Flash contents**	2		1.5	3.5	7

		▪ Using Flash player ▪ Developing applications for mobile devices ▪ Configuring a web server for Flash ▪ Using publish profiles ▪ HTML publishing templates ▪ Editing Flash HTML settings					
	14	**Exporting from Flash** ▪ Exporting Flash content, images, and video **Printing with Flash** ▪ Printing from the Flash authoring tool	2		1.5	3.5	7
	15	Assessment		6		16	22
		Total Contact Hours	28		21	65	
		Total Student Learning					120
		Total Credit Hours					3
17	Main references supporting the course: Stephen Brooks (2016), Tradigital Animate CC, CRC Press.						
	Additional references supporting the course Russell Chun (2014), Adobe Flash Professional CC Classroom in a Book, Adobe Press.						

No	Information on Course			
1	Name of the Course: Quantitative Methods			
2	Course Code: DCM 127			
3	Name(s) of Academic Staff: Mr.Vivekanandam			
4	Rationale for the inclusion of the course in the programme: This module is designer to cover various quantitative methods which is often used in management decision making process.			
5	Semester and Year Offered: Semester 2 Year 1			
6	Student Learning Time (SLT)	Face to Face	Independent Learning	Total Guided and Independent Learning

	L = Lecture T = Tutorial P = Practical O = Others	L	T	P	O	L	T	P	O	122
		28	18	-	05	28	18	-	25	

7 Credit Value: 3

8 Course Learning Outcomes:

At the end of this course, the student should be able to:

CLO1: Explain simple arithmetic and algebraic techniques. (C2,C5,C6,A3,A4)(PLO1)

CLO2: Analyze simple scientific situations, using linear, quadratic or simultaneous, and use these to obtain numerical solutions.(C4)(PLO 1, PLO 3)

CLO3: Propose scientific situations, using linear, quadratic or simultaneous, and use these to obtain numerical solutions.(C6,A3,andA5)(PLO 7)

CLO4: Identify the results of quantitative analysis.(C1,C4,A1,A4 and P10(PLO 3)

CLO5: Analyze their critical skills in evaluating applied modeling works. (C4)(PLO 7)

9 Transferable Skills:

- Knowledge
- Scientific Methods and Critical thinking
- Information management and life-long learning

10 Teaching Learning Assessment Strategy:

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Scientific Methods and Critical thinking	Group work/ Tutorial	Presentation/Quiz
Information management and life-long learning	Project	Assignment

11 Synopsis:

This module is designer to cover various quantitative methods which is often used in management decision making process.

12 Mode of Delivery:

Lecture, Tutorial.

13 Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60
	Classroom Presentation/Quiz	05
Assignment	Written Assignment (1500 words)	15

14 Mapping of course to Programme Aims:

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2		√		
CLO 3				√
CLO 4		√		
CLO 5		√		√

15 Mapping of course to Programme Learning Outcomes (PLO):

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PL 9
CLO 1	√								
CLO 2			√						
CLO 3							√		
CLO 4			√						
CLO 5			√				√		

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Measurement of location** • Mean, median, mode and Range • Measure of dispersion – quartile deviation, • Standards deviation. • Karl Pearson's measure of skewness,	3	2	-	-	3	2	-	-	10
ii	**Measure of change:** • rations, percentages: • Index numbers: unweighted and weighted price index • Equations: linear and simultaneous, cost and revenue functions	3	2	-	-	3	2	-	-	10
iii	**Growth and decay:** • simple and compound interest, present values **Deprecation:** • Straight line and reducing balancing method.	3	2	-	-	3	2	-	-	10
iv	**Data analysis:** • Collection and classification of data Frequency distribution. **Presentation of data** • bar, chart, histogram and Ogive	3	2	-	-	3	2	-	-	10
v	**Probability:** • Terminology and definitions, • Independent and mutual exclusive events • Additive and multiplicative laws	3	2	-	-	3	2	-	-	10

	• Conditional probability – Bayes theorem • Permutation and combination									
vi	**Distributors**: • Discrete random variable, • Expectation, variance var • Probability distribution, normal and normal approximation to the Binomial distribution	3	2	-	-	3	2	-	-	10
vii	**Sampling and sampling distributions:** • Random sampling, sampling distribution of mean and proportion – standard error confidence interval for mean and proportions	3	2	-	-	3	2	-	-	10
viii	**Significance testing:** • Null and alternative hypothesis Critical regions and critical values, • one tailed and two tailed tests Testing sample mean, • sample proportion and difference between means,	4	2	-	-	4	2	-	-	12
ix	**Simple Linear Models:** • linear regression, • product moment correlation coefficient and determination	3	2	-	-	3	2	-	-	10
	Total	28	18	-	-	28	18	-	-	92

		Face to Face	Independent Learning
	Lecture	28	28
	Tutorial	18	18
	Practical	-	-
	Assignment (1500words)	-	10
	Quizzes	01	03
	Test	01	03
	Final Examination	03	09
	Total	51	71
	Credit Hour	122	
17	Main Reference Supporting The Course: David R. Anderson and Dennis J. Sweeney (2015).*Quantitative Methods for Business.* South-Western College Pub		
	Additional references supporting the course: John W. Creswell,(2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, SAGE Publications.		

1	Name of Course/Module : Fundamentals of Graphics Design						
2	Course Code: DCM 135						
3	Name(s) of academic staff: Ms.Swati						
4	Rationale for the inclusion of the course /module in the programme: A module based programme for student to learn image manipulation by using image editing software to do it. This course caters to fundamentals level and for students to upgrade skills in using image editing software.						
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 TSLT=Total student learning time	28		21	6	65	120
7	Credit Value: 3						
8	Prerequisite: Internet Fundamental and Applications : None						
9	**Course Learning Outcomes** At the end of this course, the student should be able to: CLO1 Analyzes and apply knowledge of basic terms and concepts of computer graphics. (C4), (PLO 6) CLO2 Create comprehensive technical a variety of graphic design software and hardware to design and produce graphic work, including page layout, digital imaging. (C6,P7) (PLO 2). CLO3 Create Function individually or in teams, effectively, with a capability to Recognize the implications of copyright and ethics issues in graphic design. (C6,P7) (PLO 4) CLO4 Demonstrate, Evaluate and critically discuss graphic design process and work in individual and group critiques. (C3,A3,P5) (PLO 9).						
10	Transferable Skills: ▪ Take responsibility for own learning and time management ▪ Work effectively in teams ▪ Communicate effectively using appropriate interpersonal ▪ Enhance skills in using image editing software						
11	Teaching –learning and assessment strategy						

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Lifelong learning and information Management	Tutorial	Assignment
Practical Skills	Practical	Lab Experiments
Scientific Methods and Critical thinking	Lecture, Tutorial	Written Tests
Social skills and Responsibilities.	Tutorial	Assignment

12	Synopsis: ▪ Work area ▪ Adobe bridge ▪ Basic photo correction ▪ Retouching and Repairing ▪ Working with Selections ▪ Layer Basics ▪ Correcting and Enhancing Digital Photographs

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

Typographic Design
Vector Drawing Techniques
Compositing
Creating Links Within an Image
Animating GIF Images for the Web

</td></tr>
<tr><td>13</td><td>Mode of Delivery: Lecture, Tutorial, Practical Lab Sessions and Seminar.</td></tr>
<tr><td>14</td><td>Assessments Methods and Types:
<table>
<tr><td>Coursework</td><td>30%</td></tr>
<tr><td>Mid Semester</td><td>20%</td></tr>
<tr><td>Final Exam</td><td>50%</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><th>PEO / CLO</th><th>PEO 1</th><th>PEO 2</th><th>PEO 3</th><th>PEO 4</th></tr>
<tr><td>CLO 1</td><td></td><td></td><td></td><td>√</td></tr>
<tr><td>CLO 2</td><td></td><td></td><td></td><td>√</td></tr>
<tr><td>CLO 3</td><td></td><td></td><td>√</td><td></td></tr>
<tr><td>CLO 4</td><td></td><td>√</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>16.</td><td>Mapping of the course/module to the Programme Learning Outcomes:
<table>
<tr><th>PLO / CLO</th><th>PLO 1</th><th>PLO 2</th><th>PLO 3</th><th>PLO 4</th><th>PLO 5</th><th>PLO 6</th><th>PLO 7</th><th>PLO 8</th><th>PLO 9</th></tr>
<tr><td>CLO 1</td><td></td><td></td><td></td><td></td><td></td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>CLO 2</td><td></td><td>√</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CLO 3</td><td></td><td></td><td></td><td>√</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CLO 4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>√</td></tr>
</table>
</td></tr>
<tr><td>17</td><td>Content Outline of the course/module and the SLT per topic</td></tr>
<tr><td>18</td><td>Main references supporting the course:
Steve Marschner, Peter Shirley (2016). Fundamentals of Computer Graphics CRC Press,</td></tr>
<tr><td></td><td>Additional references supporting the course:
Ellen Lupton, Jennifer Cole Phillips(2014), Graphic Design: The New Basics Chronicle Books</td></tr>
<tr><td>19</td><td>Other Additional information: Nil</td></tr>
</table>

<table>
<tr><th>No</th><th colspan="10">Information on Course</th></tr>
<tr><td>1</td><td colspan="10">Name of the Course: OPERATING SYSTEM</td></tr>
<tr><td>2</td><td colspan="10">Course Code: DCM 136</td></tr>
<tr><td>3</td><td colspan="10">Name(s) of Academic Staff: Ms.Swathi</td></tr>
<tr><td>4</td><td colspan="10">Rationale for the inclusion of the course in the programme:
This course Topics includes inter process communication, process scheduling, deadlock, memory management, virtual memory and file system</td></tr>
<tr><td>5</td><td colspan="10">Semester and Year Offered: Semester 3 Year 1</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td colspan="4">Independent Learning</td><td>Total Guided and Independent Learning</td></tr>
<tr><td rowspan="2">L = Lecture
T = Tutorial
P = Practical
O = Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td>L</td><td>T</td><td>P</td><td>O</td><td rowspan="2">120</td></tr>
<tr><td>30</td><td>15</td><td>-</td><td>5</td><td>30</td><td>15</td><td></td><td>25</td></tr>
<tr><td>7</td><td colspan="10">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="10">Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO1 Describe the basic principles used in the design of modern operating syst (C1,A1 and P1) (PLO 1,PLO 3)
CLO2 Summarize the full range of considerations in the design of file systems (C5)(,PLO 4)
CLO3 Discuss the operation, implementation and performance of modern operat systems, and the relative merits and suitability of each for complex user applications (C2,A2) (PLO 6)
CLO4 Report appropriate design choices when solving real world problem in an Group assignment.(C6,A3) (PLO 5)</td></tr>
<tr><td>9</td><td colspan="10">Transferable Skills:
• Communication Leadership and Team skills
• Scientific Methods and Critical Thinking
• Lifelong learning and information Management</td></tr>
<tr><td>10</td><td colspan="10">Teaching Learning Assessment Strategy:
<table><tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr><tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr><tr><td>Communication Leadership and Team skills.</td><td>Group Discussion</td><td>Presentation</td></tr><tr><td>Scientific Methods and Critical Thinking</td><td>Lecture ,Tutorial</td><td>Written Tests</td></tr><tr><td>Lifelong learning and information Management</td><td>Tutorial</td><td>Assignment</td></tr></table></td></tr>
<tr><td>11</td><td colspan="10">Synopsis:
Formal principles are illustrated with examples and case studies of one or more contemporary operating system.</td></tr>
<tr><td>12</td><td colspan="10">Mode of Delivery:
Lecture, Tutorial.</td></tr>
<tr><td>13</td><td colspan="10">Assessment Methods and Types:
<table><tr><th>Type of Assessment</th><th>Assessment Method</th><th>Percentage</th></tr><tr><td></td><td>Test</td><td>20</td></tr></table></td></tr>
</table>

	Written test	Final Examination	60	
		Classroom Preparation/Quiz	05	
	Assignment	Written Assignment (1500 words)	15	

14 Mapping of course to Programme Aims:

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1		√		
CLO 2			√	
CLO 3				√
CLO 4		√		

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	P
CLO 1			√						
CLO 2				√					
CLO 3						√			
CLO 4					√				

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction** • Computer System Organization and Architecture • Operating System Structure and Operations **Operating System Structures** • Operating System Services • System Calls • System Programs • Operating System Design and Implementation • Operating System Structure • Virtual Machines • Operating System Generation • System Boot	4	2	-	-	4	2	-	-	12
ii	**Processes** • Process Concept • Process Scheduling • Operations on Processes	4	2	-	-	4	2	-	-	12

	• Cooperating Processes • Inter process Communication • Communication in Client – Server Systems **Threads** • Multithreading Models • Threading Issues									
iii	**Uniprocessor Scheduling** • Scheduling Criteria • Scheduling Algorithms **Uniprocessor Scheduling** • Scheduling Algorithms • Multiple – Processor Scheduling • Real- Time Scheduling	4	2	-	-	4	2	-	-	12
iv	**Synchronization** • The Critical Section Problem • Synchronization Hardware • Semaphores • Monitors • Atomic Transactions **Deadlock** • Principles of Deadlock • Deadlock Prevention • Deadlock Avoidance • Deadlock Detection • Recovery from Deadlock	4	2	-	-	4	2	-	-	12
v	**Memory Management** • Swapping • Contiguous Allocation • Paging • Segmentation • Segmentation with Paging	4	2	-	-	4	2	-	-	12
	Virtual Memory • Demand Changing • Process Creation • Page Replacement • Allocation of Frames • Thrashing • Demand Segmentation									
vi	**File Management** • File Concepts • Access Methods • Directory Structure • File-System Mounting • File Sharing • Protection **File System Implementation** • File-System Structure	4	2	-	-	4	2	-	-	12

