

KDU PENANG UNIVERSITY COLLEGE
32 Anson Road
10400 George Town
Penang

DIPLOMA IN COMPUTER STUDIES



Semester	Code	Subject/s	Credit	Classification	Hours
Diploma in Computer Studies					
Semester 1	DOP1254	Fundamentals of Object Oriented Programming	4	Core	Cloud Computing
	DCL1274	Cloud Computing	4	Core	Bahasa Melayu Komunikasi 2
	MPU2163/	Pengetahuan Malaysia 2	3 /	Compulsory / Specialization	MPU2133/
Semester 2	DCM1124	Computing Mathematics	4	Core	Object Oriented System Analysis and Design
	DNS1244	Networking and Operating System	4	Core	User Interface Design
	DSD1144	DB Programming	4	Core	Ethics and Moral 2
Semester 3	DVB1134	VB Programming	4	Specialization	Database System
	DMA1234	Multimedia Authoring	4	Core	Data Structures and Algorithms
	DDA1224	DDA1224	4	Specialization	Holistic and Personal Development
Semester 4	DDP2033	Personal Development and Leadership Skills	3	Compulsory	Java Programming
	DJP2264	Java Programming	4	Core	Oral Communication
	MPU2283/	MPU2283/	3 /	Compulsory / Core	Bahasa Kebangsaan A
Semester 5	DCR2284	Creative Computing	4	Specialization	Mobile Technology
	DMT22114	DMT22114	4	Core	Intermediate Technology and Application
	DIT2154	DIT2154	4	Core	Fundamentals of Security in Ethical Hacking
Semester 6	DIS2046	Internship	6	Core	System Administration and Management
	DIT22104	DIT22104	4	Core	Specialization
Semester 7	DTP3033	Technopreneurship	3	Compulsory	Project
	DP3054	DP3054	4	Core	Core

1.	Name of Course/Module	Fundamentals of Object Oriented Programming
2.	Course Code	DOPI254
3.	Name(s) of academic staff	Asvini a/p Subramaniam
4.	Rationale for the inclusion of the course/module in the programme	This is a specialization module that provides specialist knowledge, competencies and skills necessary to complete the programme.
5.	Semester and Year offered	Semester 1 / Year 1
6.	Total Student Learning Time (SLT)	Face to Face Total Guided and Independent Learning
L = Lecture T = Tutorial P = Practical O = Others	28 14 0 $28+14+118=160$	4
7.	Credit Value	By the end of this course, students will be able to: 1. Express an algorithm using flow chart and pseudo code. 2. Apply modularization and array in programming. 3. Explain the concepts of object oriented program. 4. Apply object oriented programming concepts in software development. 5. Write object oriented programs in C++ programming language.
8.	Prerequisite (if any)	None
9.	Learning outcomes	By the end of this course, students will be able to: 1. Develop skills using C++ programming language. They will be able to use and apply the basic programming constructs and objects from various fields ranging from scientific to scientific field.
10.	Transferable Skills	Students would be able to develop practical programming skills using C++ programming language. They will be able to use and apply the basic programming constructs and objects from various fields ranging from scientific to scientific field.
11.	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, exercises, practical labs, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.
12.	Synopsis	This course introduces C++ language, Object-Oriented

13.	Mode of delivery	Lecture and practical		
14.	Assessment Methods and Types	Courseswork 40% Midterm Exams 20% Final Exams 40%		
15.	Mapping of the course/module to the Programme Aims	Refer to matrix on area 1.2.2		
16.	Mapping of the course/module to the Programme Learning Outcomes	Refer to matrix on area 1.2.2		
17.	Content outline of the course/module and the SLT per topic			
	Topics	SLT (hours)		
	Lecture / Practical	Independent Learning Time		
1.	Introduction to Programming	2/1	8	
2.	Basics data types and their representation	4/2	16	
3.	Control Statements	6/3	27	
4.	Functions	2/1	8	
5.	Arrays	4/2	16	
7.	Object Oriented Programming	10/5	43	

19.	Other additional information	N/A	
	Additional references supporting the course	<ul style="list-style-type: none"> • Joyce, F. 2009. <i>Object Oriented Programming Using C++</i>, Course Technology, 4th Ed. • Malik, D.S. 2009. <i>C++ Programming : From Problem Analysis to Program Design</i>, Thomson Course Technology, 4th Ed. 	

1.	Name of Course/Module	Cloud Computing	Course/module in the programme	This is course provides the necessary foundation to complete the programme.
2.	Course Code	DCL1274	Name(s) of academic staff	Ng Fong Chiu
3.	Role(s) of academic staff	Ng Fong Chiu	Semester and Year offered	Semester 1 / Year 1
4.	Rationale for the inclusion of the course/module in the programme	This course equips students with the concept, shared computing services, layers and services related to cloud computing.	Total Student Learning Time (SLT)	Total Guided and Independent Learning
5.	Semester and Year offered	Face to Face	Face to Face	28+14+118=160
6.	Total Student Learning Time (SLT)	28	T	14
7.	Credit Value	4	P	0
8.	Prerequisite (if any)	None	L = Lecture	O = Others
9.	Learning outcomes	By the end of this course, students will be able to:	T = Tutorial	P = Practical
10.	Transferable Skills	1. Explain what cloud computing is. 2. Identify the various types of shared computing services. 3. Explain the fundamental cloud computing architecture that includes application, platform, and infrastructure. 4. Recognise and evaluate the cloud computing services.	Students would be able to develop written and interpersonal communication, team work and leadership, problem solving, planning and organizational skills, through a process of lectures, tutorials, exercises, role-plays, pair and group activities, using authentic materials, informal activities and work, various textbooks.	Interpersonal communication, team work and leadership, problem solving, planning and organizational skills, through a process of lectures, tutorials and workshops.
11.	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, tutorials, exercises, role-plays, pair and group activities, using authentic materials, informal activities and work, various textbooks.	Assessment Strategies	Formative and summative.
12.	Synopsis	This course covers cloud computing concept as delivery of shared computing services, the fundamental architecture and cloud computing services.	Mode of delivery	Lecture and practical with variety in methodology and activities.
13.		This course covers cloud computing concept as delivery of shared computing services, the fundamental architecture and cloud computing services.	Assessment Methods and Types	Courseswork (30%) Midterm Examination (20%) Final Examination (50%)
14.		Refer to matrix on area 1.2.2	Programme Aims	Mapping of the course/module to the
15.				

