Section 1
Module Description - General

Module Code	**EEE60104**
Module Name	**Programming Techniques**
Year Level (Module)	**2**
Credit Value	**4**
Semester(s) Offered	**March** **August**
Module Leader	**Chew Wei Jen (WeiJen.Chew@taylors.edu.my)**

Synopsis

In this module, students are required to develop programs using the C programming language in order to solve simple to challenging problems. This module covers the following: C program control, functions, arrays, characters, strings, formatted input/output, structures and file processing. The contents in this module will help introduce students to the basics of programming, thus supporting the achievement of SDG9. The teaching and learning approach for the module will be through problem-based learning and self-directed learning pedagogies composed of interactive lecture sessions, supervised tutorial sessions and supervised practical activities to complement the theoretical principles. TIMeS will be used to upload the teaching materials, relevant video links, instruction delivery and relevant documents for students' reference. Assessments will be divided into continuous assessments – test, practical activities and assignment, and summative assessment - final examination. Lectures will be delivered using slides and will be presented through discussions, recitations, and class exercises. Online activities include pre-recorded video lectures and/or existing videos relevant to the topics. Closely monitored tutorial classes are expected to help students improve their critical thinking and problem-solving abilities. Midterm check will be conducted to monitor the student's learning progress. Consultation hours will be allotted to those in need. Lab activities are to be conducted in groups of not more than 5 each and each group is required to submit a written lab report. Lab assessments will be marked using a lab rubric. At end of the learning period, students are expected to demonstrate critical thinking skills and problem-solving skills.

General Pre-Requisite	-
Module Pre-requisite	-
General Co-requisite	-
Module Co-requisite	-
General Anti-requisite	-
Module Anti-requisite	-

Module Owner	**School of Computer Science & Engineering**
Domain Name (for free electives only)	**Science, Technology and Society**
Module Offered as	**Primary Major – Core** **Minor**

Section 2
Module Description - Module Learning Outcomes (MLO)

No./ID	Description	MLO %
MLO1	Analyse C program codes to determine the output	9
MLO2	Develop C programs involving decision structures and loops	22
MLO3	Develop C programs involving functions	9
MLO4	Write, compile and debug programs in C language	60
		100

Section 3
Module Description - Align MLO to PLO & TGC Sub-Attribute

No	Module Learning Outcomes (MLO)	MLO %	TGC Attributes	TGC Sub-Attributes	Description of sub-attributes
1	MLO1	9	TGC 1 Discipline-specific knowledge and Skills	1.3	Transfer - Adapt and apply skills, abilities, theories or methodologies gained in one situation to new situations
2	MLO2	22	TGC 2 Problem Solving, Critical and Creative Thinking Skills	2b.4	Analyze and synthesize the evidence
3	MLO3	9	TGC 2 Problem Solving, Critical and Creative Thinking Skills	2b.4	Analyze and synthesize the evidence
4	MLO4	60	TGC 1 Discipline-specific knowledge and Skills	1.3	Transfer - Adapt and apply skills, abilities, theories or methodologies gained in one situation to new situations

Section 4
Module Description - Transferrable Skills

Transferable Skills

TGC	TGC Attribute	Description of TGC Attributes	Sub-Attribute	Description of sub-attributes
TGC 1	Discipline-specific knowledge and Skills	Discipline-specific knowledge and skills refers to the ability to demonstrate professional competence, adapt discipline specific knowledge, and be able to integrate knowledge across different perspectives.	1.3	Transfer - Adapt and apply skills, abilities, theories or methodologies gained in one situation to new situations
TGC 2	Problem Solving, Critical and Creative Thinking Skills	Problem Solving, Critical and Creative Thinking Skills refer to the ability to rationally, critically and creatively analyze, synthesize and evaluate evidence to arrive at a solution or conclusion.	2b.4	Analyze and synthesize the evidence
TGC 2	Problem Solving, Critical and Creative Thinking Skills	Problem Solving, Critical and Creative Thinking Skills refer to the ability to rationally, critically and creatively analyze, synthesize and evaluate evidence to arrive at a solution or conclusion.	2b.4	Analyze and synthesize the evidence
TGC 1	Discipline-specific knowledge and Skills	Discipline-specific knowledge and skills refers to the ability to demonstrate professional competence, adapt discipline specific knowledge, and be able to integrate knowledge across different perspectives.	1.3	Transfer - Adapt and apply skills, abilities, theories or methodologies gained in one situation to new situations

Description of Assessment Components

The assessment for this module is external (Taylor's College)	**NO**
Resit Opportunity	**RS**

