



UNIVERSITI SAINS MALAYSIA

SCHOOL OF COMPUTER SCIENCES
Semester II, 2014/2015

Course Code	CPT211 / CPM311	
Course Title	Programming Language Concepts & Paradigms (Konsep Pengaturcaraan & Paradigma)	
Course Lecturers	Dr Mohd Adib Haji Omar (MAHO) [Week 9 – Week 15] Dr Nurul Hashimah Ahamed Hassain Malim (NHAHM) [Week 1 – Week 8]	
E-mail/Tel. No/Room No	adib@cs.usm.my / 04-653-4648 / Room 620 nurulhashimah@cs.usm.my / 04-653-4645 / Room 624	
Course Units	3	
	Breakdown of Units	Contact Hours
Lecture	1	2 hours x 12 weeks
Tutorial	1	1 hour x 5 weeks
Lab	1	1 hour x 5 weeks
Breakdown of Assessments	Examinations	50% (2 hours)
	Coursework	50%
Coursework Evaluation Basis	2 Assignments	20%
	2 Tests	20% (2 x 1 hour)
	Quizzes / Attendance / Participation	10%
Type of Course	Core	

Course Objectives	<ul style="list-style-type: none"> To introduce the principles of various programming concepts and paradigms To expose issues related to different types of programming languages, i.e. script, web and event-driven programming To provide hands-on involving the understanding the implementation, and evaluation of various programming languages. To utilize different programming tools
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Learning Outcomes	<p>At the end of this course the students will be able to:</p> <ul style="list-style-type: none"> Explain the various programming concepts and paradigms (<i>Psychomotor Domain, Critical Thinking Problem Solving</i>) Exhibit an understanding of scripting languages i.e. Perl and Java scripting language, web and internet programming languages and event-driven programming. (<i>Affective Domain, Critical Thinking Problem Solving</i>) Explain the fundamentals of parallel and distributed programming. (<i>Affective Domain</i>) Differentiate various programming concepts and paradigms in order to select the best programming language in problem solving process. (<i>Affective Domain, Critical Thinking Problem Solving</i>)
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Course Synopsis	<p><i>The essence of this course is to expose to student on the existence of various programming concepts and paradigms. Knowledge about the programming concepts and paradigms is important to student for choosing the right programming language to solve programming problem effectively. The course covers the exposure of basic programming concepts and paradigms, elementary data types, programming control structure and also basic concepts of parallel and distributed processing. Student will also be exposed to scripting language, internet and web programming and event-driven programming.</i></p>
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Main References	<p>R1. Robert W. Sebesta, Concepts of Programming Languages, 9th Edition, Addison Wesley, 2009.</p> <p>R2. Terrence W. Pratt & Marvin V. Zelkowitz, Programming Languages (Design & Implementation), 4th Edition Prentice Hall, 2001.</p>
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	R3. Deital, Internet & World Wide Web How To Program, 5 th Edition, 2012.
Additional References	R4. Patrick Carey and Frank Canavatchel, JavaScript, Thomson Course Technology R5. Chris Ullman, David Buser, Jon Duckett, Brian Francis, John Kauffman, Juan T.Libre and David Sussman, Beginning ASP 3.0, Wrox Press Ltd.

Logistics	<ul style="list-style-type: none"> • Lecture hours: <ul style="list-style-type: none"> ◦ Wednesday 5:00 pm - 6:50 pm (DK-H) • Tutorial / Lab hours: (Max. 40 students per session) <ul style="list-style-type: none"> ◦ Session 1: Monday (10:00 am – 10:50 am) ◦ Session 2: Monday (11:00 am – 11:50 am) ◦ Session 3: Tuesday (11:00 am – 11:50 am) ◦ Session 4: Tuesday (12:00 pm – 12:50 pm) ◦ Signing up by noon 4/3/2015 at the CPT211 e-learn portal • Tutorial / Lab venue: <ul style="list-style-type: none"> ◦ CS Computer Lab 5 • Consultation Hours: <ul style="list-style-type: none"> ◦ Through appointments • Last 15-30 minutes of each lecture will be allocated for discussion/Q&A/student presentation • Reading assignments will be given from time to time and students are expected to READ. • E-learning Portal: http://elearning.usm.my/ <ul style="list-style-type: none"> ◦ Slides will be available at e-learning portal only after lectures ◦ Assignments ◦ Discussion Forum

CLASS POLICY	
<ul style="list-style-type: none"> • All assignments MUST be submitted before or on the specified date. Late submission of assignments without any reasons and without permission from the lecturer(s) will not be accepted. The grade for late submission (even with permission) will be reduced as determined by the lecturer(s). ▪ The attendance to lectures, tutorials and compulsory labs will be taken randomly. If the performance of attendance is less than 70% the student will be barred from sitting for the final exam. ▪ Students who copied or plagiarized other's work or let their work be copied or plagiarized will get an automatic F grade for the work, test or the whole coursework component as determined by the lecturer(s). The said student may be barred from sitting for final exam and reported to the university's disciplinary board. ▪ Students are reminded to switch off their hand phones during lectures, tutorials and compulsory labs. Sending short messages is also not allowed during those times. If a student is found breaking the rules purposely, the student will get a penalty towards his/her course work grade. 	