16.	Mapping of the course/module to the Programme Learning Outcomes	Refer to matrix on area 1.2.2	Content outline of the course/module and the SLT per topic
17.	Topics	SLT (hours)	Lecture / Practical Independent Learning Time
1.	Introduction to Cloud Computing	6/3	What is cloud computing? History and evolution Types of cloud computing applications Shared computing services Why developing web-based application
2.	Developing Cloud Services	4/2	The pros and cons of cloud services Development Discovering cloud services, development Types of cloud service development The cloud infrastructure
3.	Layers in Cloud Computing	2/1	Cloud computing for everyone Cloud computing for the family Cloud computing for the community Cloud computing for the corporation Using Cloud Services
4.	Cloud Computing for Everyone	18	task management Collaborating on event management Collaborating on contact management Collaborating on project management Collaborating on word processing Collaborating on spreadsheet Collaborating on presentation online
5.	Using Cloud Services	8/4	Online Content Storing and Sharing Files and Other
6.	Exploring online bookmarking services	2/1	Undersstanding cloud storage Evaluating online file storage and sharing Online Content

7. Outside the Cloud: Other Ways To	2/1	8
Collaborate Online tools		Collaborating web-based communication
• Collaborating via social networks and groupware		• Collaborating via blogs and wikis
18. Main references supporting the course	• Miller, M., (2009), Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing.	Additional references supporting the course
19. Other additional information	N/A	

1.	Name of Course/Module	Object Oriented Systems Analysis and Design
2.	Course Code	DSA1214
3.	Name(s) of Academic staff	Justina John
4.	Rationale for the inclusion of the course/module in the programme	This is a specialization module that provides specialist knowledge, competencies and skills necessary to complete the programme.
5.	Semester and Year offered	Semester 2 / Year 1
6.	Total Student Learning Time (SLT)	Face to Face
		Total Guided and Independent Learning
	L = Lecture T = Tutorial P = Practical O = Others	30 12 0 $30+12+118=160$
7.	Credit Value	4
8.	Prerequisite (if any)	DCL1274 Cloud Computing OR DGM1214 Games Mechanics
9.	Learning outcomes	By the end of this course, students will be able to: 1. Describe various techniques of System Development Life Cycle (SDLC) methodologies. 2. Draw and interpret various UML analysis and design diagrams; including Use Case diagram, Use Case description, Activity diagram, Class Diagram, Sequence Diagram, Communication diagram, Statechart Diagram. 3. Describe the roles and responsibilities of System Analyst.
10.	Transferable Skills	Students would be able to develop written and interpersonal communication, team work and leadership, problem solving, planning and organizational skills, through a process of formal lectures, lab sessions, exercises, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.
11.	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures and lab session.
12.	Synopses	This module addresses object oriented analysis and design using UML. Students are taught to capture requirements using UML. This module addresses object oriented analysis and design using UML. Students are taught to capture requirements using UML. They are also taught to design a system using Class and Collaboration diagrams.
13.	Mode of delivery	Leisure and practical
14.	Assessment Methods and Types	Courseswork 30% Mid-Term Exam 20%

15.	Mapping of the course/module to the Programme Aims	Final Exam	50%
16.	Mapping of the course/module to the Programme Learning Outcomes	Refer to matrix on area 1.2.2	Refer to matrix on area 1.2.2
17.	Content outline of the course/module and the SLT per topic	Topics	SLT (hours)
1.	Introduction to SD methods, modeling and Object Orientation	Lecture / Practical	Independent Learning Time
2.	Planning Phase	6/0	16
3.	Analysis Phase	6/0	16
4.	UML and Class Modeling	2/1	14
5.	Use Case Modeling	2/4	16
6.	Class Diagrams	4/2	16
7.	Object Collaboration	2/4	16
8.	Transition	2/1	8

18.	<ul style="list-style-type: none"> • Main references supporting the course • Dennis, A., Wiwom, B.H., & Tegarden, D. (2010). System Analysis & Design with UML Version 2.0:- An Object Oriented Approach. 3rd ed, John Wiley & Sons, Inc 	<p>Additional references supporting the course</p> <ul style="list-style-type: none"> • Bennet, S., (2005). Object-Oriented Systems Analysis and Design Using UML, McGraw-Hill, 5nd Ed • Bruegge (2009), Object-Oriented Software Engineering, Prentice Hall, 3rd Ed • Hoffer, J. (2007), Modern Systems Analysis And Design, Prentice Hall, 5th Ed • Maciaszek, L. (2005), Requirements Analysis and System Design: Developing Information Systems with UML, Addison Wesley
19.		Other additional information

1.	Name of Course/Module	Networking and Operating System	Course/module in the programme	This is a specialization module that provides specialist knowledge, competencies and skills necessary to complete the course/module for the inclusion of the academic staff	Name(s) of academic staff	Ooi Beng Chong
2.	Course Code	DNS1244				
3.	Rationale for the inclusion of the course/module in the programme					
4.	Specialist knowledge, competencies and skills necessary to complete the course/module for the inclusion of the academic staff					
5.	Semester and Year offered	Face to Face	Total Guided and Independent Learning	By the end of this course, students will be able to:	Learning outcomes	9.
6.	Total Student Learning Time (SLT)			1. Explain the fundamental concepts underlying operating works.	1. Explain the fundamental concepts of data communications & computer networks and various communication protocols.	
7.	Credit Value			2. Discuss network configuration and how the internet works.	2. Discuss network configuration and how the internet works.	
8.	Prerequisite (if any)	DC11274 Cloud Computing OR	DGM12114 Games Mechanics	3. Explain the fundamental concepts underlying operating systems, their roles and services in computer systems.	3. Explain the fundamental concepts underlying operating systems, their roles and services in computer systems.	
9.	Learning outcomes			4. Apply Linux shell commands to manipulate, navigate, and organize a file system.	4. Apply Linux shell commands to manipulate, navigate, and organize a file system.	
10.	Transferable Skills			Students would be able to develop practical skills and knowledge, problem solving, planning and organizational skills, through a process of lectures and lab practicals.	Teaching-learning and assessment strategies	11.
11.	Teaching-learning and assessment strategy			The course will be taught through a combination of formal lectures, lab practicals, exercises, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.	Assessment Strategies	
12.	Synopsis			This subject will give students a broad but solid foundation of data communication concepts and devices, data communication connectivity and the networking system. The module also covers the understanding of the functions of operating systems and the design of modern operating systems.		

13.	Mode of delivery	Lecture and practical	systems.
14.	Assessment Methods and Types	Courseswork 30% Mid-term Exam 20% Final Exam 50%	Programme Aims Mapping of the course/module to the Refer to matrix on area 1.2.2
15.	Programme Aims	Programme Learning Outcomes Mapping of the course/module to the Refer to matrix on area 1.2.2	Content outline of the course/module and the SLT per topic SLT (hours)
17.	Linux OS 1	Lecture / Practical Independent Learning Time	Linux OS 1 Discover Linux shell environment Apply basic commands Discover Linux shell environment
1.	Linux OS 2	2/4 10	Linux OS 2 Apply file manipulation commands Construct directives Editor Use visual mode Apply command mode
3.	VI Editor	2/4 8	Operating System Structures Describe operating system components Discuss operating system services Explain processes concepts Memory management Explain alternative scheduling algorithms Discuss process management Explain segmentation File System implementation Explain free block management Discuss allocation strategies Implement deadlock avoidance Review deadlock prevention, Imper deadlocks Deadlock 8.
6.	Memory Management	2/0 8	Explain page replacement algorithm Illustrate virtual memory organisation Discuss segmentation File System implementation Explain free block management Discuss allocation strategies Implement deadlock avoidance Review deadlock prevention, Imper deadlocks Deadlock 8.
7.	File System Implementation	2/0 8	Explain alternate scheduling algorithms Discuss process management Explain segmentation File System implementation Explain free block management Discuss allocation strategies Implement deadlock avoidance Review deadlock prevention, Imper deadlocks Deadlock 8.
9.	Introduction to Networks	2/0 8	Discuss motivation for networks Discuss characteristics and features of LAN, MAN and WAN Discuss role of the model
10.	The Layer Network Model	2/0 8	Discuss role of the model