	• File –System Implementation • Directory Implementation • Allocation Methods • Free – Space Management • Efficiency and Performance • Recovery • Log- Structures File Systems									
vii	**Secondary – Storage Structure** • Disk Structure • Disk Attachment • Disk Scheduling • Disk Management • Swap- Space Management • RAID Structure • Disk Attachment • Stable – Storage Implementation • Tertiary Storage Devices	2	1	-	-	2	1	-	-	6
viii	**I/Q Systems** • I/Q Hardware • Application I/Q Interface • Kernel I/Q Subsystem • Transforming I/Q Requests to • Hardware Operations • Streams **Protection** • Goals and Principles of Protection • Methods for Protection \ Security • Program Threats • System and Network Threats • Cryptography as a Security Tool • Implementation Security Defenses • Computer –Security Classifications	4	2	-	-	4	2	-	-	12
	Total	30	15	-	-	30	15	-	-	90

		Face to Face	Independent Learning
	Lecture	30	30
	Tutorial	15	15
	Practical	-	-
	Assignment (1500words)	-	10
	Quizzes	01	03

	Test	01	03	
	Final Examination	03	09	
	Total	50	70	
	Credit Hour	120		
17	Main references supporting the course: Thomas, A., & Michael, D. (2014). *Operating Systems: Principles and Practice.* Recursive Books.			
	Additional references supporting the course William, S. (2014). *Operating Systems: Internals and Design Principles* (8th ed.). Pearson			

<table>
<tr><th>No</th><th colspan="10">Information on Course</th></tr>
<tr><td>1</td><td colspan="10">Name of the Course: INTRODUCTION TO DATABASE SYSTEM</td></tr>
<tr><td>2</td><td colspan="10">Course Code: DCM 137</td></tr>
<tr><td>3</td><td colspan="10">Name(s) of Academic Staff: Mr.Balaganesh</td></tr>
<tr><td>4</td><td colspan="10">Rationale for the inclusion of the course in the programme:
This module will cover process, functional dependencies, database integrity and security, concurrent operations on database, distributed database systems architecture, object-oriented database approach, and deductive database.</td></tr>
<tr><td>5</td><td colspan="10">Semester and Year Offered: Semester 3 Year 1</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td colspan="4">Independent Learning</td><td rowspan="2">Total Guided and Independent Learning</td></tr>
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O = Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>26</td><td>13</td><td>16</td><td>5</td><td>26</td><td>13</td><td>-</td><td>25</td><td>124</td></tr>
<tr><td>7</td><td colspan="10">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="10">Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO 1 Explain contemporary logical design methods and tools for databases.(C2,C5,C6,A3,A4, and P2)(PLO1)
CLO 2 Derive a physical design for a database from its logical design in a Grou Assignment. (C6) (PLO5)
CLO 3 Implement a database solution to an information technology problem;(P PLO 2)
CLO 4 Develop sophisticated queries to extract information from large dataset (PLO 6).</td></tr>
<tr><td>9</td><td colspan="10">Transferable Skills:
Scientific Methods and Critical thinking
Communication and Leadership skills
Information Management system</td></tr>
<tr><td>10</td><td colspan="10">Teaching Learning Assessment Strategy:
<table><tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr><tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr><tr><td>Practical Skills</td><td>Practical</td><td>Lab Experiments</td></tr><tr><td>Scientific Methods and Critical thinking</td><td>Tutorial</td><td>Assignment</td></tr><tr><td>Information management and life-long learning</td><td>Tutorial</td><td>Assignment</td></tr></table></td></tr>
<tr><td>11</td><td colspan="10">Synopsis:
This module will cover process, functional dependencies, database integrity and security, concurrent operations on database, distributed database systems architecture, object-oriented database approach, and deductive database.</td></tr>
<tr><td>12</td><td colspan="10">Mode of Delivery:
Lecture, Tutorial, Practical</td></tr>
<tr><td>13</td><td colspan="10">Assessment Methods and Types:
<table><tr><th>Type of Assessment</th><th>Assessment Method</th><th>Percentage</th></tr><tr><td></td><td>Test</td><td>20</td></tr></table></td></tr>
</table>

	Written test	Final Examination	60	
		Classroom Preparation/Quiz	05	
	Assignment	Written Assignment (1500 words)	15	

14 Mapping of course to Programme Aims:

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1			√	
CLO 2		√		
CLO 3				
CLO 4				√

15 Mapping of course to Programme Learning Outcomes (PLO):

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	P
CLO 1				√					
CLO 2					√				
CLO 3		√							
CLO 4						√			

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction:** • Introduction and data, • Databases and database management systems, • Data models, • languages and users, • Advantages and disadvantages of DBMSs	2	1	-	-	2	1	-	-	6
ii	**The relational model:** • The structure of the relational model, • Logical model in the database system, • Relation and table, • Relation with attributes, • Relation and database, • Incomplict information and null values, • Integrity constraints, • Tuple constraints, • Keys,	3	2	2	-	3	2	-	-	12

	• Keys and null values, • Referential constraints **Relational algebra and calculus:** • Relational algebra, • Union, • Intersection, • Difference, • Renaming, • Selection, • Projection, join, • Queries in relational algebra, • equivalence of algebraic expressions, • Algebra with null values, • Views, relational calculus, qualities and drawbacks of domain calculus, • Tuple calculus with range declarations, data log.									
iii	**SQL:** • Data definitions in SQL, • SQL Queries, • Data modification in SQL, other definitions of data in SQL, • Access control, • Use of SQL in programming language, • Integration problems, • Cursors, dynamic SQL, • Procedures	2	1	2	-	2	1	-	-	8
iv	**Design techniques and models :** • The database design process the life-cycle of information system, • Methodologies for database design, • the entity-relationship model, • The basic constructs of the model, • Other constructs of the model, • Overview of the e-r model, • Documentation of e-r schemas, • Business rules, • Documentation techniques	2	1	2	-	2	1	-	-	8
v	**Conceptual design:** • Requirements collection and analysis,	4	2	2	-	4	2	-	-	14

	• General criteria for data representation, • Design strategies, • Quality of a conceptual design, • Example of conceptual design, • CASE tools for database **Logical design:** • Performance analysis on E-R schemas, • Restructuring of E-R schemas, • Translation into the relational model, • An example of logical design, • Logical design using CASE tools									
vi	**Normalization:** • Redundancies and anomalies, • Functionality dependences, • Boyce-code normal form, • Decomposition properties, • Third normal form, • Database design using CASE tools	2	1	2	-	2	1	-	-	8
vii	**Database Technology:** • Technology of a database server, • definitions of transactions, • transactions and system modules, • Concurrency control, • buffer management, • reliability control system, • physical assess structures, • query optimizations, • Physical database design. **Distributed architecture:** • Client-Server architecture, • Distributed database, • Two-phase commit protocol, • Interoperability, • Co-operation among pre-existing systems, • Parallelism, and replicated database. **Database evaluation:** • Object-Oriented databases,	6	3	2	-	6	3	-	-	20

	• The ODMG standard for object-oriented database, • Object-relational database, • Multimedia database, • Technological extensions for object-oriented databases.									
viii	**Active Database:** • Trigger behavior in a relational system, • Definition and the use of triggers in oracle, • Definition and the use of triggers in db2, • Advanced features of active rules, • Application of active database.	2	1	2	-	2	1	-	-	8
ix	**Data analysis:** • Data warehouse architectures, • Schemas for data warehouse, • Operation for data analysis, • Development of warehouse, • Data mining **Database and the World Wide Web :** • The internet and the WWW, • Information system on the web, • Design of data-intensive websites, • Techniques and tools for database access through the web	3	1	2	-	3	1	-	-	10
	Total	26	13	16	-	26	12	-	-	94

		Face to Face	Independent Learning
	Lecture	26	26
	Tutorial	13	13
	Practical	16	-
	Assignment (1500words)	-	10
	Quizzes	01	03
	Test	01	03
	Final Examination	03	09
	Total	60	64
	Credit Hour	124	

17	Main references supporting the course: Ramez Elmasri, Shamkant B. Navathe (2016). *Fundamentals of Database Systems.* Pearson.
	Additional references supporting the course Carlos, C. & Steven, M. (2014). *Database Systems: Design, Implementation, & Management.* Course Technology

<table>
<tr><th>No</th><th colspan="10">Information on Course</th></tr>
<tr><td>1</td><td colspan="10">Name of the Course: C++ Programming</td></tr>
<tr><td>2</td><td colspan="10">Course Code: DCM 216</td></tr>
<tr><td>3</td><td colspan="10">Name(s) of Academic Staff: Mr.Vivekanandam</td></tr>
<tr><td>4</td><td colspan="10">Rationale for the inclusion of the course in the programme:
This paper will focus on the class diagram; essential to any object-oriented design. It provides the big picture of a software development project and helps to organize the contributions of each individual.</td></tr>
<tr><td>5</td><td colspan="10">Semester and Year Offered: Semester 4 Year 2</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td colspan="4">Independent Learning</td><td rowspan="2">Total Guided and Independent Learning</td></tr>
<tr><td>L = Lecture
T = Tutorial
P = Practical
O = Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>26</td><td>14</td><td>14</td><td>5</td><td>26</td><td>14</td><td>-</td><td>25</td><td>124</td></tr>
<tr><td>7</td><td colspan="10">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="10">Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO 1 Explain Isolate and fix common errors in C++ programs(C2,C5,C6,A3,A
(PLO1)
CLO 2 Demonstrate memory appropriately, including proper allocation and reallocation procedures in group assignment (C3, A3 and P5) (PLO 2)
CLO 3 Apply object-oriented approaches to software problems in C++ (C3) (PL
CLO 4 Write small-scale C++ programs using the above skills (C1, A2) (PLO 6)</td></tr>
<tr><td>9</td><td colspan="10">Transferable Skills:
• Scientific Methods and Critical thinking
• Communication and Leadership skills
• Lifelong learning and information management</td></tr>
<tr><td>10</td><td colspan="10">Teaching Learning Assessment Strategy:
<table><tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr><tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr><tr><td>Scientific Methods and Critical thinking</td><td>Practical</td><td>Lab Experiments</td></tr><tr><td>Practical Skills</td><td>Practical</td><td>Lab Experiments</td></tr><tr><td>Communication and Leadership skills</td><td>Group Discussion</td><td>Assignment</td></tr><tr><td>Life Long Learning and Information Management system</td><td>Tutorial</td><td>Assignment</td></tr></table></td></tr>
<tr><td>11</td><td colspan="10">Synopsis:</td></tr>
</table>

	As a fundamental subject, this course will equip the students with theory and practice on problem solving techniques by using the structured approach. Students will be required to develop programs using C++ programming language under windows platform, in order to solve simple to moderate problems. They will be familiarize with the pre-processor instructions, constants and variables, data types, input and output statements, text files, control structures: sequential, selection and loop, built-in and user-defined functions, one dimension and two dimension array, and structure.
12	Mode of Delivery: Lecture, Tutorial, Practical, Group discussion.
13	Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60
	Lab Reports	10
Assignment	Written Assignment (1000 words)	10

14 Mapping of course to Programme Aims:

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1			√	
CLO 2		√		
CLO 3				
CLO 4				√

15 Mapping of course to Programme Learning Outcomes (PLO):

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	P
CLO 1				√					
CLO 2			√						
CLO 3		√							
CLO 4						√			

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction to Programming** • Machine Language, • Assembly languages, • Low- and High Level Languages, • Procedure and Object Orientations,	4	2	-	-	4	2	-	-	12

	• Application and System Software, • Programming Language, • Problem Solution and Software Development, • Algorithms									
ii	**Introduction to C++,** • Problem Solving C++ • Programming Style, • Data Values and Arithmetic Operations, • Variables and declaration statements, • Integer qualifiers Completing the basics • Assignment Operations, • Formatting numbers for program output, • Using mathematical library functions, • Program input using the *cin* • Object, the const qualifier, applications	4	2	2	-	4	2	-	-	14
iii	**Control Structures** • **Selection Structures** ○ Selection Criteria, the *if-else* statement, nested if statement, the *switch* statement, ○ Applications • **Repetition Structures** ○ Introduction, *while loops,* interactive while ○ loops, *for loops*, loop programming techniques, *nested loops, do while loops*	4	2	2	-	4	2	-	-	14
iv	**Functions** • Modularity using functions • Function and parameter declarations, • Returning a single value, • Returning multiple values, • Applications, • Variable scope, • Variable storage class	2	1	2	-	2	1	-	-	08
v	**Introduction to classes** • Abstract data types, • class construction terminology, • constructors, • calling constructors,	4	2	2	-	4	2	-	-	14

	• overloaded, and inline • constructors, • destructors, • applications **Classes functions and conversions** • Assignment, • Copy constructors, • Base / member initialization, • additional class features, • Class scope, • Static class members, • Friend functions, operator functions, • Operator functions, • Data types conversions, • Application, • Class inheritance, • Polymorphism									
vi	**Arrays** • One – dimensional arrays, • Input and output of array values, • Array initialization declaring and processing two dimensional arrays, • Applications, • Arrays as arguments	3	2	2	-	3	2	-	-	12
vii	**Pointer** • Addresses and pointers, • Storing address, • Using address, • Declaring pointers, • References and pointers, • Array names as pointers, • Pointer arithmetic, • Passing addresses, • Passing arrays, • Advanced pointer notation	3	2	2	-	3	2	-	-	12
viii	**Files** • Classes for file stream operations • Opening and closing a file • Detecting end of file • File modes • File pointers and their manipulation • Sequential I/O operations • Updating a file : Random Access • Error handling functions	2	1	2	-	2	1	-	-	8

	• Command line arguments									
	Total	26	14	14	-	26	14	-	-	94
		Face to Face				Independent Learning				
	Lecture	26				26				
	Tutorial	14				14				
	Practical	14				-				
	Assignment (1500words)	-				10				
	Quizzes	01				03				
	Test	01				03				
	Final Examination	03				09				
	Total	59				65				
	Credit Hour	124								
17	Main references supporting the course: Bjarne, S. (2014). *Programming: Principles and Practice Using C*++ (2nd ed.). Addison-Wesley.									
	Additional references supporting the course Walter Savitch,Kenrick Mock(2017), Problem Solving with C++, Pearson Education.									

