

COURSE INFORMATION

1 .	Name of Course	Problem Solving and Programming	
2 .	Course Code	PPS0335	
3 .	Type of Course (e.g. : Core, major, elective etc.)	Core	
4 .	Synopsis	This subject introduces students to various problem-solving techniques and computer programming concepts and practices. Students will explore various problem-solving techniques such as IPO charting, flow-charting and algorithm design. Students will learn programming concepts such as data types, variables, expression, equation, input / output and programming control structures. Subsequently, students will write and test simple computer programs and apply a program development life-cycle (PDLC) model to computer programs.	
5 .	Version (State the date of the Senate's approval - previous and the current approval date)	Current: August 2017 Previous: June 2015	
6 .	Name(s) of Academic Staff	Faizuniza Mashhod, Fauziah Kamarulzaman, Khairol Nizat Lajis, Mawar Madiah, Nurhayati Yusoff, Robiatun Adawiah Ahmad Kushairi, Yaseen Abdullah	
7 .	Semester and Year Offered	Trimester 3	
8 .	Credit Value	3	
9 .	Pre-Requisite	Nil	
10 .	Objective of the course in the programme: To expose students with problem solving and programming skills to solve IT related problems using suitable tools.		
11 .	Justification for including the course in the programme: To equip students with the ability to exhibit analytical and problem-solving skills to solve IT related problems.		
12 .	Course Learning Outcomes (CLO)	Domain	Level
	CLO1: Describe basic problem solving techniques in programming.	Cognitive	Level 1
	CLO2: Construct simple computer programs based on problem solving techniques.	Cognitive	Level 3
	CLO3: Demonstrate skills required in problem solving through programming.	Cognitive	Level 3
	CLO4: Apply the processes and phases in problem solving.	Cognitive	Level 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 L O 1	P L O 2	P L O 3	P L O 4	P L O 5	P L O 6	P L O 7	P L O 8	P L O 9	P L O 10	P L O 11			P L O 12
	CLO1	✓				✓	✓							Lecture, Lab	Class Discussion, Project, Final Examination
	CLO2		✓				✓	✓						Lecture, Lab	Assignment Test
	CLO3		✓			✓	✓	✓						Lecture, Lab	Class Discussion, Project, Final Examination
	CLO4		✓			✓	✓	✓						Lecture, Lab	Project, Final Examination
	Total	1	3			3	4	3						<i>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)</i>	
14 .	Transferable Skills: Teamwork, Communication, Problem solving and Programming 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 Introduction Introduction to the concepts of problem solving in programming	CLO1	1		0		1	2	4						
	2 Problem Solving Concepts for the Computer Introduction: Variables, data types, built-in functions, operators; Expressions and Equation	CLO1	1		1		1	2.5	5.5						
	3 Program Development Cycle (PDLC) Introduction phases in PDLC: Requirements analysis, design, implementation, testing, documentation; Introduction of the tools: IPO chart, algorithms, flowcharts, pseudocode	CLO1, CLO3	3		0		1	4	8						
	4 Introduction to Programming Structure Designing modules and functions; The difference between local and global variable; Usage of parameters; Introduction to functions, string and array	CLO1, CLO2, CLO3, CLO4	2		1		0	2.5	5.5						

5	Problem Solving with Sequential Logic Structure Using sequential logic structure to develop solution to a problem; Using proper form for instructions in an algorithm, flowchart and pseudocode	CLO1, CLO2, CLO3, CLO4	4	1	0	4.5	9.5
6	Problem Solving with Decision Using decision logic structure: If-else, straight-through logic, positive logic, negative logic, and case logic structure	CLO1, CLO2, CLO3, CLO4	6	2	0	7	15
7	Problem Solving with Loops Using loop structure: While, do-While, for-next and recursion	CLO1, CLO2, CLO3, CLO4	6	2	0	7	15
8	Introduction to programming fundamentals Data types, variables, operators; Program flow: If, if-then-else, for-next loop, do-loop, do-while, do-until, while, select case; User defined functions; Designing menus and toolbars	CLO2, CLO3, CLO4	0	5	0	2.5	7.5
Total SLT							70
SUMMATIVE ASSESSMENT							
1. Continuous Assessment		Percentage %		Total SLT			
Class Discussion		10%		4			
Assignment		10%		8			
Test		10%		8			
Project and Presentation		20%		8			
Total SLT for Continuous Assessment				28			
2. Final Assessment		Percentage %		Total SLT			
Final Exam		50%		F2F		ILT	
				2		20	
Total SLT for Final Assessment (F2F + NF2F)				22			
Grand Total		100%		120			
**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): None						
17	Main References: Sprankle, M., & Hubbard, J. (2012). Problem solving and programming concepts (9th ed.). Harlow, Essex: Pearson Education.						
18	Additional References: Backhouse, R. (2011). Algorithmic problem solving. John Wiley & Sons. Hanly, J. R., & Koffman, E. B. (2013). Problem solving and program design in C. Pearson. Savitch, W., & contributor, K. M. (2012). Problem solving with C++ . Pearson Education LTD.						

Note:

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