19.	Other additional information	N/A	
18.	Main references supporting the course Stallings, W. 2010, Data and Computer Communications, Prentice Hall, 8 th Ed Tannenbaum, A. 2009, Modern Operating Systems, Prentice Hall, 3rd edition Palmer, M. 2000. Guide to UNIX, Using UNIX, Boston, MA: Thomson/ Course Technology Tannenbaum, A. 2008, Operating Systems Concepts, Prentice Hall, 5th edition Silberschatz, A. 2008 Operating System Concepts, Wiley, 8 th Ed	Additional references supporting the course	
17.	Other additional information		
14.	Internetworking • Select public packet and circuit-switched data networks. • Know TCP, UDP, IP and ARP protocols. • Calculate IP address structure and classes.	8	2/1
13.	Network Communication Protocols • Understand concepts of a protocol • Dissect typical link protocol • Explain idle and continuous ARQ. • Interpret sliding window mechanism.	8	2/0
12.	Data Link Layer • Produce character and bit frames • Generate error parity check. • Discuss transmission media. • Stuffing.	8	2/0
11.	Physical Layer • Explain analogue/digital data and signals. • Discuss noise and attenuation.	8	2/0
10.	Understand key aspects of each layer • Relationship to a typical proprietary standard		

1. Name of Course/Module	User Interface Design	User Interface Design				
2. Course Code	DUD1204	DUD1204				
3. Name(s) of academic staff	Danny Chen	Danny Chen				
4. Rationale for the inclusion of the course/module in the programme	This is a specialization module that provides specialist knowledge, competencies and skills necessary to complete the programme.					
5. Semester and Year offered	Semester 2 / Year 1				Importance of the human element in the system development.	
6. Total Student Learning Time (SLT)	Face to Face	Total Guided and Independent Learning	Total Guided and Independent Learning			
L = Lecture	T = Tutorial	P = Practical	O	28	14	
T = Tutorial	P = Practical	O = Others				
Credit Value	4					
8. Pre-requisite (if any)	None					
9. Learning outcomes	By the end of this course, students will be able to:					
	1. Justify the choice of an effective interaction concept for a product. 2. Apply the HCI theory and practice through the use of prototyping. 3. Creatively design an interface by applying the HCI factors. 4. Apply appropriate evaluation methods for interaction design.					
10. Transferable Skills	Students would be able to develop written and interpersonal communication, team work and leadership, problem solving, lectures, tutorials, exercises, role-plays, pair and group work, using authentic materials, formal activities and various textbooks.					
11. Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, tutorials, exercises, role-plays, pair and group work, using authentic materials, formal activities and various textbooks.					
12. Syopsis	This is a module that addresses the concepts and development of interactive multimedia programs within the human-computer interface models, with emphasis on elements of good user interface design for applications development.					
13. Mode of delivery	Lecture and tutorials					
14. Assessment Methods and Types	Coursework 30% Midterm Examination 20% Final Examination 50%					

15.	Mapping of the course/module to the Programme Aims	Refer to matrix on area 1.2.2	Refer to matrix on area 1.2.2	Programme Learning Outcomes	Content outline of the course/module and the SLT per topic	Topics	SLT (hours)	1. The importance of User Interface	2/1	8
16.	Mapping of the course/module to the	Refer to matrix on area 1.2.2	Refer to matrix on area 1.2.2	Programme Learning Outcomes	Content outline of the course/module and the SLT per topic	Topics	SLT (hours)	1. The importance of User Interface	2/1	8
17.	1. The importance of User Interface	2/1	8	1. The importance of User Interface	2/1	8	2. Characteristics of Graphical & Web User Interfaces	2/1	8	3. The User Interface Design Process
18.	2. Characteristics of Graphical & Web User Interfaces	2/1	8	2. Characteristics of Graphical & Web User Interfaces	2/1	8	3. The User Interface Design Process	2/1	8	4. Know Your User or Client
18.	4. Know Your User or Client	4/2	18	4. Know Your User or Client	4/2	18	5. Understand the Business Function	4/2	18	Analysing
19.	5. Understand the Business Function	4/2	18	5. Understand the Business Function	4/2	18	• Businesses Definition & Requirements	•	•	•

6. Understand the Principles of Good Screen	2/1	8	<ul style="list-style-type: none"> Determining Basic Business Functions Design Standard or Style Guides System Training & Implementation The Merging of Graphical Business Systems & the Web Principles of User Interface Design
7. Develop System Menus & Navigation	4/2	18	<ul style="list-style-type: none"> Schemes Structure of menus Functions of menus Content of menus Formatting of menus Selecting menu choices Navigating menus Kinds of graphical menus
8. Select the Proper Kinds of Windows	2/1	8	<ul style="list-style-type: none"> Window characteristics of a window Frame Title bar Title bar icon Window sizing buttons Menu bar Status bar Windows presentation styles Window management Organizing windows functions Window operations
9. Select Proper Device-Based Controls	2/1	8	<ul style="list-style-type: none"> Controls Characteristics of Device-Based

19.	Other additional information	N/A		
18.	Main references supporting the course	<ul style="list-style-type: none"> • Galitz, W (2007), <i>The Essential Guide to User Interface Design</i>, Wiley, 3rd Ed 	Design, Wiley, 3 rd Ed	<ul style="list-style-type: none"> • Additional references supporting the course • Johnson, J (2010), <i>Designing With The Mind In Mind: Simple Guide To Understanding User Interface Design Rules</i>, Morgan Kaufmann
17.	11. Write Clear & Messages	2/1	8	<ul style="list-style-type: none"> • Text for web pages • Words, sentences, messages, & text
16.	10. Choose the Proper Screen-Based Controls	2/1	8	<ul style="list-style-type: none"> • Operable controls • Text entry controls • Selection controls • Combination of entry/selection controls • Other operable controls
15.	11. Write Clear & Messages	2/1	8	<ul style="list-style-type: none"> • Text for web pages • Words, sentences, messages, & text
14.	18. Main references supporting the course			<ul style="list-style-type: none"> • Galitz, W (2007), <i>The Essential Guide to User Interface Design</i>, Wiley, 3rd Ed
13.	19. Other additional information			<ul style="list-style-type: none"> • Additional references supporting the course • Johnson, J (2010), <i>Designing With The Mind In Mind: Simple Guide To Understanding User Interface Design Rules</i>, Morgan Kaufmann

1.	Name of Course/Module	VB Programming	
2.	Course Code	DVB1134	
3.	Name(s) of academic staff	Lim Lian Tze	
4.	Rationale for the inclusion of the course/module in the programme	This is a core course that provides essential knowledge on design and development of Graphical User Interface (GUI) applications and the interface to database via VB framework. This course enables students to produce applications which run on windows platform, as well as to appreciate the user friendliness and convenience of windows application software.	
5.	Semester and Year offered:	Semester 2 /Year 1	
6.	Total Student Learning Time (SLT)	Face to Face	Total Guided and Independent Learning
	L = Lecture T = Tutorial P = Practical O = Others	1 28 14 0	28+14+118=160
7.	Credit Value	4	
8.	Prerequisite (if any)	DOP1254 Fundamentals of Object Oriented Programming	
9.	Learning outcomes	By the end of this course, students will be able to: 1. Define, explain and describe the various GUI-based application development environment and requirements. 2. Design an interactive GUI application using VB. 3. Create and manipulate a database via VB applications. 4. Create simple web-based projects using VB scripting.	
10.	Transferable Skills	Students would be able to develop written and interpersonal planning and organizational skills, through a process of lectures and labs.	
11.	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, labs, exercises, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.	
12.	Synopsis	This course helps students to develop practical skills in window-based application development by using VB. Students will learn the different types of controls used in a GUI-based application and to create various event procedures for the controls. It aims to extend students' understanding on database applications that interfaces with VB applications for the controls. This course also aims to teach students how to use database software such as MS Access or SQL Server for application development.	
13.	Mode of delivery	Lecture and practical with variety in methodology and activities.	