1	Name of Course/Module : Virtual Reality and VRML
2	Course Code: DCM 212
3	Name(s) of academic staff: Ms.Noorsyahliza
4	Rationale for the inclusion of the course /module in the programme: Virtual Reality Modeling Language (VRML) is the standard file format and the standard descriptive language for 3D on the Web. It allows to bring real-time 3D presentation to the screen of arbitrary user connected to the Internet. The course covers all parts of VRML starting from basic structure of VRML worlds - geometry, colors, textures, light, sound, and continuing to advanced features like animation, rich interactivity, and simulation.
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 TSLT=Total student learning time	16	16	-	6	38	80

7	Credit Value: 2
8	Prerequisite: None
9	Course Learning Outcomes: At the end of this course, the student should be able to: CLO1: Explain and assess a variety of multimedia tools in terms of functionality, usability and compatibility; (C2,C3,C5,C6,A3,A4, and P2)(PLO1) CLO2: Discuss various standards used for digitally compressing, storing and transmitting Multimedia file types and use research & communication skills in producing a report on emergent technologies(C2,A2)(PLO 8) CLO3: Analyse staffing and resourcing requirements for multimedia projects(C4)(PLO 3) CLO4: Propose a strategy for the production of a multimedia application (C6,A3,andA5)(PLO 7)
10	Transferable Skills: ▪ Make informed decisions ▪ Write a substantial report ▪ Search for information ▪ Take responsibility for own learning and time management ▪ Work effectively in teams ▪ Communicate effectively using appropriate interpersonal ▪ Skills and using different media ▪ Self-study skills

11	PLO	Teaching and Learning Activities	Type of Assessment
	Knowledge	Lecture	Written Tests
	Scientific Methods and Critical thinking	Tutorial	Assignment/Quiz
	Information management and life-long learning	Tutorial	Assignment
	Teamwork Skills	Group work	Project

12	Synopsis: ▪ Introduction ▪ Building Primitive Shapes ▪ Transforming shapes ▪ Controlling appearance with materials ▪ Grouping Nodes ▪ Animation

- Animating Transforms
- Building shapes out of points, lines, and faces
- Mapping textures
- Lighting
- Adding backgrounds
- Adding fog
- Adding Sound
- Controlling the view point
- Controlling navigation
- Sensing the viewer

13 Mode of Delivery: Lecture, Tutorial, Practical Lab Sessions and Seminar.

14 Assessments Methods and Types:

Coursework	30%
Mid Semester	20%
Final Exam	50%
Total	100%

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

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2		√		
CLO 3			√	
CLO 4				√

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

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1	√								
CLO 2								√	
CLO 3			√						
CLO 4							√		

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

No	Subject description	Face to face			ILT	Total
		Lectures	Tu orials	Practical		
1	**Introduction** ▪ Building a VRM World ▪ VRML file structure	2		1.5	3.5	7
2	**Building Primitive Shapes** ▪ Box ▪ Cone ▪ Cylinder ▪ Sphere ▪ Text **Building multiple shapes**	2		1.5	3.5	7
3	**Transforming shapes** ▪ Using coordinate systems ▪ Transform ▪ Translate	2		1.5	3.5	7

		▪ Rotate ▪ Scaling					
	4	**Controlling appearance with materials** ▪ Motivation ▪ **Material**: • Shading color • Glow color • Transparency • Shininess • Ambient intensity **Grouping Nodes** ▪ Group ▪ Switch ▪ Transform ▪ Billboard ▪ Anchor ▪ Inline	2		1.5	3.5	7
	5	**Animation** ▪ Introduction ▪ Animation circuits ▪ Routing events ▪ Inputs and outputs ▪ Event data types	2		1.5	3.5	7
	6	**Animating Transforms** ▪ Time sensor ▪ Sensor outputs ▪ Interpolators	2		1.5	3.5	7
	7	**Building shapes out of points, lines, and faces** ▪ Coordinate ▪ Point set ▪ IndexedLineSet ▪ Face Set ▪ Shape Control	2		1.5	3.5	7
	8	▪ Building Elevation grid ▪ Building extruded shapes ▪ Controlling color on coordinate-based geometry ▪ Controlling shading on coordinate-based system	2		1.5	3.5	7
	9	Assessment		6		28	56
		Total Contact Hours	16		12	28	
		Total Student Learning					80
		Total Credit Hours					3
18	Main references supporting the course: Grigore C. Burdea, Philippe Coiffet(2017) Virtual Reality Technology Virtual Reality Technology, John Wiley & Sons. John Wiley & Sons.						
	Additional references supporting the course:						

	Tony Parisi (2015), Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile, "O'Reilly Media.
19	Other Additional information: Nil

<table>
<tr><th>No</th><th colspan="10">Information on Course</th></tr>
<tr><td>1</td><td colspan="10">Name of the Course: HUMAN COMPUTER INTERACTION</td></tr>
<tr><td>2</td><td colspan="10">Course Code: DCM 214</td></tr>
<tr><td>3</td><td colspan="10">Name(s) of Academic Staff: Mr.Dinesh</td></tr>
<tr><td>4</td><td colspan="10">Rationale for the inclusion of the course in the programme:
This course is an introduction to those subjects that constitute the field that is usually referred to as human-computer interface or human-computer interaction. The course will cover some basics about perception, ergonomics, information processing, cognitive theories, interaction theory, metaphors for interface design and communication. In putting these subjects together, we wish to give students a broader perspective on the interface design process.</td></tr>
<tr><td>5</td><td colspan="10">Semester and Year Offered: 4 Semester 2 year</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td colspan="4">Independent Learning</td><td rowspan="2">Total Guided and Independent Learning</td></tr>
<tr><td>L = Lecture
T = Tutorial
P = Practical
O = Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>28</td><td>21</td><td>-</td><td>4</td><td>28</td><td>21</td><td>-</td><td>22</td><td>124</td></tr>
<tr><td>7</td><td colspan="10">Credit Value:3</td></tr>
<tr><td>8</td><td colspan="10">Course Learning Outcomes:
At the end of this course, the student should be able to
CLO1 Explain human computer interaction as a multi-level process of communication, and the application of human factors to the design and evaluation of interactive systems with regard to both their physical and informational aspects.(C6,A4 and P2) (PLO 1)
CLO2 Solve theoretical knowledge to issues that arise in the design of interactive systems. (C3,A5)
(PLO 4).
CLO3 Work in a team to accomplish a prototype and/or process development desi project deliverables in writing and oral presentation. (A4) (PLO 5).</td></tr>
<tr><td>9</td><td colspan="10">Transferable Skills:
• Communication Leadership and Team skills
• Scientific Methods and Critical Thinking
• Team Skills</td></tr>
<tr><td>10</td><td colspan="10">Teaching Learning Assessment Strategy:</td></tr>
</table>

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Scientific Methods and Critical Thinking	Lecture ,Tutorial	Written Tests Assignment
Communication and Team work skills	Group Work	Presentation

11 Synopsis:
This course teaches students to design user interfaces based on the capabilities of computer technology and the needs of human factors. Students design a user interface for a system and implement a prototype from a list of informal requirements. The project is developed over three assignments by a design process based on current human–computer interaction principles.

12 Mode of Delivery: Lecture, Tutorial, Group discussion.

13 Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Presentation	10
	Test	20
	Final Examination	50
Assignment 1	Written Assignment (1000 words)	10
Assignment 2	Written Assignment (1000 words)	10

14 Mapping of course to Programme Aims:

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2			√	
CLO 3		√		

15 Mapping of course to Programme Learning Outcomes (PLO):

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO
CLO 1	√								
CLO 2				√					
CLO 3					√				

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
I	Introduction to Human Computer Interaction • The Human, The Computer and Interaction • The importance of user interface design • Theories of Human Computer Interaction	2	1.5	-	-	2	1.5	-	-	7

II	Interface quality and evaluation • Measures of user interface quality • Methods for observation and evaluation	2	1.5	-	-	2	1.5	-	-	7
III	Interactive system and interface design examples • Examples such as word processors, • Spreadsheets, hypertext systems, • Programming environments, atm's, voice • Answering systems and mail systems	2	1.5	-	-	2	1.5	-	-	7
IV	Dimensions of interface variability • 4.1 Languages, communication and interaction • 4.2 Dialogue genre; the role of metaphor • Dialogue techniques (including windows, menus, icons, etc.) • User support and assistance, documentation, training	2	1.5	-	-	2	1.5	-	-	7
V	User-centred design and task analysis • Software engineering design models • User-centred design and participatory design • Socio-technical issues User-centred design and task analysis • Task analysis • Prototyping and the iterative design cycle; the evolution of designs • The role of principles and guidelines • Examples of designs	4	3	-	-	4	3	-	-	14

VI	User interface implementation • Prototyping tools and environments • Input and output devices • Ergonomic issues User interface implementation • Basic results from computer graphics • Interface modalities: colour, sound, etc. • The role of graphic and industrial design • Toolkits and interface development Environments	4	3	-	-	4	3	-	-	14
VII	Introduction to Evaluation • Evaluation Frameworks • The language of evaluations	2	1.5	-	-	2	1.5	-	-	7
VIII	Evaluation approaches • Usability testing • Field studies • Analytical evaluation	2	1.5	-	-	2	1.5	-	-	7
IX	Cognitive models • Goal and task hierarchies • Linguistic models • The challenge of display-based systems • Physical and device models • Cognitive architectures	2	1.5	-	-	2	1.5	-	-	7
X	Communication and collaboration models • Face-to-face communication • Conversation • Text-based communication • Group working	2	1.5	-	-	2	1.5	-	-	7
XI	Dialog notations and design • What is dialog? • Dialog design notations • Diagrammatic notations • Textual dialog notations • Dialog semantics • Dialog analysis and design	2	1.5	-	-	2	1.5	-	-	7
XII	Models of the system • Standard formalisms • Interaction models • Continuous behavior	2	1.5	-	-	2	1.5	-	-	7
	TOTAL	28	21	-		28	21			98
		Face to Face				Independent Learning				

	Lecture	28	28
	Tutorial	21	21
	Assignment (1000 words)	-	05
	Assignment (1000 words)	-	05
	Test	01	03
	Final Examination	03	09
	Total	53	71
		124	
	Credit Hour	3	
17	Main references supporting the course: Jonathan Lazan (2017). Research Methods in Human-Computer Interaction, Morgan Kaufmann 2nd Edition.		
	Additional references supporting the course Gerard Jounghyun kim (2015). Human-computer interaction: fundamentals and practice, CRC press.		

No	Information on Course								
1	Name of the Course: Essential of E-Commerce								
2	Course Code: DCM 217								
3	Name(s) of Academic Staff: Mr.Durugand								
4	Rationale for the inclusion of the course in the programme: This comprehensive course to the world of electronic commerce provides the tools necessary to understand and capitalize on the explosion on internet-based business in today's economy.								
5	Semester and Year Offered: Semester 4 Year 2								
6	Student Learning Time (SLT)	Face to Face				Independent Learning			Total Guided and Independent Learning
	L = Lecture T = Tutorial P = Practical O = Others	L	T	P	O	L	T	P	O	122
		31	15	-	5	31	15		25	
7	Credit Value: 3								
8	Course Learning Outcomes: At the end of this course, the student should be able to CLO 1 Comprehend the underlying economic mechanisms and driving forces o Commerce.(C2) (,PLO 3) CLO 2 Evaluate the opportunities and potential to apply and synthesize a variety c Commerce concepts and solutions to create business value for organizati customers, and business partners. (C4) (PLO 7). CLO 3 Formulate E-Commerce strategies that lever firms' core competencies, facili organizational transformation, and foster innovation. (C6,A4) (PLO 4).								

	CLO 4 Describe the implementation of E-Commerce ethically and professionally in a dynamic market environment. (C1,A1,P1) (PLO 8).
9	Transferable Skills: • Entrepreneurship and Managerial Skills • Scientific Methods and Critical Thinking Skills • Ethics, Professionalism and humanities..
10	Teaching Learning Assessment Strategy:

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture ,Tutorial	Written Tests
Entrepreneurship and Managerial Skills	Tutorial	Assignment
Scientific Methods and Critical Thinking Skills	Lecture ,Tutorial	Written Tests Assignment
Ethics, Professionalism and humanities.	Tutorial	Assignment

11	Synopsis: This course will cover electronic commerce software, security threats to electronic commerce, implementing security for electronic commerce, electronic payment system and strategies for marketing, sales and promotion, strategies for purchasing and support activities and web auction.
12	Mode of Delivery: Lecture, Tutorial.
13	Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60
	Classroom Preparation/Quiz	05
Assignment	Written Assignment (1500 words)	15

14 Mapping of course to Programme Aims:

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1		√		
CLO 2				√
CLO 3			√	
CLO 4			√	

15 Mapping of course to Programme Learning Outcomes (PLO):

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO
CLO 1			√						
CLO 2							√		

	CLO 3				√						
	CLO 4								√		

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Fundamentals of electronic commerce** • Internet and the world wide web, • Economic forces and electronic commerce, • Role of electronic commerce. **Infrastructure for electronic commerce :** • Various technologies, packet-switches networks, • TCP/IP, markup languages and the web, HTML, • Web-client and servers, • Internet connection option **Web based tools for electronic commerce;** • Web server hardware and performance evaluation. • Web server software features sets, • Web server tools	7	4	-	-	7	4	-	-	22
ii	**Electronic commerce software:** • Software solutions, • Hosting services, • Basic packages, • Midrange packages, • Enterprise solutions for large firms.	3	1	-	-	3	1	-	-	8
iii	**Security threats to electronic commerce :** • Intellectual property threat • Electronic Commerce threats, • Computer Emergency Response **Implementing security for electronic commerce:** • Protecting assets and intellectual property • Protecting electronic commerce channels, • Ensuring transaction integrity, • Protecting the commerce server	6	3	-	-	6	3	-	-	18

iv	**Electronic payment systems:** • Electronic cash, electronic wallets, • Smart cards, • Credit and charge cards	3	1	-	-	3	1	-	-	8
v	**Strategies for marketing, sales and promotions:** • Creating an effective web presence • Identifying and reaching customers, • Creating and maintaining brands on the web, • Business models for selling on the web **Strategies for purchasing and support activities:** • Purchasing, logistics and support activities, • Electronic data interchange, • Supply chain management software for purchasing, • Logistics and support activities • Strategies for web auctions, • Virtual communities and web portals; • Auction basics, web auction strategies , • Virtual community strategies	6	3	-	-	6	3	-	-	18
vi	**Environment of electronic commerce:** • International legal, • Ethical and tax issues: ▪ International nature of electronic commerce, legal environment, ethical issues, taxation **Business plan for implementing electronic commerce:** • Planning ,controlling ,implementing and evaluation • Managing electronic commerce	6	3	-	-	6	3	-	-	18
	Total	31	15	-	-	31	15	-	-	92

		Face to Face	Independent Learning	
	Lecture	31	31	
	Tutorial	15	15	
	Practical	-	-	
	Assignment (1500words)	-	10	
	Quizzes	01	03	
	Test	01	03	
	Final Examination	03	09	
	Total	51	71	
		122		
	Credit Hour	3		
17	Main references supporting the course: Kenneth, C. L., & Carol, T. (2013). *E-Commerce Essentials.* Prentice Hall.			
	Additional references supporting the course Lacka, E. & Chan, Kai H. & Yip, N. (2016), E-commerce Platform Acceptance: Suppliers, Retailers, and Consumers, 1st edition, Springer, Germany.			