Assessment Tasks

Assessment Task	Weight	MLO Assessed	TGC Assessed	Due Date	Maximum Mark (Task Level)	Maximum Mark (MLO Level)
Assessment Task 1: Practical 1	20%	MLO4	1	4, 6	20	20
Assessment Task 2: Practical 2	20%	MLO4	1	9, 11	20	20
Assessment Task 3: Test	10%	MLO1 MLO2	1 2	7	20	6 14
Assessment Task 4: Final Exam	30%	MLO1 MLO2 MLO3	1 2 2	16	100	20 50 30
Assessment Task 5: Assignment	20%	MLO4	1	14	20	20
	100%					

Section 6
Module Description - Resit Assessment

Description of Resit Assessment

Resit Opportunity -

Assessment Tasks

Assessment Task	Weight	MLO Assessed	TGC Assessed	Maximum Mark (Task Level)	Maximum Mark (MLO Level)
Resit Examination	100%	-	-	100	-
	100%				

Section 7
Module Description - Rubrics for Assessment Tasks

<table>
<tr><th>Assessment Task</th><th>MLO Assessed</th></tr>
<tr><td>Assessment Task 1: Practical 1</td><td>MLO4

Write, compile and debug programs in C language

<table><tr><th colspan="2">Assessment Task 1: Practical 1: (MLO Assessed: MLO4)</th></tr><tr><th>Criteria</th><th>Weightage</th></tr><tr><td>Perform laboratory experiments which involves writing C program codes and producing the corresponding written report.</td><td>20%</td></tr></table></td></tr>
<tr><td>Assessment Task 2: Practical 2</td><td>MLO4

Write, compile and debug programs in C language

<table><tr><th colspan="2">Assessment Task 2: Practical 2: (MLO Assessed: MLO4)</th></tr><tr><th>Criteria</th><th>Weightage</th></tr><tr><td>Perform laboratory experiments which involves writing C program codes and producing the corresponding written report.</td><td>20%</td></tr></table></td></tr>
<tr><td>Assessment Task 3: Test</td><td>MLO1

Analyse C program codes to determine the output

<table><tr><th colspan="2">Assessment Task 3: Test: (MLO Assessed: MLO1)</th></tr><tr><th>Criteria</th><th>Weightage</th></tr><tr><td>Refer to marking rubric of test. Test is mapped to TGC sub-attribute 1.3.</td><td>%</td></tr></table>

MLO2

Develop C programs involving decision structures and loops

<table><tr><th colspan="6">Assessment Task 3: Test: (MLO Assessed: MLO2)</th></tr><tr><th>Criteria</th><th>Weightage</th><th>Outstanding</th><th>Mastering</th><th>Developing</th><th>Beginning</th></tr><tr><td>Refer to marking rubric of test. Test is mapped to TGC sub-attribute 2b.4.</td><td>%</td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Assessment Task 4: Final Exam</td><td>MLO1

Analyse C program codes to determine the output

<table><tr><th colspan="2">Assessment Task 4: Final Exam: (MLO Assessed: MLO1)</th></tr><tr><th>Criteria</th><th>Weightage</th></tr><tr><td>Refer to marking rubric of final examination. Final examination is mapped to TGC sub-attribute 1.3.</td><td>%</td></tr></table>

MLO2

Develop C programs involving decision structures and loops

<table><tr><th colspan="6">Assessment Task 4: Final Exam: (MLO Assessed: MLO2)</th></tr><tr><th>Criteria</th><th>Weightage</th><th>Outstanding</th><th>Mastering</th><th>Developing</th><th>Beginning</th></tr><tr><td>Refer to marking rubric of final examination. Final examination is mapped to TGC sub-attribute 2b.4.</td><td>%</td><td></td><td></td><td></td><td></td></tr></table>

MLO3

Develop C programs involving functions

<table><tr><th colspan="6">Assessment Task 4: Final Exam: (MLO Assessed: MLO3)</th></tr><tr><th>Criteria</th><th>Weightage</th><th>Outstanding</th><th>Mastering</th><th>Developing</th><th>Beginning</th></tr><tr><td>Refer to marking rubric of final examination. Final examination is mapped to TGC sub-attribute 2b.4.</td><td>%</td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Assessment Task 5: Assignment</td><td>MLO4

Write, compile and debug programs in C language

<table><tr><th colspan="2">Assessment Task 5: Assignment: (MLO Assessed: MLO4)</th></tr><tr><th>Criteria</th><th>Weightage</th></tr><tr><td>Refer to marking rubric of assignment. Assignment is mapped to TGC sub-attribute 1.3.</td><td>%</td></tr></table></td></tr>
</table>