14.	Assessment Methods and Types	Coursetwork Midterm Exams Final Exams 50% 20%	Programme Aims Mapping of the course/module to the Refer to matrix on area 1.2.2	Programme Learning Outcomes Mapping of the course/module to the Refer to matrix on area 1.2.2	Content outline of the course/module and the SLT per topic Topics SLT (hours) Lecture / Practical Independent Learning Time 9
15.	Mapping of the course/module to the Refer to matrix on area 1.2.2	Programme Aims Mapping of the course/module to the Refer to matrix on area 1.2.2	Programme Learning Outcomes Mapping of the course/module to the Refer to matrix on area 1.2.2	Programme Learning Outcomes Mapping of the course/module to the Refer to matrix on area 1.2.2	16.
17.	Content outline of the course/module and the SLT per topic Topics SLT (hours) Lecture / Practical Independent Learning Time 9	The Basics of VB Environment Exploring toolbars Forms & decision Controls Multiple Document Interface Basic elements of menu Adding commands to menu Adding menus to menu Variable, data types and operations Program decisions The select case statement The example of decisions Loops & Array Repetition using while statement Examples of loops in VB Arrays Examples of arrays in VB Functions and Sub-procedures Defining and invoking sub-procedures and functions Passing by value, passing by reference Program modularity using functions and sub-procedures Communication with the user Adding toolbar to a Form 9	2/1	2. Menus and MDIs 3. Selection Structure 4. Loops & Array 5. Functions and Sub-procedures 6. Improving the User Interface 9	16
1.	The Basics of VB Environment Exploring toolbars Forms & decision Controls Multiple Document Interface Basic elements of menu Adding commands to menu Adding menus to menu Variable, data types and operations Program decisions The select case statement The example of decisions Loops & Array Repetition using while statement Examples of loops in VB Arrays Examples of arrays in VB Functions and Sub-procedures Defining and invoking sub-procedures and functions Passing by value, passing by reference Program modularity using functions and sub-procedures Communication with the user Adding toolbar to a Form 9	2/1	2/1	2/1	9
2.	Menus and MDIs 3. Selection Structure 4. Loops & Array 5. Functions and Sub-procedures 6. Improving the User Interface 9	2/1	2/1	2/1	16
3.	2/1	2/1	2/1	2/1	9
4.	2/1	2/1	2/1	2/1	9
5.	4/2	4/2	4/2	4/2	16
6.	2/1	2/1	2/1	2/1	9

19.	Other additional information	N/A		
18.	<p>Additional references supporting the course</p> <ul style="list-style-type: none"> • Foxall, J.D. 2008. Teach Yourself Visual Basic 2008 in 24 Hours. Indianapolis: SAMS Publishing. • Detlefs, H. M., Detlefs, P. J., Nieto, T.R. 2002. Visual Basic.NET : How to Program. Upper Saddle River, N.J. : Prentice Hall. 			
17.	<p>Main references supporting the course</p> <ul style="list-style-type: none"> • David, H. 2002. Visual Basic .Net Programming. San Francisco: Sybex 			
16.	<p>Using Special controls to enhance User Interface</p> <ul style="list-style-type: none"> • The ImageList & Trackbar Controls • Viewing Lists & Status Bars • TreeView Control 	16	4/2	9
15.	<p>Create Web projects</p> <ul style="list-style-type: none"> • Putting Projects on the Web • Creating ASP.NET Web Applications • More Windows controls 		2/1	
14.	<p>Additional references supporting the course</p> <ul style="list-style-type: none"> • David, H. 2002. Visual Basic .Net Programming. San Francisco: Sybex • Foxall, J.D. 2008. Teach Yourself Visual Basic 2008 in 24 Hours. Indianapolis: SAMS Publishing. • Detlefs, H. M., Detlefs, P. J., Nieto, T.R. 2002. Visual Basic.NET : How to Program. Upper Saddle River, N.J. : Prentice Hall. 			
13.				

1.	Name of Course/Module	Database Systems	Danny Chen	Name(s) of Academic staff	
2.	Course Code	DS1144		Course/module in the programme	This is a core course that provides essential knowledge on database planning, designing and implementation, as database is often required in most applications from stand-alone applications to web-based and multimedia platform.
3.	Rationale for the inclusion of the course/module in the programme	Danny Chen		Semester and Year offered	Summer 3 / Year 1
4.	Total Student Learning Time (SLT)	Face to Face	Total Guided and Independent Learning	Facilitated Learning	With knowledge of database systems, student would be able to develop real life applications that automate various transaction processing and decision making systems requiring data stored in a database in enormous quantity.
5.	L = Lecture T = Tutorial P = Practical O = Others	28 T P O	28+14+118=160	Credit Value	4
6.	Pre-requisite (if any)	None	Learning Outcomes	By the end of this course, students will be able to:	
7.	Learning Outcomes	1. Define, explain, describe and discuss various essential concepts of database systems in different environments. 2. Model real life problems and create Entity Relationship (ER) diagram (ERD) prior to database design and implementation. 3. Identify redundancies in database by using Normalization techniques to produce relations for databases. 4. Create and manipulate relations in databases by using Database Definition Language (DDL) and Database Manipulation Language (DML).	Transferable Skills	Students would be able to develop written and interpersonal communication, team work and leadership, problem solving, planning and organizational skills, through a process of lectures, practical lab sessions, exercises, role-plays, pair and group work, using authentic materials, informal activities and lectures, practical lab through a combination of formal lectures, practical lab sessions, exercises, role-plays, pair and group work, using authentic materials, informal activities and lectures and labs.	
8.	Prerequisite (if any)	None	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, practical lab through a combination of formal lectures, practical lab sessions, exercises, role-plays, pair and group work, using authentic materials, informal activities and lectures and labs.	
9.	Teaching-learning and assessment strategy	Assessment Strategies	Assessment Strategies	Formative and summative.	
10.	Transferable Skills	Manipulation Language (DML). Entity Relationship (ERD) prior to database design and implementation. Identify redundancies in database by using Normalization techniques to produce relations for databases. Create and manipulate relations in databases by using Database Definition Language (DDL) and Database Manipulation Language (DML).	Manipulation Language (DML). Entity Relationship (ERD) prior to database design and implementation. Identify redundancies in database by using Normalization techniques to produce relations for databases. Create and manipulate relations in databases by using Database Definition Language (DDL) and Database Manipulation Language (DML).	Teaching and learning and assessment strategy	
11.	Teaching and learning and assessment strategy	The course will be taught through a combination of formal lectures, practical lab sessions, exercises, role-plays, pair and group work, using authentic materials, informal activities and lectures and labs.	Assessment Strategies	Formative and summative.	