No	Information on Course								
1	Name of the Course: Networking Essentials								
2	Course Code: DCM 215								
3	Name(s) of Academic Staff: Dr.Divya								
4	Rationale for the inclusion of the course in the programme: Introduction to network, network standard and models, Topologies and communication Media, Network Architecture, Network design, Internet work design, Network Requirement, Flow-analysis concepts and monitoring the network, managing the Network, Troubleshooting Network Problems.								
5	Semester and Year Offered: Semester 4 Year 2								
6	Student Learning Time (SLT)	Face to Face				Independent Learning			Total Guided and Independent Learning
	L = Lecture T = Tutorial P = Practical O = Others	L	T	P	O	L	T	P	O	120
		31	14	-	5	31	14	-	25	
7	Credit Value:4								
8	Course Learning Outcomes: At the end of this course, the student should be able to:								

CLO1. State the different components and their respective roles in a communication system (C1,P2) (PLO 1)

CLO2. Propose efficient, cost effective, reliable and appropriate technology to establish communication links (C6,A3) (PLO 7)

CLO3. Design an enterprise network employing the common LAN technologies and be able to evaluate the advantages and disadvantages (P7) (PLO 8)

CLO4. Configure a PC to work as a host in a TCP/IP network and to use the IP based commands to facilitate the trouble shooting process (P4)(PLO 9)

9 Transferable Skills:

- Scientific Methods and Critical thinking
- Entrepreneurship and Managerial skills
- Ethics, Professionalism and humanities
- Social skills and responsibilities.

10 Teaching Learning Assessment Strategy:

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Scientific methods, critical thinking	Lecture Tutorial	Written Tests
Ethics, Professionalism and humanities	Tutorial	Assignment
Social skills and responsibilities.	Tutorial	Assignment

11 Synopsis:
The course approaches the development of information systems from a networking concept.

12 Mode of Delivery:
Lecture, Tutorial.

13 Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60
	Classroom Preparation/Quiz	05
Assignment	Written Assignment (1500 words)	15

14 Mapping of course to Programme Aims:

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1			√	
CLO 2				√
CLO 3			√	
CLO 4		√		

15 Mapping of course to Programme Learning Outcomes (PLO):

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	P
CLO 1	√								
CLO 2							√		
CLO 3								√	
CLO 4									√

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction to Computer Network and Internet:** • History of computer networking and internet, • Internet, • The network edge, • The network core, • Delay, loss, and throughput in packet-switched networks, • Protocol layers and service models, • Network under attack **Network standards and Models:** • Why network standards are needed, • Type of standards, • Key Networking standards Organisation, • OSI Layered Communications, • Communication between Stacks, • Applying the OSI Model.	5	2	-	-	5	2	-	-	14
ii	**Topologies and Communication Media :** • Networks Technologies, • Communication Media, • Communication Media costs and considerations	2	1	-	-	2	1	-	-	6
iii	**Network Architecture:** • Ethernet and the IEEE 802.3 standards, • Token Ring and the IEEE 8002.5 standards, • Microsoft Networking Services, • IPX and NWLink, TCP/IP,	7	3	-	-	7	3	-	-	20

	• Setting Protocol Priority, • Resolving a NIC Resource Protocol. **Network Design:** • WAN AND Enterprise Network Communication, • Fast Ethernet, • FDDI, X.25, • ISDN, • Frame Relay, ATM, SMDS, SONET **Internetwork Design :** • Multination Access Units(MAUs), • Multiplexers as Repeaters, • Bridges, • Router, • Hubs and Gateways									
iv	**Application Layer:** • Principal of network application, • The web and http, ftp, • Electronic mail in the internet, • DNS, • Peer-to-peer applications, • Socket programming with UDP. **Transport Layer:** • Transport Layer-Services, • Multiplexing and Demultiplexing, • Connectionless, • Connectionless transport: o UDP, o principles of reliable data transfer, • Connection-orientation transport: o TCP, o principles o congestion control, o TCP congestion control **Network layer:** • Introduction, • Virtual circuit and datagram networks, • What's inside a router, • IP, • Routing algorithms, • Routing in the internet,	7	3	-	-	7	3	-	-	20

	• Broadcast and multicast routing									
v	**Network Requirements:** • Types of application, capacity, • Reliability, • Delay, • Application group and user requirements.	2	1	-	-	2	1	-	-	6
vi	**Link layer and Local Area Network:** • Introduction and services, • Error detection and correction techniques, • Multiple access protocols, • Link-layer addressing, • Ethernet, • Link-layer switches, • The point to point protocol, • Link virtualization	2	1	-	-	2	1	-	-	6
vii	**Network Security:** • Means and principle of network security, • Message integrity, • Securing e-mail, • Securing TCP connection, • Network layer security, • Securing Wireless LANs, Operational Security	2	1	-	-	2	1	-	-	6
viii	**Wireless and Mobile Networks :** • Wireless links and network characteristic, • WIFI, • Cellular internet access, • Mobility management, • Mobile IP, • Managing mobility in cellular networks, • Wireless and mobility	2	1	-	-	2	1	-	-	6
ix	**Network Management :** • Introduction, the infrastructure for network management, • The internet-standard management framework, • ASN.1	2	1	-	-	2	1	-	-	6
	Total	31	14	-	-	31	14	-	-	90
		Face to Face				Independent Learning				
	Lecture	31				31				
	Tutorial	14				14				
	Practical	-				-				

	Assignment (1500words)	-	10	
	Quizzes	01	03	
	Test	01	03	
	Final Examination	03	09	
	Total	50	70	
	Credit Hour	120		
17	Main references supporting the course: Douglas, E. C. (2014). Computer Networks and Internets. Pearson., UK.			
	Additional references supporting the course William, S. (2013*). Data and Computer Communications* (10th ed.). Pearson.			

No	Information on Course								
1	Name of the Course: E-Learning Development								
2	Course Code: DCM 226								
3	Name(s) of Academic Staff: Ms.Noorsyahliza								
4	Rationale for the inclusion of the course in the programme: This module provides students with the knowledge they need to pick tools and technologies that support e-learning development standards. It will help students plan, select, and combine the tools they need for developing e-learning applications. Students will learn to identify the range of hardware, software, and services needed for e-learning projects, understand major categories of tools, see what each category produces, learn the major vendors in each category, and develop criteria for picking specific products.								
5	Semester and Year Offered: Semester 5 Year 2								
6	Student Learning Time (SLT)	Face to Face				Independent Learning			Total Guided and Independent Learning
	L = Lecture	L	T	P	O	L	T	P	O	120

	T = Tutorial P = Practical O = Others	31	14	-	5	31	14	-	25	

7 Credit Value:4

8 Course Learning Outcomes:

At the end of this course, the student should be able to:

CEO1: Explain familiar with key concepts, competing theories and approaches of designing e-learning(C2,C5,C6,A3,A4, and P2)(PLO1)

CEO2: Analyse tools and technologies to carry out their plans and designs for e-Learning. (C4)PLO 3)

CEO3: Present a prototype of an e-learning course, develop or advance competences in self-directing learning projects, cross-cultural collaboration and social networking.(C1,C2,C3,C6 and A2)(PLO4)

9 Transferable Skills:

- Scientific Methods and Critical thinking
- Entrepreneurship and Managerial skills
- Ethics, Professionalism and humanities
- Social skills and responsibilities.

10 Teaching Learning Assessment Strategy:

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Scientific methods, critical thinking	Lecture Tutorial	Written Tests
Ethics, Professionalism and humanities	Tutorial	Assignment
Social skills and responsibilities.	Tutorial	Assignment

11 Synopsis:

The course approaches the development of information systems from a networking concept.

12 Mode of Delivery:

Lecture, Tutorial.

13 Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60
	Classroom Preparation/Quiz	05
Assignment	Written Assignment (1500 words)	15

14 Mapping of course to Programme Aims:

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			√

CLO 2						
CLO 3				√		

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	P
CLO 1	√								
CLO 2			√						
CLO 3				√					

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction:** • Participants and processes • What do they need? • Target learners' technology • What can you let others do? **TYPES OF E-LEARNING AND THE TECHNOLOGIES REQUIRED** • Learner-led e-learning • Facilitated e-learning • Instructor-led e-learning • Embedded e-learning • Telementoring and e-coaching **CATEGORIES OF TOOLS** • Levels and tasks • Categories of software tools	3	2	-	-	3	2	-	-	10
ii	**HARDWARE AND NETWORKS** **Hardware for E-Learning** • What to look for in hardware • Other factors in picking hardware • Server hardware **Networks for E-Learning** • Types of networks • Private networks • Connecting to the Internet • The wonder of TCP/IP • Connecting external users to your intranet	6	3	-	-	6	3	-	-	18

	• Wireless network connections • Computing network speed **TOOLS FOR ACCESSING E-LEARNING** **Web Browser** • What is a Web browser? • How does a browser work? • Popular Web browsers • Choosing a browser • Alternatives to standard browser programs **Media Players and Viewers** • What is a media player? • How does a media player work? • Players for audio and video • Viewers for proprietary content • Choosing media players for e-learning • Making players easier to use • Alternatives to media player									
iii	**TOOLS FOR CREATING E-LEARNING CONTENT** **Course Authoring Tools** • What course authoring tools do • Quick tour of a course authoring tool • How course authoring tools work • Popular course authoring tools • Alternatives to standard course authoring tools • Choosing an authoring tool **Website Authoring Tools** • Why create e-learning with Web site tools? • Quick tour of a Web site authoring tool • How Web site authoring tools work • Popular Web site authoring tools • Alternatives to Web site authoring tools • Capabilities needed for e-learning	6	3	-	-	6	3	-	-	18

	• Blogging tools Related tools **TOOLS FOR OFFERING E-LEARNING** **Web Servers** • Learning Management Systems • Learning Content Management Systems • Collaboration tools • Virtual school system Media severs									
iv	**TESTING AND ASSESSMENT TOOLS** • How testing tools work • Quick tour of a testing tool • Popular testing tools • Alternatives to testing tools • CHOOSING TESTING TOOLS **MEDIA EDITORS** • A little strategy first • Multimedia tools • Graphics tools • Animation tools • Alternatives to animation tools • Audio tools • Video tools • Virtual world tools • Media utilities • TO FIND MORE MEDIA EDITING TOOLS **CONTENT CONVERTERS** • How content converters work • Quick tour of a converter tool • Converters for PowerPoint • Converters for Microsoft Word • Acrobat: General-purpose document converter • File converters and batch processors **Alternatives to converters**	6	3	-	-	6	3	-	-	18
v	**PICKING TOOLS AND TECHNOLOGIES** **STRATEGIES** • Overview of a strategy • Set your technology goals	6	3	-	-	6	3	-	-	18

	• Form a team 411 • Identify needed categories of tools • Set policies • Pick tools • Get money • Buy • Implement **PICKING TOOLS** • Steps in selecting products • Recruit others to help you • List and rank required capabilities • Compile a list of candidates • Evaluate products • Pick a product • What if no product meets your requirements? • Common blunders in picking tools **GENERAL CRITERIA FOR PICKING TOOLS** • Vendor criteria • **Tools criteria**									
vi	**STANDARDS FOR E-LEARNING** • What's all the fuss about standards? • The promise of e-learning standards • Packaging standards • Communications standards • Metadata standards • Quality standards • Other standards and regulations • **Make standards work for you** **TRENDS IN TECHNOLOGY AND LEARNING** • Trends and advances • Fundamental technologies • Technological trends • **Learning trends**	4	2	-	-	4	2	-	-	12
	Total	31	16	-	-	31	16	-	-	94
		Face to Face				Independent Learning				
	Lecture	31				31				
	Tutorial	16				16				
	Practical	-				-				

	Assignment (1500words)	-	10	
	Quizzes	01	03	
	Test	01	03	
	Final Examination	03	09	
	Total	52	72	
	Credit Hour	124		
17	Main references supporting the course: ▪ William Horton and Katherine Horton, (2015) E-*Learning Tools and Technologies*, Wiley Publishing Inc.			
	Additional references supporting the course: ▪ Margaret Driscoll, Pfeiffer, (2014), *Web-Based Training: Designing e-Learning Experiences*.			