Section 8 Module Description - Hurdle Assessment

Hurdle Assessment Guideline

Hurdle is applied for this module and is defined as below: For modules which do not have 100% continuous assessment and consist of a final exam component, a student enrolled in such a module would need to satisfy two conditions to progress on from the module. 1. The final exam mark must be equal to or more than 50%. 2. The overall assessment mark must be equal to or more than 50%

Section 9
Module Description - Student Learning Time (SLT) normal-long semester

Week	Guided Learning F2F (Lecture)	Guided Learning F2F (Tutorial)	Guided Learning F2F (Practical)	Guided Learning F2F (Other)	Guided Learning NF2F/Online	Independent Student Learning Time	Assessment Task (F2F)	Assessment Task (Online)	Assessment Task (Independent SLT)	Student Learning Time(SLT)
	HOURS									Total Hour
Week 1	1	2	0	0	2	5	0	0	0	10
	Introduction to C Programming	Introduction to C Programming			Introduction to C Programming	Introduction to C Programming				
Week 2	1	2	0	0	2	5	0	0	0	10
	Structured program development in C	Structured program development in C			Structured program development in C	Structured program development in C				
Week 3	1	2	0	0	2	5	0	0	0	10
	C program control	C program control			C program control	C program control				
Week 4	1	2	2	0	2	3	0	0	0	10
	C program control	C program control	Practical		C program control	C program control				
Week 5	1	2	0	0	2	3	0	2	0	10
	C functions	C functions			C functions	C functions		Practical Report		
Week 6	1	2	2	0	2	3	0	0	0	10
	C arrays	C arrays	Practical		C arrays	C arrays				
Week 7	0	0	0	0	0	0	1	2	7	10
							Test	Practical Report	Test Preparation	
Week 8	0	0	0	0	2	8	0	0	0	10
					C pointers	C pointers				
Week 9	1	2	2	0	2	3	0	0	0	10
	C characters and strings	C characters and strings	Practical		C characters and strings	C characters and strings				
Week 10	1	2	0	0	2	3	0	2	0	10
	C formatted input/output	C formatted input/output			C formatted input/output	C formatted input/output		Practical Report		
Week 11	1	2	2	0	2	3	0	0	0	10
	C structures	C structures	Practical		C structures	C structures				
Week 12	1	2	0	0	2	3	0	2	0	10
	C file processing	C file processing			C file processing	C file processing		Practical Report		
Week 13	1	2	0	0	2	3	0	0	2	10
	C file processing	C file processing			C file processing	C file processing			Assignment Preparation	
Week 14	0	0	0	0	2	0	0	6	2	10
					Revision			Assignment	Final Examination Preparation	
Week 15	0	0	0	0	0	0	0	0	10	10
									Final Examination Preparation	
Week 16	0	0	0	0	0	0	3	0	7	10
							Final Examination		Final Examination Preparation	
Week 17	0	0	0	0	0	0	0	0	0	0
Total	11	22	8	0	26	47	4	14	28	

Section 10
Module Description - Reference

Main references supporting the module

No	Author	Year of Publication	Title	Edition	Publisher	ISBN	ISSN	Form Source
1	Deitel, Paul J.; Deitel, Harvey M.	2016	C : how to program.	8th	Hoboken, NJ : Pearson Education, Inc., [2016]	9780133976892 (paperback)	-	manual

Other Additional Information

No	Author	Year of Publication	Title	Edition	Publisher	ISBN	ISSN	Form Source
1	Gottfried, Byron S.	1996	Schaum's outline of theory and problems of programming with C.	2nd	New York : McGraw Hill, c1996.	0070240353	-	manual
1	Etter, D. M.	2005	Engineering problem solving with C.	3rd	Upper Saddle River, NJ : Pearson/Prentice Hall , c2005.	013142971X (pbk)	-	manual
1	Hanly, Jeri R.; Koffman, Elliot B.	2016	Problem solving and program design in C.	8th	Boston : Pearson, [2016]	9780134014890 (paperback)	-	manual

Section 11
Module Description - Approval Details

Effective Study Intake/Semester	**202203**
Revision Number	**1.03**

Special Requirements to deliver the Module

Data Not Available

☐ Please tick ( ) if this module is Latihan Industri/Clinical Placement/Practicum/WBL using 2 weeks, 1 credit for SLT

Approved by SPC	**School of Computer Science & Engineering**
SPC Approval Date	**-**
Discipline Code	**-**
Stream	

Engineering