12.	Synopses	This course is aimed at developing practical skills in database planning, designing and implementation in students. Students will learn database design techniques such as ERD and Normalization, and database transaction management such as concurrency control and recovery control.	Mode of delivery	Lectures and practical labs with variety in methodologies and activities.	Assessment Methods and Types	Courseswork 30% Midterm Exams 20% Final Exams 50%	Programme Aims	Mapping of the course/module to the programme Learning Outcomes	Content outline of the course/module and the SLT per topic	Topics	SLT (hours)	1. Introduction to Database	2. Normalization & Data modelling	3. Introduction to SQL	4. Joins	5. Aggregating data	6. From Data to Info	7. Views	8. Creating tables	9. Entering data into tables	10. Altering tables	18.	Additional references supporting the course	Connolly, T. and Beleggi, C. (2010) Database Systems A Practical Approach to Design, Implementation, and Management, Addison Wesley. Fernandez, I. (2009) Beginning Oracle Database 11g Administration: from novice to professional. Berkeley: APress. Date, C.J. (2004) An Introduction To Database Systems.	Boston: Pearson/Addison Wesley.	Other additional information	N/A
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1.	Name of Course/Module	Multimedia Authoring		
2.	Course Code	DMA1234		
3.	Name(s) of academic staff	J. Joshua Thomas		
4.	Rationale for the inclusion of the course/module in the programme	This is a specialization course that provides specialist knowledge, competencies and skills necessary to complete the programme. This course exposes students to development of 2D animation with Flash technology.		
5.	Semester and Year offered	Semester 3 / Year 1		
6.	Total Student Learning Time (SLT)	Face to Face	Total Guided and Independent Learning	
	L = Lecture	T = Tutorial	P = Practical	O = Others
	28	14	0	$28+14+118=160$
7.	Credit Value	4		
8.	Prerequisite (if any)	None		
9.	Learning outcomes	By the end of this course, students will be able to: 1. Describe the lifecycle of multimedia authoring (researching and sourcing, developing and storyboard writing and evaluating the finished package) 2. Explain the importance of legal considerations such as copyright 3. Produce a small scale multimedia presentation package using the basic concepts and theories of multimedia authoring		
10.	Transferable Skills	Students would be able to develop written and interpersonal communication, team work and leadership, problem solving, planning and organization skills, through a process of formal lectures and labs session.		
11.	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, lab practical, exercises, role-plays, pair and group activities, using authentic materials, informal activities and various work, such as texts, images, audios, videos and animations.		
12.	Synopsis	This is a course that addresses practical development of a multimedia product with variety in methodology and formats.		
13.	Mode of delivery	Lecture and Practical with variety in methodology and activities.		
14.	Assessment Methods and Types	Final Exam Mid-Term Exam Coursework 30% 20% 50%		

15.	Mapping of the course/module to the Programme Aims	Refer to matrix on area 1.2.2	Programme Learning Outcomes	Mapping of the course/module to the SLT per topic	Content outline of the course/module and the SLT per topic	Topics	Lecture / Practical	Independent Learning Time	17
1. Development of Multimedia Content	The purpose, audience, and audience needs for rich media content.	Rich media content that is relevant to the purpose of the media in which it will be used (websites, mobile devices, and so on).	Options for producing accessible rich media content.	Standard copyright rules (related to terms, obtaining permission, and citing material).	Project management tasks and copyrigted material.	Communication with others (such as peers and clients) about design and responsibilities.	General and Flash-specific best practices for designing rich media content for a website.	2. Rich Media Design Elements	25
2. Rich Media Design Elements	General and Flash-specific best practices for designing rich media content for a website.	Design elements and principles.	General and Flash-specific techniques to create rich media elements that are accessible and readable.	Storyboard to produce rich media elements.	Organize a Flash document	Adobe Flash Interface	Identify elements of the Flash interface.	3. Adobe Flash Interface	25
3. Adobe Flash Interface	Identify elements of the Flash interface.	Use of the Property Inspector, Interlace, Timeline, Motion Editor, and Motion Timeline.	Understand Flash file types.	Best practices for managing the file size of a published Flash document.	Make rich media content development	4. Building Rich Media Elements by Using Flash	8/4	33	

19.	Other additional information	N/A		
18.	Main references supporting the course	<ul style="list-style-type: none"> • Chun, Russell. (2010) Adobe Flash professional CS5 classroom in a book : the official training workbook from Adobe Systems, Adobe Press • Axzo Press (2011) Flash CS5 : Advanced , Student manual ACA Edition • Grover, C (2010), Flash CS5: The Missing Manual, Rogue Press, 1st Ed • Adobe Creative Team (2012), Adobe Flash Professional CS6 classroom for a book 		
19.	Additional references supporting the course	<ul style="list-style-type: none"> • Grover, C (2010), Flash CS5: The Missing Manual, Rogue Press, 1st Ed • Adobe Creative Team (2012), Adobe Flash Professional CS6 classroom for a book 		

1.	Name of Course/Module	Creative Computing					
2.	Course Code	DCR2284					
3.	Name(s) of academic staff	J Joshua Thomas					
4.	Rationale for the inclusion of the course/module in the programme	This is a specialization module that provides specialist knowledge, competencies and skills necessary to complete the programme.					
5.	Semester and Year offered	Semester 2 / Year 2					
6.	Total Student Learning Time (SLT)	Face to Face	Total	Guided and Independent Learning			
	L = Lecture	T = Tutorial	P = Practical	O = Others	28	14	$28+14+118=160$
7.	Credit Value	4					
8.	Prerequisite (if any)	DCL1274 Cloud Computing OR					
9.	Learning outcomes	Upon successful completion of this module, students should be able to:					
	1.	Describe the creative concepts in mathematics and computing.					
	2.	Explain the importance origins of geometry to develop motion, images and sound.					
	3.	Build the Processing application to construct shapes and objects.					
	4.	Write the coordinate transformations for motions using Processing.					
10.	Transferable Skills	Students would be able to develop written and interpersonal communication, team work and leadership, problem solving, planning and organization skills, through a process of lectures, tutorials, role-plays, pair and group work, using combination of formal lectures, exercises, The course will be taught through a variety of textbooks and various authentic materials, informal activities and workshops.					
11.	Teaching-learning Strategies and assessment strategy	Teaching and Learning Strategies The course will be taught through a combination of formal lectures, exercises, role-plays, pair and group work, using a variety of textbooks and various authentic materials, informal activities and workshops.					
	Assessment Strategies						

12.	Synopsis	This module will help students to develop both theoretical and practical knowledge in making informed decisions based on data and to correctly apply statistical procedures and tests whenever required. Students will learn the foundations of programming for creativity coupled with transformation and generative processes principles of form, structure, image, sound and video. These methods are the conceptual tools that are widely applied in the creative industries.	Formative and summative.	13.	Mode of delivery	Lecture and tutorials with variety in methodology and activities.	Assessment Methods and Types	Assessment will be by:	14.	Assessment Methods and Types	Programme Aims	Refer to matrix as stated in Section 1.2.2	15.	Mapping of the course/module to the Programme Learning Outcomes	Refer to matrix as stated in Section 1.2.2	16.	Mapping of the course/module to the	Refer to matrix as stated in Section 1.2.2	17.	Content outline of the course/module and the SLT per topic	Topics	SLT (hours)	1.	Introduction to creative thinking	Learning Time	Cultural context	8
1.	Introduction to creative thinking	Learning Time	Cultural context	8	2.	History of mathematics and computing in creativity.	Essential components: technology, aesthetics, behaviour, flash professional	8	2.1	History of mathematics and computing in creativity.	Technology, aesthetics, behaviour, flash professional	8	3.	Introduction to Processing	Processing, installing, quick tour of Processing	8	2.1	Colour	HSB colour space, RGB colour space, processing colour type	8							
3.	Introduction to Processing	Processing, installing, quick tour of Processing	8	2.1	Colour	HSB colour space, RGB colour space, processing colour type	8																				