No	Information on Course
1	Name of the Course: VISUAL PROGRAMMING
2	Course Code: DCM246
3	Name(s) of Academic Staff: Mr.Durugand
4	Rationale for the inclusion of the course in the programme: Appreciate the commercial context in which a component based programming environment, and applications generated with it, would be used.

5	Semester and Year Offered: Semester 5 Year 2									
6	Student Learning Time (SLT)	Face to Face				Independent Learning				Total Guided and Independent Learning
	L = Lecture T = Tutorial P = Practical O = Others	L	T	P	O	L	T	P	O	123
		25	12	19	5	25	12	-	25	
7	Credit Value: 3									
8	Course Learning Outcomes: At the end of this course, the student should be able to: CLO1: Explain and use of delegates and events for producing event-driven application (C2,C5,C6,A3,A4, and P2)(PLO1) CLO2: Demonstrate fundamental skills in utilizing the tools of a visual environment in terms of the set of available command menus and toolbars. (C3, A3 and P5) (PLO 2) CLO3: Create SDI and MDI applications while using forms, dialogs, and other types of GUI Components (C6,P7)(PLO 2) CLO4: Propose message passing mechanism between components and threads using Messaging C6,A3,andA5)(PLO 7) CLO5: Analyses visual programming to software development by designing projects with menus and submenus Use visual programming environment to create simple visual Applications. (C4)PLO 3)									
9	Transferable Skills: • Knowledge and Skills • Communication Skills • Critical Thinking Skills									
10	Teaching Learning Assessment Strategy:									

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Practical Skills	Practical	Lab Experiments
Scientific Methods and Critical thinking	Tutorial	Assignment
Information management and life-long learning	Tutorial	Assignment

11	Synopsis: This course will cover usage of visual studio in software development Introduction to visual basic, Programming fundamentals, Program control structures, Multiple forms, dialogs, debugging and EXE, OOP, Database managements, Integrated visual basic with other Basic HTML and VBScript.
12	Mode of Delivery: Lecture, Tutorial. Practical
13	Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60

		Classroom Preparation/Quiz	05	
	Assignment	Written Assignment (1500 words)	15	

14 Mapping of course to Programme Aims:

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2	√			
CLO 3				√
CLO 4		√		√
CLO 5		√		

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1	√								
CLO 2		√							
CLO 3		√					√		
CLO 4					√		√		
CLO 5			√						

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction Visual Basic:** • Introduction, • Visual basic environment, • Starting and quitting visual basic, • Editing visual basic, • Planning visual basic, a grade calculation **Programming Fundamentals:** • Identifiers, • Variables & constants, • Declaring variables & constants, • Data types, • Operators & expressions, • Assignments statements, • Event procedures	3	1	2	-	3	1	-	-	10
iii	**Program Control Structures:** • Introduction,	2	1	2	-	2	1	-	-	8

	• Sequence structure, • Selection structure, • Looping structure , • Existing loops prematurely, • Structured programming, • Sequential files, • Error trapping									
iv	**Multiple forms, Dialogs, Debugging and EXEs:** • Objectives, introduction, • Savu loan analyzer, • Creating the interface, • The about dialog box form and its controls, • Setting properties, • The savu loan analyzer from and its controls, • Setting properties of the savu loan analyzer form and its controls, • Writing code, • Debugging applications • Menus, • Data controls, **Common dialogs, and general procedures:** • Introduction, • Database viewer, • Creating the interface, setting properties, • Writing code for..next loops and with statement, • Data control methods, • Mouse up event , • General procedures, • Calling subroutines form other procedures	4	2	2	-	4	2	-	-	14
vi	**Object-oriented programming:** • Structured and object oriented approaches, • Object oriented concepts, • object oriented programming, • Planning stages of class property, adding property procedure, • Creating object using new class, • Defining & using new objects	2	1	1	-	2	1	-	-	7
vii	**Database Management:** • Database concepts,	2	1	2	-	2	1	-	-	8

	• Creating a database -MS Access, • Creating database –MS SQL server, • The data control –MS Access, • The ADO data control –MS SQL Server, • Using code with data control, a sample application									
viii	**Integrated Visual basic with other Application:** • Introduction, • Integrating visual basic with excel, • Integrating visual basic with word, • Creating ole automation objects, • Activating visual basic C++ from visual basic, • Activating STATA form visual basic **Basic HTML:** • What is HTML, • HTML page layout, • Placing links in a HTML documents, other tags, • Forms, • Frames, • Tables	2	1	2	-	2	1	-	-	8
	VBScript: • What is VBScript, • Embedding VBScript code within HTML page, • Line continuation usage, • Creating variables, • Declaring variables explicitly, • Displaying variable values with VBScript, • Concatenating strings with VBScript , • Statements available for VBScript	2	1	2	-	2	1	-	-	8
	Active server pages : • What is ASP, • How ASP works, • Mechanisms of ASP, • Client-side and server side scripting	2	1	2	-	2	1	-	-	8

	• Differences between CGI, ISAPI & ASP, • How an ASP page Looks like, • Creating our first ASP page									
	Extensible Markup Language (XML): • What is XML, is XML same as HTML, • Comparison of XML & HTML, • Why XML, our first XML program, • Contents of XML documents, • Customized markup language, using XML with HTML	2	1	2	-	2	1	-	-	8
	Accessing internet with visual basic: • Adding web browser controls to visual basic, • Accessing the internet with visual basic **Creating ActiveX controls and distributing applications:** • Starting an activex control project, • Creating a user control interface, • Setting constituent control properties, • Writing user control event procedures and property procedures, • Saving, • Testing, and compiling activex controls, • Distributing, installing, and removing applications ActiveX documents	4	2	2	-	4	2	-	-	14
	Total	25	12	19	-	25	12	-	-	93

		Face to Face	Independent Learning
	Lecture	25	25
	Tutorial	12	12
	Practical	19	-
	Assignment (1500words)	-	10
	Quizzes	01	03
	Test	01	03
	Final Examination	03	09
	Total	61	62

	Credit Hour	123
17	Main Reference Supporting The Course: David I. Schneider,(2016) *An Introduction to Programming Using Visual Basic* , Pearson Education.	
	Additional references supporting the course Diane Zak,(2017)*Programming with Microsoft Visual Basic, Cengage Learning.*	

No	Information on Course
1	Name of the Course: Multimedia Management Skills
2	Course Code: DCM 23
3	Name(s) of Academic Staff: Mr.Azizul
4	Rationale for the inclusion of the course in the programme:

<table>
<tr><td></td><td colspan="10">The course will cover multimedia management system in Information Technology field.</td></tr>
<tr><td>5</td><td colspan="10">Semester and Year Offered: Semester 5 Year 2</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td colspan="4">Independent Learning</td><td rowspan="2">Total Guided and Independent Learning</td></tr>
<tr><td rowspan="2">L = Lecture
T = Tutorial
P = Practical
O = Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>30</td><td>15</td><td>-</td><td>5</td><td>30</td><td>15</td><td>-</td><td>25</td><td>120</td></tr>
<tr><td>7</td><td colspan="10">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="10">Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO1: Explain and assess a variety of multimedia tools in terms of functionality, usability and compatibility; (C2,C3,C5,C6,A3,A4, and P2)(PLO1)
CLO2: Discuss various standards used for digitally compressing, storing and transmitting multimedia file types and use research & communication skills in producing a report on emergent technologies(C2,A2)(PLO 8)
CLO3: Analyse staffing and resourcing requirements for multimedia projects(C4)(PLO 3)
CLO4: Propose a strategy for the production of a multimedia application (C6,A3,andA5)(PLO 7)</td></tr>
<tr><td>9</td><td colspan="10">Transferable Skills:
• Knowledge and Skills
• Critical Thinking Skills
• Teamwork Skills and Managerial and entrepreneurial skills
• Information management and life-long learning</td></tr>
<tr><td>10</td><td colspan="10">Teaching Learning Assessment Strategy:

<table><tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr><tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr><tr><td>Scientific Methods and Critical thinking</td><td>Tutorial</td><td>Assignment/Quiz</td></tr><tr><td>Information management and life-long learning</td><td>Tutorial</td><td>Assignment</td></tr><tr><td>Teamwork Skills</td><td>Group work</td><td>Project</td></tr></table></td></tr>
<tr><td>11</td><td colspan="10">Synopsis:
The following course will be dealt in a systematic way so that students will be able to understand easily
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>12</td><td colspan="10">Mode of Delivery:
Lecture, Tutorial.</td></tr>
<tr><td>13</td><td colspan="10">Assessment Methods and Types:

<table><tr><th>Type of Assessment</th><th>Assessment Method</th><th>Percentage</th></tr><tr><td rowspan="3">Written test</td><td>Test</td><td>20</td></tr><tr><td>Final Examination</td><td>60</td></tr><tr><td>Group Project</td><td>05</td></tr></table></td></tr>
</table>

	Assignment	Written Assignment (1500 words)	15	

14 Mapping of course to Programme Aims:

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2		√		
CLO 3			√	
CLO 4				√

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1	√								
CLO 2					√			√	
CLO 3			√						
CLO 4							√		

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction:** • Definition, CD-ROM, DVD, and the Multimedia, • Where to use Multimedia, • Introduction to making multimedia, • The stages of a project, • Hardware, software, • Creativity and organization **Multimedia skills:** • The team, • Project manager, • Multimedia designer, • Writer, video specialist, audio specialist, • Multimedia programmer, • Producer of multimedia for the web	4	2	-	-	4	2	-	-	12
ii	**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,	3	1	-	-	3	1	-	-	8

	• Html documents, symbols and icons, animating text, • Computer and text, font editing and design tools, hypermedia and hypertext									
iii	**Sound:** • The power of sound, • Multimedia system sounds, • Digital audio, • Making midi audio, • Audio file formats, • Midi versus digital audio, • Music cds, • Production Tips	3	1	-	-	3	1	-	-	8
iv	**Images:** • Making stills images, • Plan your approach, • Organize our tools, • Multiple monitors, • Bitmaps, vector drawing, • 3-D drawing and rendering, • Color, image file formats	2	1	-	-	2	1	-	-	6
v	**Animation:** • The power of motion, • Principles of animation, • Animation techniques, • Animation file formats, • Making animations that work	2	1	-	-	2	1	-	-	6
vi	**Video:** • Using video, • How video works, • Analog display standards, • NTSC, PAL, SECAM, ATSC DTV, • Digital display standard, • Digital video, • Video recording and text formats, • Shooting and editing video	2	1	-	-	2	1	-	-	6
vii	**Hardware:** • Macintosh versus windows, • Networking Macintosh and Windows, • Connections, • Memory and storage devices, • Input devices, • Output hardware and communication devices **Basic software tools:**	4	2	-	-	4	2	-	-	12

	• 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									
viii	**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	1	-	-	2	1	-	-	6
ix	**Designing for the World WideWeb:** • Working on the web, • Text for the web, • Images for the web, • Sound for the web, • Animation for the web	2	1	-	-	2	1	-	-	6
	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	3	1	-	-	3	1	-	-	8
	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	4	2	-	-	4	2	-	-	12

	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									
	Total	31	14	-	-	31	14	-	-	90
		Face to Face				Independent Learning				
	Lecture	31				31				
	Tutorial	14				14				
	Practical	-				-				
	Assignment (1500words)	-				10				
	Project	01				03				
	Test	01				03				
	Final Examination	03				09				
	Total	50				70				
	Credit Hour	120								
17	Main Reference Supporting The Course: Ranjan Parekh,(2015) "*Principles of Multimedia*", Tata McGraw-Hill Publishing Company Limited.									
	Additional references supporting the course John R. Smith,(2014),*Internet Multimedia Management Systems*, SPIE,									

No	Information on Course

1	Name of the Course: JAVA PROGRAMMING									
2	Course Code: DCM 228									
3	Name(s) of Academic Staff: Mr.Midhun									
4	Rationale for the inclusion of the course in the programme: This course aims to give students knowledge of the basic concepts of programming in an object-oriented language, practice in developing simple object-oriented programs.									
5	Semester and Year Offered: Semester 5 Year 2									
6	Student Learning Time (SLT)	Face to Face				Independent Learning				Total Guided and Independent Learning
	L = Lecture T = Tutorial P = Practical O = Others	L	T	P	O	L	T	P	O	120
		30	15	-	5	30	15	-	25	
7	Credit Value: 3									
8	Course Learning Outcomes: At the end of this course, the student should be able to: CLO1: Explain what an algorithm is and its importance in computer programming. . (C2,C5,C6,A3,A4)(PLO1) CLO2: Develop Primitive Data Types, Selection Statements, Loops, Methods, and Arrays and Their implementations in the Java Programming Language. (C3, A3 and P5) (PLO 2) CLO3: Analyse the software development life cycle. (C4)PLO 3) CLO4: Propose to working program utilizing methods and arrays. C6,A3,andA5)(PLO 7)									
9	Transferable Skills: Lecture ,Tutorial, Practical									
10	Teaching Learning Assessment Strategy:									

PLO	Teaching and Learning Activities	Type of Assessment
Knowledge	Lecture	Written Tests
Practical Skills	Practical	Lab Experiments
Scientific Methods and Critical thinking	Tutorial	Assignment
Information management and life-long learning	Tutorial	Assignment

11	Synopsis: This course aims to give students knowledge of the basic concepts of programming in an object-oriented language, practice in developing simple object-oriented programs.
12	Mode of Delivery: Lecture, Tutorial and Practical
13	Assessment Methods and Types:

Type of Assessment	Assessment Method	Percentage
Written test	Test	20
	Final Examination	60

