MULTIMEDIA UNIVERSITY®

COURSE INFORMATION

1.	**Name of Course**	Research Methodology in Computer Science
2.	**Course Code**	TPT1201
3.	**Type of Course** (e.g. : Core, major, elective etc.)	Core
4.	**Synopsis**	This course aims to introduce students to research issues related to computing and informatics. Key topis addressed the concepts, methods and techniques applied in the research of computer science. The students taking the course will also gain experience in writing research proposal relevant to the methods and technologies in computer science.
5.	**Version** (State the date of theSenate's approval - previous and the current approval date)	Current: January 2018 Previous: June 2016
6.	**Name(s) of Academic Staff**	Chikkannan Eswaran, Haw Su Cheng, Ting Choo Yee, Tan Saw Chin, Noramiza binti Hashim, Ng Keng Hoong
7.	**Semester and Year Offered**	Trimester 3 (Beta)
8.	**Credit Value**	3 Credit Hours
9.	**Pre-Requisite**	NIL

10. **Objective of the course in the programme:**

The major objectives of this course are (1) to introduce students to the broad field of research methods in computing and informatics, (2) to introduce students to a variety of issues, concepts, methods and techniques associated with computer science research, (3) to introduce students to technical research paper reading and writing, and (4) to prepare students to be knowledgeable of selected research works.

11. **Justification for including the course in the programme:**

The subject prepares students with knowledge and skills for conducting research that would be useful in doing projects and advanced subjects later in the program.

12. **Course Learning Outcomes (CLO)**

		Domain	Level
CLO1:	Identify key issues in computer science research	Cognitive	2
CLO2:	Explain basic research concepts: theory, frameworks, scientific methods, paradigm and methodologies	Cognitive	2
CLO3:	Write well-formed research proposal based on research methods and techniques relevant computer science research	Cognitive	6

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
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8						
CLO1		√											Lecture/ Tutorial	Test/ Quizze/ Assignment1
CLO2		√											Lecture/ Tutorial	Test/ Quizze/ Assignment1
CLO3	√		√	√									Lecture/ Tutorial	Assignment2
Total	**1**	**2**	**1**	**1**									*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:**

Critical thinking skill through discussion on given research articles. Students will be assessed based on presentation and summarized written report.

15. **Distribution of Student Learning Time (SLT)**

	Course Content Outline	**CLO	Teaching and Learning Activities – Guided Learning (F2F)* *L	*T	*P	*O	Guided Learning (NF2F)*	Independent Learning (NF2F)*	Total SLT
1	**Introduction to Research Methods** Computer Science Research areas – Algorithms and Data Structures,Complexity, Programming Languages, Systems, Communications, Databases, Graphics and Visualization, Security and Cryptography, Software Engineering and Artificial Intelligence.	**1**	2	1				3	6
2	**History of Computing and Informatics** Mathematics & Computation, Encoding Information,Von Neumann Architecture, Concept of Universal Turing Machine. **Current and future computing:** Parallel and Distributed computing, Mobile computing, Social computing, and Big Data technology.	**1**	3	2			2	5	12
3	**Research Methodologies:** Quantitative Research; Descriptive Research; Experimental Research. Research Methods in Selected Areas. Critical Thinking; Creative Thinking.	**2**	10	6			4	16	36
4	**Technical Writing for research report/paper/proposal:** Organization, good style, style specifics, editing, referencing, citation styles and presentation. Approaches to good writing for research papers, theses and dissertations.	**3**	8	4				12	24
5	**Research Practices:** Ethical issue and responsibility in research. Plagiarism checking.	**2**	2	1				3	6
								Total SLT	**84**

SUMMATIVE ASSESSMENT

1. Continuous Assessment	Percentage %	Total SLT

	Test	20%	4	
	Quizzes	10%	4	
	Assignment 1	30%	14	
	Assignment 2	40%	14	
		Total SLT for Continuous Assessment	**36**	
	2. Final Assessment	**Percentage %**	**Total SLT**	
			F2F	**ILT**
	Final Exam			
		Total SLT for Final Assessment (F2F + NF2F)	**0**	
	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):**
Latex editor

17 . **Main References:**
J. Glenn Brookshear: Computer Science, An Overview, 12th Edition, Addison Wesley, 2014.

18 . **Additional References:**
1. G. Michael Schneider and Judith L. Gersting: An Invitation to Computer Science, Brooks/Cole, 6th Edition, 2012.
2. Justin Zob: Writing for Computer Science, 3rd Edition, Springer, 2012.
3. David Reed: A Balanced Introduction to Computer Science, Prentice Hall, 3rd Edition, 2011.

Note:

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