5. Mathematical Origins	4/2	14	<ul style="list-style-type: none"> • Colour schemes • Screen • Size • Backround • Coordinates • Plane geometry • Lines • Stroke • Size of pixel • The origin • Coordinates • Backround • Screen • Size
6. Shape	2/1	12	<ul style="list-style-type: none"> • Observing and drawing • Snap to grid • Line • Stroke • Lines • Plane geometry • The origin • Coordinates • Backround • Screen • Size
7. Structure	2/1	12	<ul style="list-style-type: none"> • Construction of simple polygon • Unit forms • Similarity • Proximity • Gestalt Principles • Disjoint • Overlapping • Conjuncted • Logical combination • Repetition • Rows • Columns • Diagonals
8. Motion	4/2	12	<ul style="list-style-type: none"> • Setup() and draw() functions • Persistence and velocity • Motion by coordinate • Transformations • Reflection at boundaries • Interaction • Gravity and Acceleration • Random Motion • Rotation and Motion • Motion Types • Multiple objects • Images out of bits
9. Complex patterns in 1D and 2D	2/1	9	<ul style="list-style-type: none"> • Complex patterns in 1D and 2D

18.	<ul style="list-style-type: none"> Main references supporting the course Reas, C. and Fry, B. (2010). Processing: Getting started with Processing. O'Reilly Media, Inc., Sebastopol, California. Fry, B. (2008) Visualizing data. O'Reilly Media, Inc., Sebastopol, California. Additional references supporting the course Reas, C. and Fry, B. (2007). Processing: A programming handbook for visual designers and artists. MIT Press, Cambridge, Massachusetts. Language Reference (API) <http://www.processing.org/reference>. [20 Aug 2013]. 	2/1	9
12. Sound	<ul style="list-style-type: none"> Digital audio Audio file format Playing a PCM sound file Processing: Getting started with Processing. O'Reilly Media, Inc., Sebastopol, California. Music synthesis 	2/1	9
11. 3D transformations	<ul style="list-style-type: none"> Scale, translate, rotate Camera transformations Lighting Texture mapping Transparent textures 	2/1	9
10. 3D graphics	<ul style="list-style-type: none"> 3D coordinate system 3D rendering 3D lines 3D drawing 3D processing tricks The screen (viewport) 	2/1	9

1.	Name of Course/Module	Fundamentals of Security in Ethical Hacking	Name(s) of Academic staff	Neoh Aik Guan
2.	Course Code	DCS22104	Course Code	DCS22104
3.	Rationale for the inclusion of the course/module in the programme	This is a specialization course that provides fundamentals of computer security and necessary skills to complete the programme.	Name(s) of academic staff	Neoh Aik Guan
4.	This is a specialization course that provides fundamentals of computer security and necessary skills to complete the programme.	Practical Tuition	Semester and Year offered	Semester 2 / Year 2
5.	FacetoFace	Total Guided and Independent Learning	Total Student Learning Time (SLT)	FacetoFace
6.	L = Lecture T = Tuorial P = Practical O = Others	28 20 0 $28+20+112=160$	Credit Value	4
7.	None	Learning outcomes	By the end of this course, students will be able to:	9.
8.	Prerequisite (if any)	None	1. Define and recognize various overviews of information security and their impact on computer system. 2. Explain the encryption and decryption techniques available. 3. Identify Hacking concepts that can be applied to Hacking Phases to manage threats. 4. Explain the Vulnerability research and essential terminologies of Information Security. 5. Demonstrate the usage of Ethical Hacking with suitable skills on using Hacking tools and techniques. 6. Discuss the various types of attacks intrusion detection methods and also reduce costs by resolving those vulnerabilities.	10.
9.	Learning outcomes	By the end of this course, students will be able to:	Students would be able to develop written and interpersonal communication, team work and leadership, problem solving, planning and organizational skills, through a process of lectures, tutorials, exercises, role-plays, pair and group work, lectures, tutorials, exercises, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.	11.
10.	Transferable Skills	Teaching-learning and assessment strategy	Teaching and Learning Strategies	Assessment Strategies
11.	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, tutorials, exercises, role-plays, pair and group work, lectures, tutorials, exercises, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.		

12.	Synopsis	Formative and summative.	This is a course that addresses the professional requirements of the computer security practitioner will be incorporated throughout the course syllabus of this programme, and it is anticipated, this course will contribute to the CEH (Certified Ethical Hacking) certification in computer security.
13.	Mode of delivery	Lecture and tutorial with variety in methodology and activities.	Mode of delivery
14.	Assessment Methods and Types	Courseswork 30% Midterm Exams 20% Final Exams 50%	Assessment Methods and Types
15.	Mapping of the course/module to the Programme Aims	Refer to matrix on area 1.2.2	Mapping of the course/module to the Programme Aims
16.	Mapping of the course/module to the SLT per topic	Refer to matrix on area 1.2.2	Programme Learning Outcomes
17.	Content outline of the course/module and the SLT per topic	SLT (hours)	Topics
	1. Introduction to Ethical Hacking and Foot printing and Reconnaissance	2/1	1. Introduction to Ethical Hacking and Foot
	2. Scanning Networks, Enumeration	2/2	2. Scanning Networks, Enumeration
	3. System Hacking, Trojans and Backdoors	2/2	3. System Hacking, Trojans and Backdoors
	4. Viruses and Worm, Sniffers	2/2	4. Viruses and Worm, Sniffers
	5. Social Engineering, Denial of Service	2/2	5. Social Engineering, Denial of Service
	6. Session Hijacking	2/2	6. Session Hijacking
	7. Hacking Web Servers	2/1	7. Hacking Web Servers
	8. Hacking Web Applications	2/1	8. Hacking Web Applications
	9. SQL Injection	2/1	9. SQL Injection
	10. Hacking Wireless Networks with Tools	2/2	10. Hacking Wireless Networks with Tools
	11. Evading IDS, Firewalls and Honeypots	2/1	11. Evading IDS, Firewalls and Honeypots
	12. Buffer Overflow	2/1	12. Buffer Overflow
	13. Cryptography	2/1	13. Cryptography
	14. Penetration Testing	2/1	14. Penetration Testing
	Main references supporting the course	CEH-V7 Course Materials	Additional references supporting the course
	Addison Wesley, 1st Ed	Goodrich, M (2010) <i>Introduction to Computer Security</i> , Addison Wesley, 1st Ed	
	Purpura, P (2010) <i>Security: An Introduction</i> , CRC Press, 1st Ed	Stallings, W (2007) <i>Computer Security: Principles and Practice</i> , Prentice Hall, 1st Ed	
	Jacobsen, D (2008) <i>Introduction to Network Security</i> , Chapman and Hall, 1st Ed	Jacobsen, D (2008) <i>Introduction to Network Security</i> , Chapman and Hall, 1st Ed	
	Fischer, R (2008) <i>Introduction to Security</i> , Butterworth-Heinemann, 8th Ed	Fischer, R (2008) <i>Introduction to Security</i> , Butterworth-Heinemann, 8th Ed	
19.	Other additional information	N/A	

1.	Name of Course/Module	System Administration and Management
2.	Course Code	DSM2294
3.	Name(s) of academic staff	Ooi Beng Chong
4.	Rationale for the inclusion of the course/module in the programme	This is a specialization module that provides specialist knowledge, competencies and skills necessary to complete the programme. This module equips students with the necessary knowledge to broaden students' knowledge-base and hands-on skills to perform system administration tasks.
5.	Semester and Year offered	Semester 2 / Year 2
6.	Total Student Learning Time (SLT)	Face to Face Total Guided and Independent Learning
7.	Credit Value	4
8.	Prerequisite (if any)	DCL1274 Cloud Computing OR DGM1214 Games Mechanics
9.	Learning outcomes	By the end of this course, students will be able to: a. Install and manage system resources effectively b. Administer user accounts and groups to limit access c. Configure network services for internet and intranet
10.	Transferable Skills	Students would be able to develop written and interpersonal communication, team work and leadership skills, through a process of planning and organizational skills, problem solving, lectures, practical exercises, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.
11.	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, practical exercises, role-plays, pair and group work, adding new users, backing up and restoring file systems, and adding new printers. Emphasis is placed on the procedures needed to perform system administration tasks.
12.	Synopsis	This is a module that provides basic workstation administration. It includes installation of operating systems, adding new users, backing up and restoring file systems, and adding new printers. Emphasis is placed on the procedures needed to perform system administration tasks.
13.	Mode of delivery	Lecture and practical with variety in methodology and activities.
14.	Assessment Methods and Types	Courseswork 30% Midterm Exams 20% Final Exams 50%