		Classroom Preparation/Quiz	05	
	Assignment	Written Assignment (1500 words)	15	

14 Mapping of course to Programme Aims:

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2	√			
CLO 3		√		√
CLO 4				

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	P
CLO 1	√								
CLO 2		√							
CLO 3			√						
CLO 4							√		

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Introduction to Java Programming** • Introduction, • History of java, • Characteristic of java, • World wide web, • Java and beyond, • Java language specification, • Java development tools, • A simple java program creating, • Compiling, and executing a Java Program, • Displaying text in a message dialog box. • Primitive Data • Types Operations identifiers, • Variables, constants, • Numeric type conversions, • Character data types, • Boolean data type,	4	2	2	-	4	2	-	-	14

	• Operator precedence and associatively, • Input dialog, programming style and documentation, • Programming errors, • Debugging.									

ii	**Control Statements**
	• Selection statements,
	  • if-else, nested-if,
	  • switch,
	• loop statements,
	  • while loop,
	  • do while loop,
	  • for loop,
	  • Statements labels and breaking with label.
		2	1	2	-	2	1	-	-	8

iii	**Methods & input and output Method,** • Parameters, • Variables, • Math class, • Recursion, • Stream classes, • The file class, • Processing external files, • Filter streams, • Data streams, • Print streams, • Buffered streams, • File dialogue, • Object streams, • Random access files	2	1	2	-	2	1	-	-	8
iv	**Arrays** • Declaring array variables and creating array, • Initializing and processing arrays, • Passing arrays to methods, • Copying arrays, • Multidimensional array, • Searching arrays, • Sorting arrays	2	1	2	-	2	1	-	-	8
v	**Object-oriented Programming** • Defining classes for objects, • Creating objects, • Constructors, • Visibility modifiers and access or methods, • The scope of variables, • Array of objects, • Class abstraction.	5	3	2	-	5	3	-	-	18

	• Strings • The string class, the character class, • The string buffer class, • The string tokenize class, • Command- line arguments • Class inheritance and interfaces • Super classes and subclasses, • Overriding methods, • Object class, • The protected and final modifiers, • Abstract class, • Polymorphism, • Dynamic binding and generic programming, • casting object and the instance of operator, • Hiding fields and static methods, • Interfaces, inner class, initialization blocks									
vi	**Object-oriented software development** • The software development process, • Analyzing relationships among objects, • Class development, • Class design, • Processing primitive's types values as objects.	2	1	2	-	2	1	-	-	8
vii	**GUI programming** • Java GUI API, Frames, Layout Managers, • Using Panel as container drawing graphics in Panels, • The Colour Class, The Font and Font Metrics Classes, • Drawing geometric figures, event-driven programming. **Creating User Interfaces** • The Component and JComponent class, Buttons, label, text field, text area, combo boxes, lists, check boxes, radio buttons, borders, JOption Pane Dialogs, Menus,	6	3	2	-	6	3	-	-	20

	• Creating Multiple windows, Scrollbars, • Scroll Panes, tabbed panes. **Applets and advanced GUI** • The applet class, • The JApplet Class, • The HTML File and the <applet> Tag, • Passing Parameters to Applets, • Mouse Event, keyboard events, the Card Layout Manager, • The Grid Bag Layout Manager, • Using No Layout Manager									
viii	**Exception Handling** • Exception and exception types, • Understanding exception handling, • Re throwing exception, • The finally clause, • Caution when using exceptions, • Creating custom exception classes. **Multithreading** • Thread concepts, • Creating threads by extending the thread class, • Creating threads by implementing the runnable interface, • Thread controls and communications, • Thread state, • Thread groups, • Synchronization, • Creating threads for applets, • Using the Timer Class to control animation	3	1	2	-	3	1	-	-	10
	Total	26	13	16	-	26	13	-	-	94

		Face to Face	Independent Learning	
	Lecture	26	26	
	Tutorial	13	13	
	Practical	16	-	
	Assignment (1500words)	-	10	
	Quizzes	01	03	

	Test	01	03	
	Final Examination	03	09	
	Total	60	64	
	Credit Hour	124		
17	Main references supporting the course. Herbert Schildt,(2014) *Java: A Beginner's Guide.*			
	Additional references supporting the course. Barry Burd,(2014) *Beginning Programming with Java For Dummies.*			

<table>
<tr><td>1</td><td colspan="7">Name of Course/Module : 3D Modelling& Animation</td></tr>
<tr><td>2</td><td colspan="7">Course Code: DCM 232</td></tr>
<tr><td>3</td><td colspan="7">Name(s) of academic staff: Ms.Noorsyahliza</td></tr>
<tr><td>4</td><td colspan="7">Rationale for the inclusion of the course /module in the programme:
Students will be introduced to the fundamental principles underlying 3D MAX.
Topics include character generation, animation, and creating 3D environments.</td></tr>
<tr><td>5</td><td colspan="7">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>L= Lecture
T=Tutorial
P=Practical
O=Others
TSLT=Total student learning time</td><td>28</td><td></td><td>21</td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="7">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="7">Prerequisite: Virtual Reality and VRML (DCM 212)</td></tr>
<tr><td>9</td><td colspan="7">Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO1. State the different components and their respective roles in knowledge of 3D development. (C1,P2) (PLO 1)
CLO2. Propose efficient, Identify, formulate and provide creative, innovative and effective solution to 3d modeling problems. (C6,A3) (PLO 7)
CLO3. Design a comprehensive technical expertise in specific issues and requirements related to the field of 3D development. (P7) (PLO 8)</td></tr>
<tr><td>10</td><td colspan="7">Transferable Skills:
▪ Make informed decisions
▪ Write a substantial report
▪ Search for information
▪ Take responsibility for own learning and time management
▪ Work effectively in teams
▪ Communicate effectively using appropriate interpersonal
▪ Skills and using different media
▪ Self-study skills</td></tr>
<tr><td>11</td><td colspan="7">Teaching learning and assessment strategy
<table>
<tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr>
<tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr>
<tr><td>Scientific methods, critical thinking</td><td>Lecture
Tutorial</td><td>Written Tests</td></tr>
<tr><td>Ethics, Professionalism and humanities</td><td>Tutorial</td><td>Assignment</td></tr>
<tr><td>Social skills and responsibilities.</td><td>Tutorial</td><td>Assignment</td></tr>
</table></td></tr>
<tr><td>12</td><td colspan="7">Synopsis:
▪ Basic concept
▪ Max animation
▪ 3D Max interface
▪ Modelling
▪ Organic Poly Modelling
▪ Materials and Mapping
▪ Animation
▪ Character Studio and IK Animation
▪ Lighting
▪ Rendering</td></tr>
</table>

- Particles
- Dynamics

13 Mode of Delivery: Lecture, Tutorial, Practical Lab Sessions and Seminar.

14 Assessments Methods and Types:

Coursework	30%
Mid Semester	20%
Final Exam	50%
Total	100%

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

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2			√	
CLO 3				√
CLO 4		√		

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

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1	√			√					
CLO 2							√		
CLO 3								√	
CLO 4									√

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

No	Subject description	Face to face			ILT	Total
		Lectures	Tu orials	Practical		
1	**Basic concept** ▪ What Is CGI? ▪ CG Workflow ▪ CG Specialties ▪ Core Concepts ▪ Coordinate Systems ▪ Basic Animation Concepts ▪ Basic 3ds Max Terms and Concepts	2		1.5	3.5	7
2	**Max Animation** ▪ Getting Around in 3ds Max ▪ Project and File Management Workflow ▪ The 3ds Max Interface ▪ Jumping Headlong into Animation ▪ Setting Up the Hierarchy	2		1.5	3.5	7

	3	**The 3ds Max Interface** ▪ Managing Scene Objects	2		1.5	3.5	7
	4	**Modeling in 3ds Max: Part I** ▪ Planning Your Model ▪ Modeling Concepts ▪ Editable Poly Tools ▪ Modeling a Chest of Drawers ▪ Modeling a Hand	2		1.5	3.5	7
	5	**Midterm Examination**					
	6	**Modeling in 3ds Max: Part II** ▪ Setting Up the Scene ▪ The Editable Poly Tools ▪ Lofting the Barrel ▪ Lathing the Wheels ▪ Using Snapshot to Create the Tracks	2		1.5	3.5	7
	7	**Organic Poly Modeling** ▪ Setting Up the Scene ▪ Creating the Basic Form ▪ Adding Detail ▪ Final Touches	2		1.5	3.5	7
	8	**Materials and Mapping** ▪ Materials ▪ The Material Editor ▪ Mapping a Pool Ball ▪ Mapping, Just a Little Bit More ▪ Maps ▪ More Mapping Exercises ▪ Mapping Coordinates	2		1.5	3.5	7
	9	**Introduction to Animation** ▪ Hierarchy in Animation: The Mobile Redux ▪ Using Dummy Objects	2		1.5	3.5	7

	▪ Bouncing Ball ▪ Using the Track Editor–Curve Editor ▪ Track View ▪ Anticipation and Momentum in ▪ Knife Throwing					
10	**Character Studio and IK Animation** ▪ Character Animation ▪ Character Studio Workflow ▪ Creating a Biped ▪ Animating a Biped ▪ Associating a Biped to a Character ▪ Using Inverse Kinematics	2		1.5	3.5	7
11	**3ds Max Lighting** ▪ Basic Lighting Concepts ▪ Three-Point Lighting ▪ 3ds Max Lights ▪ Common Light Parameters ▪ Ambient Light ▪ Creating Shadows ▪ Atmospheres and Effects ▪ Light Lister	2		1.5	3.5	7
12	**3ds Max Rendering** ▪ Rendering Setup ▪ Motion Blur ▪ Previewing with ActiveShade ▪ Cameras ▪ Safe Frame ▪ Render Elements ▪ Rendering Effects ▪ Raytraced Reflections and Refractions	2		1.5	3.5	7
13	**Particles** ▪ Understanding Particle Systems ▪ Setting Up a Particle System ▪ Particle Systems	2		1.5	3.5	7

		and Space Warps					
	14	**Dynamics** ▪ Using Rigid Body Dynamics ▪ Using Soft Body Dynamics	2		1.5	3.5	7
	15	Assessment		6		16	22
		Total Contact Hours	28		21	65	
		Total Student Learning					120
		Total Credit Hours					3
18	Main references supporting the course: Nicholas Bernhardt Zeman(2014), Essential Skills for 3D Modelling, Rendering, and Animation, CRC Press.						
	Additional references supporting the course: Kelly L.Murdock,(2013), Autodesk 3ds Max 2014 Bible, John Wiley & Sons.						
19	Other Additional information: Nil						

<table>
<tr><td>1</td><td>Name of Course/Module : Multimedia Authoring</td></tr>
<tr><td>2</td><td>Course Code: DCM 233</td></tr>
<tr><td>3</td><td>Name(s) of academic staff: Mr.Azizul</td></tr>
<tr><td>4</td><td>Rationale for the inclusion of the course /module in the programme:
This course aims to further develop students' competency in producing dynamic and creative graphic solutions for on-line and off-line multimedia productions. It provides students the basic concepts and techniques of interactive authoring. Students will develop aesthetic value and competencies in multimedia authoring. Artistic visual style and layout design are stressed, as well as the editing and integration of graphic images, animation, video and audio files. The course allows students to master industry-wide software to create multimedia products for visual communication purposes.</td></tr>
<tr><td>5</td><td>Semester and Year offered: Year 2 semester 6</td></tr>
<tr><td>6</td><td>
<table>
<tr><td rowspan="2">Course Hours</td><td colspan="4">Face to Face</td><td rowspan="2">ILT</td><td rowspan="2">TSLT</td></tr>
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</table>
</td></tr>
<tr><td>7</td><td>Credit Value: 3</td></tr>
<tr><td>8</td><td>Prerequisite: Multimedia Management Skills (DCM 223)</td></tr>
<tr><td>9</td><td>Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO1: Explain and assess a variety of multimedia tools in terms of functionality, usability and
compatibility; (C2,C3,C5,C6,A3,A4, and P2)(PLO1)
CLO2: Discuss various standards used for digitally compressing, storing and transmitting multimedia
file types and use research & communication skills in producing a report on emergent
technologies(C2,A2)(PLO 8)
CLO3: Analyze staffing and resourcing requirements for multimedia projects(C4)(PLO 3)
CLO4: Propose a strategy for the production of a multimedia application (C6,A3,andA5)(PLO 7)</td></tr>
<tr><td>10</td><td>Transferable Skills:
▪ Make informed decisions
▪ Write a substantial report
▪ Search for information
▪ Take responsibility for own learning and time management
▪ Work effectively in teams
▪ Communicate effectively using appropriate interpersonal
▪ Skills and using different media
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</table>
</td></tr>
</table>

	Scientific Methods and Critical thinking	Tutorial	Assignment/Quiz
	Information management and life-long learning	Tutorial	Assignment
	Teamwork Skills	Group work	Project

12 Synopsis:

- Principle of multimedia production;
- Creative approach in multimedia production;
- Impact of multimedia technology on graphic designers;
- Basic Post-Production: Artistic use of linear and non-linear editing,
- Basic sound editing;
- Basic special effects; Virtual view; Interactive product demonstration.