TENTATIVE COURSE SYLLABUS AND PLANNER							
No	Topic	Date	Week	Lecture	Tutorial / Lab	Reference	Coursework
0	Course Overview	25/02/2015 (BOTH)	1	0.5			
1	Introduction to Programming Language Concepts: <ul style="list-style-type: none"> • Programming Paradigms • Aims of learning Programming Concepts and Paradigm • Language Evaluation Criteria • Language implementation methods • Benefits of learning Programming Concepts and Paradigm 	25/02/2015 (NHAHM)	1, 2	1.5		R1-C1	
2	Evolution of Machine Architectures and Programming Languages: <ul style="list-style-type: none"> • The Operation of a Computer <i>Evolution of Major Programming Languages</i>	4/03/2015 (NHAHM)	2	0.5	Tutorial / Lab Group Formation	R1-C1 R1-C2	Reading Assignment
3	Language Translation Issues: <ul style="list-style-type: none"> • Syntax and Semantics • Formal Translation Models • Lexical analysis • Parsing a brief overview 	11/03/2015 (NHAHM)	2, 3	1.5	Lab - Introduction	R1-C3 R2-C4	Assignment 1 Due (8/04/2015)
4	Names, Bindings, Type Checking and Scopes : <ul style="list-style-type: none"> • Names, variables, the concept of binding, type checking, type compatibility and scope. Data Types <ul style="list-style-type: none"> • Primitive data types, string, user-defined types, array, etc 	18/03/2015 (NHAHM)	4	1	Tutorial – Language Translational Issues	R1-C5 R1-C6	Online Quiz for reading assignment (19/03/2015 – 20/03/2015)
5	Expression & Assignment Statements: <ul style="list-style-type: none"> • Implicit and Explicit Sequence Control • Sequencing With Arithmetic Expressions • Overloaded operator • Type conversion • Relational & Boolean expressions • Assignment statements 	25/03/2015 (NHAHM)	5	1	Lab	R1-C7	
6	Statements-Level Control Structures & Parameter Transmissions <ul style="list-style-type: none"> • Compound statements, selection statements • Iterative and unconditional branching • Parameter Transmission 	01/04/2015 (NHAHM)	6	1	Tutorial – Scopes + Lab	R1-C8	
7	Subprograms and Object Oriented <ul style="list-style-type: none"> • Fundamentals • Design Issues • Overloading • Generic 	08/04/2015 (NHAHM)	7	1	Lab	R1-C9 R1-C14	Assignment 1 Submission
8	First Half- wrap ups	15/04/2015 (NHAHM)	8	1	Presentation		Test 1 (15/04/2015)

9	Web Programming: HTML <ul style="list-style-type: none"> • Basic HTML tags and Linking • Graphics and File Format • Table and Frame • HTML form XML <ul style="list-style-type: none"> • Introduction to XML • Structuring Data • Documents Types Definition and Schmes • XML vocabularies • Documents Objects Models and Methods 	22/04/2015 (MAHO)	9	1	Lab / Tutorial	Any HTML book or HTML tutorial from internet R3-C20 R4	Assignment 2
10	Internet Programming: Java Script <ul style="list-style-type: none"> • Introduction to Java Script • Control Structures (if, if..else, while, for, switch, break and continue) • Java Script Function 	29/04/2015 (MAHO)	10	1	Lab / Tutorial	R3-C7,8,9,10 &11 R4	
11	Event Driven Programming: <ul style="list-style-type: none"> • Introduction to ASP.net • How ASP.Net work • Control Structures (if, if..else, while, for, switch, break and continue) • ASP.Net Function Session Tracking	6/05/2015 (MAHO)	11	1	Lab / Tutorial	R3-C25	
12	Introduction to Parallel Computing: <ul style="list-style-type: none"> • Overview • Concepts & Terminology • Parallel Computer Memory Architectures & Parallel Programming Models 	13/05/2015 (MAHO)	12	1	Lab / Tutorial	R2 – C 11	Test 2 (13/05/2015)
13	Introduction to Mobile Computing: <ul style="list-style-type: none"> • Overview • Android programming 	20/05/2015 (MAHO)	13	1	Lab / Tutorial		Assignment 2 Due (20/05/2014)
14	Conclusion & Review	27/05/2015 (BOTH)	14	1			
15	Revision Week	30/05/2015 until 07/06/2015	15	-			
16	Final Exam Weeks	8/06/2015 until 26/06/2015					Final: TBA