15.	Mapping of the course/module to the Programme Aims	Refer to matrix on area 1.2.2	Content outline of the course/module and the SLT per topic	Topics	Lecture / Practical	SLT (hours)	9
16.	Mapping of the course/module to the Programme Learning Outcomes	Refer to matrix on area 1.2.2	Programme Learning Outcomes	Review architecture • Discuss command line interface • Illustrate GUI • Apply installation steps • Understand virtualisation • Getimg started with OS shell 3.	4/2	16	9
17.	Content outline of the course/module and the SLT per topic	Content outline of the course/module and the SLT per topic	Content outline of the course/module and the SLT per topic	1. Introduction to OS	2/1	9	9
18.	Topics	Topics	Topics	2. Installation	2/1	9	9
19.	Other additional information	N/A	Additional references supporting the course	9. Apache Server	4/2	17	17
20.	Additional references supporting the course	Additional references supporting the course	Additional references supporting the course	8. Network Services	4/2	17	17
21.	Main references supporting the course	Main references supporting the course	Main references supporting the course	7. Network	4/2	17	17
22.	Beglinn's Guide, McGraw-Hill Osborne	Sobell, M., G., (2010), Practical Guide to FEDORA and Red Hat Enterprise Linux, A, Prentice Hall, 5 th Ed.	Sobell, M., G., (2010), Practical Guide to FEDORA and Red Hat Enterprise Linux, A, Prentice Hall, 5 th Ed.	6. Printing with CUPS	2/1	9	9
23.	Graham S., Shah S. (2003), Linux Administration : A Hat Enterprise Linux, A, Prentice Hall, 5 th Ed.	Beginer's Guide, McGraw-Hill Osborne	Additional references supporting the course	5. Administration Tasks	4/2	17	17
24.	Configure server	Configure server	Configure server	4. System initialisation	2/1	7	7
25.	Install server	Install server	Install server	3. Getting started with OS shell	4/2	16	16
26.	Set up DNS	Set up DNS	Set up DNS	2. Installation	2/1	9	9
27.	Administrator network services	Administrator network services	Administrator network services	1. Network	4/2	17	17
28.	Configure subnets	Configure subnets	Configure subnets	8. Network Services	4/2	17	17
29.	Set up local network	Set up local network	Set up local network	7. Network	4/2	17	17
30.	Customize printers	Customize printers	Customize printers	6. Printing with CUPS	2/1	9	9
31.	Set up local and remote printers	Set up local and remote printers	Set up local and remote printers	5. Administration Tasks	4/2	17	17
32.	Configure user and group accounts	Configure user and group accounts	Configure user and group accounts	4. System initialisation	2/1	7	7
33.	Perform file backups	Perform file backups	Perform file backups	3. Getting started with OS shell	4/2	16	16
34.	Apply tasks scheduling	Apply tasks scheduling	Apply tasks scheduling	2. Installation	2/1	9	9
35.	Configure local network	Configure local network	Configure local network	1. Network	4/2	17	17
36.	Configure subnets	Configure subnets	Configure subnets	8. Network Services	4/2	17	17
37.	Set up DNS	Set up DNS	Set up DNS	9. Apache Server	4/2	17	17
38.	Administrator network services	Administrator network services	Administrator network services	18. Main references supporting the course	4/2	17	17
39.	Configure server	Configure server	Configure server	19. Other additional information	N/A		

1.	Name of Course/Module	Internship	
2.	Course Code	DIS2046	
3.	Name(s) of academic staff	Amy Leow	
4.	Rationale for the inclusion of the course/module in the programme	This is a college compulsory course that provides specialist knowledge, competencies and skills necessary to complete the programme.	
5.	Semester and Year offered	Semester 3 / Year 2	
6.	Total Student Learning Time (SLT)	Face to Face	Total Guided and Independent Learning
L = Lecture	T = Tutorial	P = Practical	O = Others
		240	240
7.	Credit Value	6	
8.	Prerequisite (if any)	None	
9.	Learning outcomes	By the end of this course, students will be able to:	
10.	Transferable Skills	Students would be able to develop written and interpersonal communication, team work and leadership skills through a process of practical training.	
11.	Teaching-learning and assessment strategy	Practical exposure in the computing field through "real life" practical tasks, projects and assignments as assigned by the organization supervisor as well as through work observation.	
12.	Synopsis	The internship would provide students with the adequate on-the-job training in the various fields in computing. The internship would also better prepare the students with the necessary skills to face the job market.	
13.	Mode of delivery	Internship	
14.	Assessment Methods and Types	Presentations/Viva (20%) Industrial Training Report (20%) Internal Supervisor Assessment (20%) Site Supervisor Assessment (40%)	
15.	Mapping of the course/module to the Programme Aims	Refer to matrix on area 1.2.2	

16.	Mapping of the course/module to the Programme Learning Outcomes	Refer to matrix on area 1.2.2
17.	Content outline of the course/module and the SLT per topic - NIL	Main references supporting the course NIL
18.	Additional references supporting the course NIL	Other additional information N/A
19.		

1.	Name of Course/Module	InterNSHIp	
2.	Course Code	DIS2046	
3.	Name(s) of academic staff	Amy Low	
4.	Rationale for the inclusion of the course/module in the programme	This is a college compulsory course that provides specialist knowledge, competencies and skills necessary to complete the programme.	
5.	Semester and Year offered	Semester 3 / Year 2	
6.	Total Student Learning Time (SLT)	Face to Face	Total Guided and Independent Learning
L = Lecture	T = Tutorial	P = Practical	O = Others
		240	240
7.	Credit Value	6	
8.	Prerequisite (if any)	None	
9.	Learning Outcomes	By the end of this course, students will be able to:	
1.	Apply knowledge and skills in software design and development in the gaming, multimedia and IT industries.	1. Apply knowledge and skills in software design and development in the gaming, multimedia and IT industries.	
2.	Communicate effectively at the appropriate business and technical level with users, managers, customers and technical specialists.	2. Communicate effectively at the appropriate business and technical level with users, managers, customers and technical specialists.	
3.	Work effectively as a team in software development and business ventures, applying good ethics and professionalism and exhibiting leadership qualities.	3. Work effectively as a team in software development and business ventures, applying good ethics and professionalism and exhibiting leadership qualities.	
10.	Transferable Skills	Students would be able to develop written and interpersonal communication, team work and leadership, time management, problem solving, trouble-shooting, planning and organization skills, through a process of practical training.	
11.	Teaching-learning and assessment strategy	Practical exposure in the computing field through "real life" practical tasks, projects and assignments as well as assigned by the organization supervisor as well as through work observation.	
12.	Synopsis	The internship would provide students with the adequate on-the-job training in the various fields in computing. The internship would also better prepare the students with the necessary skills to face the job market.	
13.	Mode of delivery	Internship	
14.	Assessment Methods and Types	Presentations/Viva (20%) Industrial Training Report (20%) Internal Supervisor Assessment (20%) Site Supervisor Assessment (40%)	
15.	MappinG of the course/module to the Programme Aims	Refer to matrix on area 1.2.2	