13 Mode of Delivery: Lecture, Tutorial, Practical Lab Sessions and Seminar.

14 Assessments Methods and Types:

Coursework	20%
Tutorial/ Quiz	10%
Mid Semester	20%
Final Exam	50%
Total	100%

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

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2		√		
CLO 3			√	
CLO 4				√

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

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1	√								
CLO 2								√	
CLO 3			√						
CLO 4							√		

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

No	Subject description	Face to face			ILT	Total
		Lectures	Tu orials	Practical		
1	**Introduction to Multimedia Authoring** Basic concepts, terms and theory of multimedia authoring. Introduction to the multimedia design process.	2		1.5	3.5	7
2	**Introduce the Use and Role of Media Elements** Understand the different types of	2		1.5	3.5	7

		media elements such as graphics, text, animation, audio and video. Combining various media elements into an integrated whole.					
	3	**Overview of a Multimedia Authoring Software** Define various terminologies: stage, score, cast, spsrites, cast libraries, markers, media types, etc. Demonstration of multimedia authoring software.	2		1.5	3.5	7
	4	**Choosing the Right Multimedia Authoring Package** How to choose the right multimedia authoring software. What need to taken into considerations when choosing multimedia authoring software.	2		1.5	3.5	7
	5	**Midterm Examination**					
	6	**Researching and Sourcing for Materials** Understand what must be considered when designing information for a multimedia presentation. How to source for materials. The importance of research and conceptualization before developing a multimedia presentation. **Developing a Multimedia Presentation** Various techniques required in writing for a multimedia presentation.	2		1.5	3.5	7

		How to make presentation attractive.					
	7	**Storyboarding** a **Multimedia Presentation** Various storyboard formats. Storyboard information such as sketches of drawings of the screen, page, or frame; color, placement, and size of graphics; actual text; color, size and type of font; narration; arumation; video-, audio; audience interaction-, and other necessary information for production. How to storyboard a presentation.	2		1.5	3.5	7
	8	**Coding storyboard into Multimedia Package** Learn how to use multimedia authoring software to implement a storyboard. How storyboards are coded effectively into a package.	2		1.5	3.5	7
	9	**Product Evaluation** Understand the process and need for evaluation of the product and process. Improving, revising and updating a multimedia presentation.	2		1.5	3.5	7
	10	**Problems encountered in Developing a Multimedia Presentation** Understand various problems encountered in multimedia development. How to overcome these problems encountered in multimedia development.	2		1.5	3.5	7

	11	**Classes** Be made aware of important legal considerations - intellectual property, copyright, etc.	2		1.5	3.5	7
	12	**Working With Director 8 and Lingo – part I** Introducing Director: how Director works. The interface, Xternal resources, cast libraries. Working with graphics: paint window, basic painting techniques Working with stage, sprites and score: what's a sprite, keyframes and tweening, paint window and animation. Working with text: text window, placing text cast members in your movie, text field cast members. Using sound: sound basics, adding and editing sounds, managing sounds, working with sound xtras. Using digital video: working with digital video, adding digital videos to your movies, controlling video cast members, exporting digital video	2		1.5	3.5	7
	13	**Working With Director 8 and Lingo - part 11** Behaviors: using the behavior inspector, creating your own basic behaviors Fine Tuning and Outputting your movies'. changing the tempo, working with transitions, working with color, building projectors.	2		1.5	3.5	7

	14	**Working With Director 8 and Lingo – part III** Creating Interactive Presentation: designing an interface, layout the project, building the navigation-elements Designing a Production Process: determining scope of project, the creative process, work-flow consideration, understanding copyright issues Programming Fundamentals: using LINGO	2		1.5	3.5	7
	15	Assessment		6		16	22
		Total Contact Hours	28		21	65	
		Total Student Learning					120
		Total Credit Hours					3
18	Main references supporting the course: Vivi Lachs (2013) Making Multimedia in the Classroom by, Taylor and Francis.						
	Additional references supporting the course: Ze-Nian Li; Mark S. Drew (2014), Fundamentals of Multimedia Jiangchuan Liu,Springer.						
19	Other Additional information: Nil						

<table>
<tr><th>No</th><th>Information on Course</th></tr>
<tr><td>1</td><td>Name of the Course: : Multimedia Project</td></tr>
<tr><td>2</td><td>Course Code: DCM 313</td></tr>
<tr><td>3</td><td>Name(s) of academic staff: Mr.Azizul</td></tr>
<tr><td>4</td><td>Rationale for the inclusion of the course in the programme:
This course focuses on the use of authoring programs to create interactive multimedia applications. Significant time is spent on intermediate to advanced programming and scripting as well as the synchronization of aural and graphical components.

Students are required to plan, design and implement a major project and a final presentation is required.</td></tr>
<tr><td>5</td><td>Semester and Year Offered: 7 Semester 3 year</td></tr>
<tr><td>6</td><td>
<table>
<tr><td>Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td>Independent Learning</td><td>Total Guided and Independent Learning</td></tr>
<tr><td rowspan="2">L = Lecture
T = Tutorial
P = Practical
O = Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td>ILT</td><td rowspan="2">168</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>2</td><td>168</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>Credit Value:4</td></tr>
<tr><td>8</td><td>Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO1. Interpret the issues that must be addressed within the framework using an extensive literature survey. (C5, A5, PLO7)
CLO2. Evaluate the different technical and architectural solutions using software tools.(C5, PLO4)
CLO3. Present the conclusions of the findings in written and oral forms. (C6, P7, PLO5)
CLO4. Create quality research in Computer Science, with professional and ethical responsibility. (C6, P7, PLO8)</td></tr>
<tr><td>9</td><td>Transferable Skills:
Communication skills
Critical thinking and problem solving.
Information management and life-long learning
Moral, ethics and professionalism</td></tr>
<tr><td>10</td><td>Teaching Learning Assessment Strategy:
<table>
<tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr>
<tr><td>Knowledge</td><td>Self Study using Journals</td><td>Project Report</td></tr>
<tr><td>Critical Thinking and Problem Solving</td><td>Online reading materials</td><td>Simulations
Lab Experimentations</td></tr>
<tr><td>Ethics and Professionalism</td><td>Discussions</td><td>Report</td></tr>
<tr><td>Communication Skills</td><td>Group Discussions</td><td>Presentation</td></tr>
</table>
</td></tr>
<tr><td>11</td><td>Synopsis:
The project will be of an analytical, experimental, design or computational nature (or a combination of these), with significant elements of originality. Due to the individual nature of the projects, each student will have a different learning outcome for this course.</td></tr>
<tr><td>12</td><td>Mode of Delivery: Presentations and Discussions</td></tr>
<tr><td>13</td><td>Assessment Methods and Types:
<table>
<tr><th>Type of Assessment</th><th>Assessment Method</th><th>Percentage</th></tr>
<tr><td rowspan="2">Project Report</td><td>Written Report</td><td>80</td></tr>
<tr><td>Presentation</td><td>20</td></tr>
</table>
</td></tr>
<tr><td>14</td><td>Mapping of course to Programme Aims:</td></tr>
</table>

	PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
	CLO 1				
	CLO 2			√	
	CLO 3		√	√	
	CLO 4				√

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO / PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PL
CLO 1							√		
CLO 2				√					
CLO 3					√				
CLO 4								√	

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
I	Research Planning • Project specification • Identify and record a prioritized list of technical and non-technical requirements relevant to the chosen project type • Plan layout, installation, maintenance, product design. • Process of project selection • Formulate a plan of action, appraise the feasibility of the project and carry out a critical analysis of the outline specification, agree roles and allocate responsibilities, initiate a project log book.		-	-	-		-	-	15	15
II	Literature Review and Implementation of the project • Select option – simple comparison and decision making methods and techniques for generating solutions for the selection from alternatives should include the use of elements such as graphical display's, • Statistical data quality and resource requirements, process capability, fitness for purpose, costs, brainstorming, mind mapping.		-	-	-		-	-	25	25
III	Research Design & Methodology Implementation • Procedures • Formulate a plan of action.		-	-	-		-	-	40	40

	• Appraise the feasibility of the project and carry out a critical analysis of the outline specification. • Evaluation techniques – graphs, statistics, Gantt charts sequencing, scheduling, critical path methods, networking, simple application of Project Evaluation and Review Techniques									
IV	Data Analysis • Testing and Validation • Anova – Statistical Testing								40	40
V	Report Writing (10,000) words • Present – written report, log book record of all events, an oral presentation, use of sketches, charts, graphs, drawing and associated technical reports, use of CAD, DTP, spreadsheets, WP should form a necessary part of the presentation process wherever possible, presentation to know audiences (peer groups, tutors) and unknown audience (actual or simulated customer or client)		-	-	-		-	-	40	40
	TOTAL								160	160

		Face to Face	Independent Learning
	Project	0	160
	Result Presentation	1	3
	Viva	1	3
	Total Guided And Independent Learning	2	166
		168	
	Credit Hour	4	
17	Main references supporting the course: Christian, D. (2015). *Projects in Computing and Information Systems*: *A Student's Guide* (3rd ed.).		

<table>
<tr><td>1</td><td colspan="6">Name of Course/Module : Cyber Law</td></tr>
<tr><td>2</td><td colspan="6">Course Code: DCM 314</td></tr>
<tr><td>3</td><td colspan="6">Name(s) of academic staff: Ms.Noorsyahliza</td></tr>
<tr><td>4</td><td colspan="6">Rationale for the inclusion of the course /module in the programme:
To introduce legal issues and the ethical issues relevant to an online business</td></tr>
<tr><td>5</td><td colspan="6">Semester and Year offered: Year 3 semester 7</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
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O=Others
TSLT=Total student learning time</td><td>28</td><td>21</td><td></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">Course Learning Outcomes
At the end of this course, the student should be able to:
CLO1 Analyzes knowledge of understand the legal strategies used in accomplishing a business objective. (C4), (PLO 6)
CLO2 Create recognize the areas of law on Internet reform as part of the public debate. (C6,P7) (PLO 2).
CLO3 Create Function individually or in teams, effectively, with a capability to be a leader.(C6,P7) (PLO 4)
CLO4 Demonstrate the commit professionally, ethically and with humane responsibility. (C3,A3,P5) (PLO 9).</td></tr>
<tr><td>10</td><td colspan="6">Transferable Skills:
▪ Are capable in their chosen professional areas.
▪ Are adaptable and manage change.
▪ Operate effectively in work and community situations.
▪ Students are aware of environments.
▪ Skills and using different media</td></tr>
<tr><td>11</td><td colspan="6">Teaching learning and assessment strategy
<table>
<tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr>
<tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr>
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<tr><td>Scientific Methods and Critical thinking</td><td>Lecture, Tutorial</td><td>Written Tests</td></tr>
<tr><td>Social skills and Responsibilities.</td><td>Tutorial</td><td>Assignment</td></tr>
</table></td></tr>
<tr><td>12</td><td colspan="6">Synopsis:
▪ Telecommunications Environment
▪ Copyrights Issues in Cyberspace
▪ Trademarks and Domains
▪ Jurisdiction in Cyberspace
▪ Rights Management Information
▪ Criminal liability
▪ Export Control/ Cryptography
▪ Privacy and Anonymity
▪ Torts and Crime in space
▪ Web Marketing and E-commerce Issues
▪ Additional Issues
▪ Governance in Cyberspace</td></tr>
</table>

	Cyber Law in Malaysia
13	Mode of Delivery: Lecture, Tutorial, Practical Lab Sessions and Seminar.
14	Assessments Methods and Types:

Coursework	20%
Tutorial/ Quiz	10%
Mid Semester	20%
Final Exam	50%
Total	100%

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

PEO / CLO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1				√
CLO 2				√
CLO 3			√	
CLO 4		√		

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

PLO / CLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1						√			
CLO 2		√							
CLO 3				√					
CLO 4									√

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

No	Subject description	Face to face			ILT	Total
		Lectures	Tu orials	Practical		
1	**Telecommunications Environment** ▪ New transport technologies ▪ Legal changes ▪ Telecommunications Act of 1986 ▪ World Trade Organization Agreements 1997 ▪ International Telecommunications equipment market ▪ Universal service fund support of Internet Connections	2	1.5		3.5	7
2	**Copyrights Issues in Cyberspace** ▪ Copyright on Internet ▪ Temporary copies ▪ Digital transmission ▪ Moral/fair use rights ▪ Linking and framing ▪ Beyond copyright ▪ Globalization of copyright	2	1.5		3.5	7

	3	**Trademarks and Domains** ▪ Domain names ▪ Trademarks ▪ International coordination versus Sovereignty ▪ Domain name policy issues	2	1.5		3.5	7
	4	**Jurisdiction in Cyberspace** ▪ Introduction and issues ▪ Purposeful availment	2	1.5		3.5	7
	5	**Midterm Examination**					
	6	**Rights Management Information** ▪ Technical Protection Systems ▪ Digital objects identifiers ▪ Watermarking ▪ Blanket licensing	2	1.5		3.5	7
	7	**Criminal liability** ▪ Computer fraud and abuse act ▪ Wire fraud ▪ Electronic communications privacy act ▪ Extortion and threats ▪ Sexual exploitation of children ▪ Obscene and indecency ▪ stalking	2	1.5		3.5	7
	8	**Export Control/ Cryptography** ▪ Crypto-anarchy ▪ Technical aspects of Encryption and digital signatures ▪ The Legal Policy Battle Over Encryption ▪ Legal challenges to export controls ▪ Legal policy-Technical Debates ▪ Key Escrow/ Certificate Authorize	2	1.5		3.5	7
	9	**Privacy and Anonymity** ▪ Data protection	2	1.5		3.5	7

	▪ Informational policy ▪ Surveillance ▪ E-mail statutory protection					
10	**Torts and Crime in space** ▪ Spam ▪ Terrorism ▪ Injurious speech ▪ Money laundering ▪ Fraud ▪ Identity theft ▪ stalking	2	1.5		3.5	7
11	**Web Marketing and E-commerce Issues** ▪ Business models for the Internet and new media ▪ Domain names ▪ Privacy policies and procedures ▪ e-commerce law ▪ linking	2	1.5		3.5	7
12	**Additional Issues** ▪ Union Issues ▪ The Law of e-mail ▪ Other legal issues ▪ Service provider liability ▪ Protecting your intellectual property right	2	1.5		3.5	7
13	**Governance in Cyberspace** ▪ Cyberspace and the future of governance ▪ Dispute resolution	2	1.5		3.5	7
14	**Cyber Law in Malaysia** ▪ Communications and Multimedia Act 1998 ▪ Malaysia Communications and Multimedia Commission Act 1998 ▪ Communications and Multimedia Consumer Forum in Malaysia ▪ Communications and Multimedia Content Forum of Malaysia ▪ Computer Crimes & Security: Computer Crimes Act 1997 ▪ MyCert Digital Signature: DigiCert ▪ MSC Trustgate ▪ Domain name: MYNIC ▪ Electronic Commerce ▪ Electronic government ▪ Intellectual Property: Copyright (Amendment) Act 1997 ▪ Telemedicine: Telemedicine Act 1997	2	1.5		3.5	7
15	Assessment			6	16	22
	Total Contact Hours	28	21		65	
	Total Student Learning					120

