

COURSE INFORMATION

1 .	Name of Course	Program Design	
2 .	Course Code	DCS5038	
3 .	Type of Course (e.g. : Core, major, elective etc.)	Core	
4 .	Synopsis	This subject covers the fundamentals of programming in order to solve simple to moderate problems. The course covers basic topics such as SDLC, basic syntax, variables, control structures, functions, arrays, pointers, structures and file processing.	
5 .	Version (State the date of theSenate's approval - previous and the current approval date)	Previous: June 2017 New version: ADC Nov 2017 Senate 195 Jan 2018	
6 .	Name(s) of Academic Staff	Usha Vellappan, Nuriyana Rosli, Julie Yew Mei Yee, Suraya Nurain	
7 .	Semester and Year Offered	Year 1 Trimester 3	
8 .	Credit Value	4	
9 .	Pre-Requisite	None	
10 .	Objective of the course in the programme: To introduce and acquire problem solving, algorithm design and programming skills. It covers the basic concepts and techniques of algorithm design and implementation using the C programming language.		
11 .	Justification for including the course in the programme: This subject introduces the basics of programming concepts as well as sharpening students' skills to prepare them in facing and tackling future programming challenges within the programme and also the working environment.		
12 .	Course Learning Outcomes (CLO)	Domain	Level
	CLO1: Apply the fundamental concepts of programming, logic, proving techniques and mathematical induction to solve programming problems.	Cognitive	3
	CLO2: Use a compiler to compose, test and debug programming codes to produce executable programs.	Cognitive	3
	CLO3: Build working programs based on correct syntax by using basic and advanced programming concepts to solve business related problems.	Cognitive	3
	CLO4: Use basic programming constructs with correct syntax and logical flow to write simple code segments.	Cognitive	3

13 .	Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment:														
	Course Learning Outcomes (CLO) (Must tally with CLOs in item 12)	Programme Learning Outcomes (PLO)												Teaching Methods	Assessment Method
		P	P	P	P	P	P	P	P	P	P	P	P		
		L	L	L	L	L	L	L	L	L	L	L	L		
		O	O	O	O	O	O	O	O	O	O	O	O		
		1	2	3	4	5	6	7	8	9	10	11	12		
CLO1		✓												Lecture/Lab	Final Exam/Midterm
CLO2							✓							Lab	Lab Questions
CLO3							✓							Lecture/Lab	Assignment
CLO4		✓												Lecture/Lab	Quiz
Total		2					2							Indicate the relevancy between the CLO and PLO by ticking "✓" the appropriate relevant box (This description must be read together with standards 2.1.2, 2.2.1, and 2.2.2 in Area 2 – pages 16 & 18 of COPPA 2.0)	
14 .	Transferable Skills:														
	Practical skills and problem solving skills														
15 .	Distribution of Student Learning Time (SLT)														
	Course Content Outline	**CLO	Teaching and Learning Activities				Guided Learning (NF2F)*	Independent Learning (NF2F)*	Total SLT						
			Guided Learning (F2F)*												
			*L	*T	*P	*O									
1	Software Development and Programming Environment Software Development Life Cycle, Top-down Design with Function System Structure, Program Design Steps and Programming Methodology, Flowchart, Pseudocode.	1,2,3,4	6		2			6	14						
2	Variables, data types and arithmetic expressions Working with Variables, Data Types and Constants, Arithmetic Expressions and Assignment Operators.	1,2,3,4	5		4	1	2	5	17						
3	Control Structures Relational/Equality Operators, Condition, Logical Operator & Expression; If-Else Statement, Switch Statement and Boolean Variables; For loop, While loop and Do-while loop,	1,2,3,4	4		4	1	2	5	16						
4	Functions Local vs. Global Variables; Defining Functions, passing Arguments into Functions, Returning value from Functions, Function Call; Arrays as arguments and Recursive Functions.	1,2,3,4	7		6	1	2	8	24						
5	Array Defining an array, Initializing Arrays, Character Arrays, and Multidimensional Array.	1,2,3,4	4		4	1	2	4	15						
6	Pointers Defining Pointer Variables; using Pointers in expressions; Pointer and Functions; Pointers and Arrays and Operations on Pointers.	1,2,3,4	3		2			4	9						
7	Structures Defining and using structures; array of structure; structure variable and array as parameter in functions.	1,2,3,4	2		2	1	2	1	8						
8	File Processing Input and Output Operation with Files.	1,2,3,4	2		2		2	1	7						
9									0						
10									0						

11								0
12								0
13								0
Total SLT								110
SUMMATIVE ASSESSMENT								
1. Continuous Assessment						Percentage %		Total SLT
Lab						10%		6
Quiz						10%		6
Assignments						15%		10
Midterm						15%		10
Total SLT for Continuous Assessment								32
2. Final Assessment						Percentage %		Total SLT
Final Exam						F2F		ILT
						2		16
Total SLT for Final Assessment (F2F + NF2F)								18
Grand Total						50%		160
**Indicate the CLO based on the CLO's numbering in Item 12. *L= Lecture, *T= Tutorial, *P= Practical, *O= Others, F2F*= Face to Face, NF2F*= Non Face to Face								
16	Identify Special Requirement to Deliver the Course (e.g., software, nursery, computer lab, simulation room): Software Dev C++, Online compiler, CodeBlocks							
17	Main References: Hanly, Jeri R, Koffman, Elliot B., (2015). Problem Solving and Program Design in C, 8th Edition, Prentice Hall.							
18	Additional References: 1. Deitel, P. J., & Deitel, H. M. Deitel, (2015). C: How to Program, 8th Edition, Prentice Hall. 2. Kochan, Stephen G., (2014). Programming in C, 4th Edition, Addison-Wesley Professional.							

Note:

Cells shaded light grey contain formulas / fixed values. Edit these formulas only if needed.