16.	Mapping of the course/module to the Programme Learning Outcomes	Refer to matrix on area 1.2.2
17.	Content outline of the course/module and the SLT per topic - NIL	
18.	Main references supporting the course	NIL
19.	Additional references supporting the course	NIL
	Other additional information	N/A

1.	Name of Course/Module	Technpreneurship		
2.	Course Code	DTP3033		
3.	Name(s) of academic staff	Justina John		
4.	Rationale for the inclusion of the course/module in the programme	This is a college compulsory course that provides the necessary foundation to complete the programme.		
5.	Semester and Year offered	Semester 1 / Year 3		
6.	Total Student Learning Time (SLT)	Face to Face	Total Guided and Independent Learning	
	L = Lecture	T = Tutorial	P = Practical	O = Others
	1	14	28	$1+2+7=120$
7.	Credit Value	3		
	Prerequisite (if any)	None		
	Learning outcomes	By the end of this course, students will be able to:		
8.	Transferable Skills	<p>1. Define and discuss the various terms in technology and business that leads to appropriate usage of facts in being a technopreneur.</p> <p>2. Plan and design a business idea that covers various areas of an organization including the financial, marketing and legal aspects.</p> <p>3. Effectively present a business idea to clients using various technologies and tools.</p> <p>4. Write a research based business idea report by applying proper referencing format.</p>		
9.	Teaching and Learning Strategies	The course will be taught through a combination of formal lectures, tutorials, exercises, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.		
10.	Teaching-learning and assessment strategy	Students would be able to develop written and interpersonal communication, team and leadership skills, problem solving, planning and organizational skills, through a process of lectures, tutorials and workshops.		
11.	Teaching-learning and assessment strategy	The course will be taught through a combination of formal lectures, tutorials, exercises, role-plays, pair and group work, using authentic materials, informal activities and various textbooks.		
12.	Synopsis	This course provides an overview of high technology and entrepreneurship skills required to starting a business, of team building, raising capital, planning a new business, marketing and developing business strategies.		

	financial, marketing, and legal aspects.	Mode of delivery	13.
14.	Assessment Methods and Types	Business Idea 100% activities.	14.
15.	Programming of the course/module to the Programme Aims	Refer to matrix on area 1.2.2	15.
16.	Mapping of the course/module to the Programme Learning Outcomes	Refer to matrix on area 1.2.2	16.
17.	Content outline of the course/module and the SLT per topic	Topics SLT (hours)	17.
1.	Why Entrepreneurship and starting a business	Lecture / Tutorial Independent Learning Time	1.
2.	Introduction to Research	7	2.
3.	Referencing and Plagiarism	7	3.
4.	Report Writing	7	4.
5.	Raising Capital	7	5.
6.	Business Plan	8	6.
7.	Marketing	7	7.

19.	Other additional information	N/A		
18.	Main references supporting the course	Additional references supporting the course		
17.	Blackwell, E (2008) How to prepare a business plan, London: Philadelphia; Kogan Page, 5th ed	Barrow, C (2008) The business plan workbook, London: Philadelphia; Kogan Page, 6th ed	Langan, J. (2010) College writing skills with readings. 8 th edn. New York: McGraw-Hill Higher Education.	Posadas, D (2009) Jump Start: A Technopreneurship FabLab, Pearson Education, 1 st Ed
16.	Posadas, D (2007) RICE & CHIPS: Technopreneurship and innovation in Asia, Pearson Education South Asia Pte, 1 st Ed	Posadas, D (2009) Teaching Entrepreneurship: Building on The Singapore Experiment, Cambridge University Press	Turner, C (2009) Teaching Entrepreneurship: Cite them right: referencing Pearson, R. & Shields, G. (2010) Cite them right: referencing made easy. Newcastle Upon Tyne: Northumbria University Press.	

1.	Name of Course/Module	Project	Course Code	DPT3054	Name(s) of academic staff	Tan Phit Huan	Rationale for the inclusion of the course/module in the programme	This course gives students the learning opportunities to: 1. Understand the systems analysis and design approaches and implementation methods to develop a systems project. 2. Understand the teamwork in project development work. 3. Acquire knowledge and skills to develop a computerized system, from feasibility study to implementation of the system.
6.	Total Student Learning Time (SLT)	Face to Face	Semester 1/ Year 3	Total Guided and Independent Learning	Credit Value	4	Prerequisite (if any)	DSA1214 Object Oriented Systems Analysis and Design DOP1254 Fundamentals of Object Oriented Programming
9.	Learning outcomes:	By the end of this course, students will be able to: 1. Construct problem statement, and perform literature review and analysis related to project. 2. Plan, schedule, monitor, and control the conduct of a small project. 3. Develop software solution for the project based on their findings. 4. Communicate the results of a small project by verbal presentation/demonstration and a written report.	Transferable Skills	Students would be able to develop a computerised system through a process of tutorials and group work.	Teaching-learning and assessment strategies	Teaching and Learning Strategies	11.	Teaching-learning and assessment strategy
10.	Transferable Skills	Students would be able to develop a computerised system through a process of tutorials and group work.	Assessment strategies	Authentic materials and various textbooks. Discussion, Group work with oral presentation, using systems analysis and design activities throughout the basic techniques for conducting and managing projects.	Assessment Methods and Types	13. Mode of delivery	14.	Assessment Methods and Types
12.	Synopsis	In this course, the students demonstrate their project handling through the basic techniques for conducting and managing systems analysis and design activities throughout the basic techniques for conducting and managing systems analysis and design activities.	Format	Tutorial	13. Mode of delivery	14. Assessment Methods and Types		

15.	Mapping of the course/module to the Programme Aims	Refer to the matrix as stated in Section 1.2.2	Content outline of the course/module and the SLT per topic	Topics	SLT (Hours)
16.	Mapping of the course/module to the Programme Learning Outcomes	Refer to the matrix as stated in Section 1.2.2	Programme Learning Outcomes	Programme Learning Outcomes	
17.	Project Assignment	1	Independent Learning Time	Tutorial	8
18.	Project Scoping	1	Independent Learning Time	Project	8
	Systems Development Organisation	1	Independent Learning Time	Project	8
	Systems Development Life Cycle	1	Independent Learning Time	Project	8
	Preliminary Investigation/Feasibility Study	1	Independent Learning Time	Project	8
	Requirements Gathering	1	Independent Learning Time	Project	8
	Project Management	1	Independent Learning Time	Project	8
	Data Modelling	1	Independent Learning Time	Project	8
	Process Modelling	1	Independent Learning Time	Project	8
	User Interface Design	1	Independent Learning Time	Project	12
	Systems Testing	1	Independent Learning Time	Project	12
	Systems Implementation	1	Independent Learning Time	Project	12
	Systems Maintenance	1	Independent Learning Time	Project	8
	Project Presentation	1	Independent Learning Time	Project	18
19.	Other additional information	N/A	Additional references supporting the course	• Hoffer, J.A., George, J.F. & Valacich, J.S. 2009. <i>Essentials of Systems Analysis and Design</i> . New Jersey: Prentice Hall. • Stevens, P. 2000. <i>Using UML</i> . Harlow, England/ New York: Addison-Wesley. • Dawson, C.W. 2000. <i>The Essence of Computing Projects</i> . Harlow: Prentice Hall.	