		Total Credit Hours					3
18	Main references supporting the course: Scott J. Shackelford (2014) Managing Cyber Attacks in International Law, Business, and Relations Cambridge University Press.						
	Additional references supporting the course: Michael N. Schmitt Tallinn (2013) Manual on the International Law Applicable to Cyber Warfare, Cambridge University Press.						
19	Other Additional information: Nil						

<table>
<tr><td>1</td><td colspan="7">Name of Course/Module : Introduction to Cyberpreneurship</td></tr>
<tr><td>2</td><td colspan="7">Course Code: DCM 318</td></tr>
<tr><td>3</td><td colspan="7">Name(s) of academic staff: Ms.Noorsyahliza</td></tr>
<tr><td>4</td><td colspan="7">Rationale for the inclusion of the course /module in the programme:
To introduce basic cyberpreneurship concepts to students</td></tr>
<tr><td>5</td><td colspan="7">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
TSLT=Total student learning time</td><td>28</td><td>21</td><td></td><td>6</td><td>65</td><td>120</td></tr>
<tr><td>7</td><td colspan="7">Credit Value: 3</td></tr>
<tr><td>8</td><td colspan="7">Prerequisite: None</td></tr>
<tr><td>9</td><td colspan="7">At the end of this course, the student should be able to:
CLO1 Analyzes knowledge of understand the legal strategies used in accomplishing a business objective. (C4), (PLO 6)
CLO2 Create recognize the areas of law on Internet reform as part of the public debate. (C6,P7) (PLO 2).
CLO3 Create Function individually or in teams, effectively, with a capability to be a leader.(C6,P7) (PLO 4)
CLO4 Demonstrate the commit professionally, ethically and with humane responsibility. (C3,A3,P5) (PLO9).</td></tr>
<tr><td>10</td><td colspan="7">Transferable Skills:
▪ Are capable in their chosen professional areas.
▪ Are adaptable and manage change.
▪ Operate effectively in work and community situations.
▪ Students are aware of environments.
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<tr><td>Scientific Methods and Critical thinking</td><td>Lecture, Tutorial</td><td>Written Tests</td></tr>
<tr><td>Social skills and Responsibilities.</td><td>Tutorial</td><td>Assignment</td></tr>
</table></td></tr>
<tr><td>12</td><td colspan="7">Synopsis:
▪ Creativity and innovation and their Commercialization
▪ Establishing New Venture
▪ The Business Plan Development
▪ Financing Business
▪ Marketing Products
▪ Entrepreneurship Case Studies
▪ E-business trends
▪ E-Business patterns
▪ E-business design</td></tr>
<tr><td>13</td><td colspan="7">Mode of Delivery: Lecture, Tutorial, Practical Lab Sessions and Seminar.</td></tr>
</table>

14 Assessments Methods and Types:

Coursework	20%
Tutorial/ Quiz	10%
Mid Semester	20%
Final Exam	50%
Total	100%

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

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1				√
CLO 2				√
CLO 3			√	
CLO 4		√		

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

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CLO 1						√			
CLO 2		√							
CLO 3				√					
CLO 4									√

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

No	Subject description	Face to face			ILT	Total
		Lectures	Tu orials	Practical		
1	**Creativity and innovation and their Commercialization** What is creativity? What is innovation? Example of creativity that leads to innovation. The commercialization of creative and innovative ideas. Trends in technology development. IP and innovation	2	1.5		3.5	7
2	**Evaluating opportunity and developing the business concept** Developing start-up strategies Evaluation techniques	2	1.5		3.5	7
3	**Entrepreneurshp: An Overview** Management and Ownership Characteristics Planning/Strategic planning and strategic management Site selection and	2	1.5		3.5	7

	layout					
4	**Establishing New Venture** Opportunities for Entrepreneurship, Products Identification in various fields, Risk Management.	2	1.5		3.5	7
5	**Midterm Examination**					
6	**Assessing and Acquiring Resources** Attracting stakeholders Bootstrap finance Deal structure Securities law Legal protection of intellectual property	2	1.5		3.5	7
7	**Acquiring an Existing Business** Purchasing a business: the search process, LBO's: Using the 'Search Fund' model	2	1.5		3.5	7
8	**Financing Business** • Sources of Debt Financing, Sources of Equity Financing Financial Controls	2	1.5		3.5	7
9	**Marketing Products** Creating the Marketing Plan, Pricing for Profit, Creative Advertising and Promotion.	2	1.5		3.5	7
10	**E-business trends** Trends driving E-business Customer oriented trends E-service trends Organizational trends Employee mega trend	2	1.5		3.5	7
11	**Digitizing the Business: E-business patterns** The structured foundation e-channel pattern click to brick pattern e-portal e-market e-digital products	2	1.5		3.5	7
12	**E-Business Design** The race to create novel e-business design, self diagnosis, reverse value chain, choose a focus	2	1.5		3.5	7
13	**Entrepreneurship Case Studies**	2	1.5		3.5	7

		Overview and analysis of successful entrepreneurs such as Bill Gates of Microsoft, Michael Dell of Dell, David Filo and Jerry Yang of Yahoo, etc.					
	14	**Malaysian Entrepreneurship** Discussion of Malaysian business environment, and illustrated with successful Malaysian entrpreneurs.	2	1.5		3.5	7
	15	Assessment			6	16	22
		Total Contact Hours	28	21		65	
		Total Student Learning					120
		Total Credit Hours					3
18	Main references supporting the course: CTI Reviews (2016), New Venture Creation, An Innovator's Guide to Entrepreneurship, Cram101 Textbook Reviews.						
	Additional references supporting the course: W.Janes Potter (2015), Introduction to Media Literacy, SAGE Publications.						
19	Other Additional information: Nil						

No	Information on Course
1	Name of the Course: Game Design
2	Course Code: DCM 312

<table>
<tr><td>3</td><td colspan="10">Name(s) of Academic Staff: Ms.Noorsyahliza</td></tr>
<tr><td>4</td><td colspan="10">Rationale for the inclusion of the course in the programme:
This module is an introduction to the critical and practical issues of understanding, creating, and critiquing games. It is designed to give students an insight into the game design and development process as well as experience applying theoretical knowledge to a practical exercise in game development.</td></tr>
<tr><td>5</td><td colspan="10">Semester and Year Offered: Semester 7 Year 3</td></tr>
<tr><td rowspan="3">6</td><td rowspan="2">Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td colspan="4">Independent Learning</td><td rowspan="2">Total Guided and Independent Learning</td></tr>
<tr><td>L = Lecture
T = Tutorial
P = Practical
O = Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td>L</td><td>T</td><td>P</td><td>O</td></tr>
<tr><td>26</td><td>13</td><td>13</td><td>5</td><td>26</td><td>13</td><td>-</td><td>25</td><td>121</td></tr>
<tr><td>7</td><td colspan="10">Credit Value:3</td></tr>
<tr><td>8</td><td colspan="10">Course Learning Outcomes:
At the end of this course, the student should be able to:
CLO1: Explain State the different components and their respective roles in knowledge of Game development. (C2,C5,C6,A3,A4, and P2)(PLO1)
CLO2: Create a comprehensive technical expertise in specific issues and requirements related to the field of Game development. (C6,P7)(PLO2)
CLO3: Propose efficient, Identify, formulate and provide creative, innovative and effective solution to Game development problems. (C6,A3and A5) (PLO 7)
CLO4: Analyze the Techniques and aids for the through testing of game, design And Performance(C4 and PLO3)</td></tr>
<tr><td>9</td><td colspan="10">Transferable Skills:
• Knowledge and Entrepreneurship and Managerial skills
• Scientific methods, critical thinking and problem solving skills</td></tr>
<tr><td>10</td><td colspan="10">Teaching Learning Assessment Strategy:
<table>
<tr><th>PLO</th><th>Teaching and Learning Activities</th><th>Type of Assessment</th></tr>
<tr><td>Knowledge</td><td>Lecture</td><td>Written Tests</td></tr>
<tr><td>Practical Skills</td><td>Practical</td><td>Lab Experiments</td></tr>
<tr><td>Entrepreneurship and Managerial skills</td><td>Tutorial</td><td>Assignment</td></tr>
<tr><td>Information management and life-long learning</td><td>Tutorial</td><td>Assignment</td></tr>
<tr><td>Scientific methods, critical thinking and problem solving skills</td><td>Tutorial</td><td>Assignment</td></tr>
</table></td></tr>
<tr><td>11</td><td colspan="10">Synopsis:
This course is a combination of fundamental computer principle and basic computer programming. This is a basic course which would cover various aspects of fundamental principles of basic computer and information principle program development.</td></tr>
<tr><td>12</td><td colspan="10">Mode of Delivery: Lecture, Tutorial, Practical.</td></tr>
<tr><td>13</td><td colspan="10">Assessment Methods and Types:
<table>
<tr><th>Type of Assessment</th><th>Assessment Method</th><th>Percentage</th></tr>
<tr><td rowspan="3">Written test</td><td>Test</td><td>20</td></tr>
<tr><td>Final Examination</td><td>60</td></tr>
<tr><td>Classroom Preparation/Quiz</td><td>05</td></tr>
</table></td></tr>
</table>

	Assignment	Written Assignment (1500 words)	15

14 Mapping of course to Programme Aims:

CLO \ PEO	PEO 1	PEO 2	PEO 3	PEO 4
CLO 1	√			
CLO 2	√			
CLO 3				√
CLO 4			√	

15 Mapping of course to Programme Learning Outcomes (PLO):

CLO \ PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PL 9
CLO 1	√								
CLO 2		√							
CLO 3							√		
CLO 4			√			√			

16 Content outline of the course and the SLT per topic::

	Content	Face to Face				Independent Learning				TLT
		L	T	P	O	L	T	P	O	
i	**Overview of games design** **Games Discipline** **Games Production** ▪ People management and collaborative development ▪ Budgeting a development project ▪ The Game Development Lifecycle **Design and development documentation** ▪ Why document? Design and Development Documents	6	3	3	-	6	3	-	-	21
ii	**Narrative Development** ▪ Premise ▪ Characters ▪ Story ▪ Conflict ▪ Dramatic Arc ▪ Storytelling Contexts in Games ▪ Problems and Issues	4	2	2	-	4	2	-	-	14
iii	**Interactivity I** **What is a game?** ▪ System ▪ Players ▪ Artificial ▪ Conflict ▪ Rules	4	2	2	-	4	2	-	-	14

	▪ Quantifiable outcome **Interactivity II** **Levels** ▪ Level Separation ▪ Level Order ▪ Components of a Level ▪ Level Flow ▪ Good Levels ▪ Process of Level Design									
iv	**Rules and Systems of Game play** **What is game play?** ▪ Formal Elements ▪ Game play in different ▪ Genres Teaching the player **Interactivity III** **Your Design Language Dictionary** ▪ Visual Digital Assets ▪ Audio Digital Assets	4	2	2	-	4	2	-	-	14
v	**Games Design** **What Is AI** ▪ AI in Academia ▪ AI in Games ▪ AI in Never winter Nights **Prototyping** ▪ Foundation ▪ Structure ▪ Formal details ▪ Refinement ▪ Balance	4	2	2	-	4	2	-	-	14
vi	**Testing** ▪ Play testing • Play testers • Play testing Script • Methods of Play testing • Play testing Phases **Character Behaviors That Depend on Seeing the Player** ▪ Seeing the player ▪ Seeing in Game maker **Economics of Virtual World** **Governance of Virtual Worlds**	4	2	2	-	4	2	-	-	14
	Total	26	13	13	-	26	13	-	-	91
		Face to Face				Independent Learning				

	Lecture	26	26	
	Tutorial	13	13	
	Practical	13	-	
	Assignment (1500words)	-	10	
	Quizzes	01	03	
	Test	01	03	
	Final Examination	03	09	
	Total	57	64	
		121		
	Credit Hour	3		
17	Main Reference Supporting The Course: 1. V. Rajaraman, (2015) *Fundamentals of Computers* (6 th Ed) Vneeharika adabala publisher.			
	Additional references supporting the course: 2. David A. Patterson and John L. Hennessy(2014) *Computer Organization Design (4th Ed),* Publisher: Morgan Kaufmann.			

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 Computer and Multimedia of LUC has started and IT Society named as Lincoln IT society (LITS), through which regular workshops, Seminars have been conducted to enrich the knowledge and scientific skill of the students by taking part and organising the events.

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 Computer Science and Multimedia 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 department for further action. This indicator will help the department 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 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 Departments (HOD) 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 School/Departments 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, help and guide the student, 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 department or school.

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 that will provide a suitable environment where the scholarly and creative aspects can be fostered.

At first is the delivery process of the academic programmes by the quality of the academic staff. LUC has a well-managed human resource department for recruitment of staff, and ensures the best available teaching staff. 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 academic staff and quality 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 conducted workshop on OBE (Observation Based Learning) for the academic staffs.
- LUC provided ebrary facility for all staff and student members, by which the students can avail facility to explore a number of books.
- Constructed a Digital English Language Laboratory in 2011,
- Introduced 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 fulfil 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 department also takes feedback from their industry training partners for curriculum review. 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 with the students' parents, student's council, external examiners, and external supervisors. Besides receiving reports from the external stakeholders university college staff shall conduct interviews along 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 for 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 Multimedia and to assume pioneering role in the creation of Multimedia technology infrastructure within the country.