



## UNIVERSITI MALAYSIA SARAWAK

### PROGRAMME SPECIFICATION

1. Name of the Award : Bachelor of Computer Science (Computational Science)(Hons)
2. Credit Value : 130
3. Type of Award : Single Major
4. Awarding Institution : Faculty of Computer Science and Information Technology, Universiti Malaysia Sarawak (UNIMAS)
5. Field of Study : Computational Science
6. Language of Instruction : English
7. Mode of Study : Full-Time
8. Mode of Delivery : Lecture, tutorial, laboratory, individual/group work, case study, presentation, industrial training, and final year project.
9. Method of Delivery : Conventional

10. Duration of Study :

	Full-Time		Part-Time	
	Long Semester	Short Semester	Long Semester	Short Semester
No of Weeks/Sems	14	-	-	-
No of Sems/Years	2	-	-	-
No of Years	4 (max. 6)		-	

11. Entry Requirements :
- i. Pass in Sijil Pelajaran Malaysia (SPM)/equivalent with at least Credit in Bahasa Melayu/Malaysian Language, Mathematics, and English Language/English 1119 subjects (or July papers);
  - ii. Pass in:
    - Sijil Tinggi Persekolahan Malaysia (STPM, at least CGPA 2.00) with minimum Grade C (Subject Grade Point, SGP 2.00) in *Pengajian Am* and in any other three subjects including Mathematics T, Further Mathematics T, or Computing; or
    - KPM Matriculation / UM Science Foundation Studies / UiTM Foundation Studies (at least CGPA 2.00) with minimum Grade C (SGP 2.00) in any three subjects including Mathematics or Engineering Mathematics; or
    - Diploma or others in relevant fields which are recognized by the Malaysian government and approved by IHL Senate.
  - iii. At least Band 1 in Malaysian University English Test (MUET).

12. Programme Objectives : This program is aimed for :
- i. Producing graduates who are founded in the core knowledge of computer science,
  - ii. Bearing graduates who can think critically and possess high ability to solve problem,
  - iii. Equipping graduates by showing noble professionalism, value and ethics as well as moral,
  - iv. Producing graduates who can demonstrate knowledge sharing ability and obtain latest information and skills,
  - v. Bringing out graduates who have leadership ability and high knack in themselves, and
  - vi. Producing pro-active graduates who are sensitive to the needs of community from time to time.

13. Programme Learning Outcomes (PLOs) : After graduating from this program, the students are able to:
- i. Predominate the knowledge of computational science,
  - ii. Perform technical and programming skills in system system, development, configuration, and integration,
  - iii. Manage communication skills,
  - iv. Present creative and innovative solutions in relative to problems which need suitable scientific approach,
  - v. Build teamwork skills as well as social responsibility and skills,
  - vi. Find and manage information and perform life-long learning,
  - vii. Build and explore knowledge and skills in entrepreneurship,
  - viii. Practise professionalism, value, attitude, and ethical behaviour, and
  - ix. Demonstrate leadership skills.

14. Classification of Subjects :

No	Course Type	No of Courses	Credit	Credit Percentage
1	Generic Courses	9	12	9.2
2	Faculty Core Courses	17	50	38.5
3	Program Core Courses	12	36	27.7
4	Industrial Training	1	12	9.2
5	Final Year Project I & II	2	8	6.2
6	Elective Courses (from other faculties)	4	12	9.2
	Total	45	130	100

15. Programme Structure :

(a) First Year Courses

Component	Semester 1		Semester 2	
	Subject	Credit	Subject	Credit
Generic Course	<b>TMX1010</b> – End User Computing * <b>PBI0011</b> – Preparatory English 1 **	0 0	<b>TMX2012</b> – IT Tools for Knowledge Workers <b>PBI0021</b> – Preparatory English 2 **	2 0
Faculty Core Course	<b>TMC1213</b> – Computer Architecture <b>TMC1233</b> – Operating Systems <b>TMC1413</b> – Introduction to Programming <b>TMC1813</b> – Discrete Mathematics <b>TMC1833</b> – Calculus <b>TMP1613</b> – Multimedia Technology	3 3 3 3 3 3	<b>TMC1013</b> – System Analysis and Design <b>TMC1253</b> – Communication and Computer Network <b>TMC1433</b> – Data Structure and Algorithms <b>TMC1853</b> – Linear Algebra	3 3 3 3
Elective Course			Elective Course I	3
<b>Sub-Total</b>	<b>8</b>	<b>18</b>	<b>7</b>	<b>17</b>

\* IT Strengthening Course – will be exempted if students passed the IT Proficiency Test (UPIT) which is usually held during early Semester 1.

\*\* Preparatory English Courses – will be exempted if students get Band 4 and above in Malaysian University English Test (MUET).

(b) Second Year Courses

Component	Semester 1		Semester 2	
	Subject	Credit	Subject	Credit
Generic Course	<b>SSX0012</b> – Islamic and Asian Civilization <b>PBI1012</b> – English for Professional Purposes <b>PBM2022</b> – Malaysian Language	2 2 2	<b>SSX0022</b> – Ethnic Relations <b>PBI1032</b> – Academic Reading and Writing	2 2
Faculty Core Course	<b>TMC2033</b> – Database Concept and Design <b>TMC2813</b> – Introductory Statistics	3 3	<b>TMC2413</b> – Object Oriented Software Development	3
Programme Core Course	<b>TMS2153</b> – Multivariable Calculus <b>TMP2813</b> – Computational Science Laboratory	3 3	<b>TMS2033</b> – Differential Equations <b>TMS2133</b> – Numerical Methods <b>TMT2013</b> – Multimedia Programming <b>TMT2033</b> – Introduction to Computer Graphics	3 3 3 3
<b>Sub-Total</b>	<b>7</b>	<b>18</b>	<b>7</b>	<b>19</b>

## (c) Third Year Courses

Component	Semester 1		Semester 2	
	Subject	Credit	Subject	Credit
Faculty Core Course	TMC3012 – Ethics and Professionalism TMC3613 – Web Based System Development TMP3113 – Project Management	2 3 3	TMY3912 – Industrial Training	12
Programme Core Course	TMS3033 – Operational Research TMS3053 – Statistical Data Analysis TMS3093 – Mathematical Modeling and Simulation	3 3 3		
<b>Sub-Total</b>	<b>6</b>	<b>17</b>	<b>1</b>	<b>12</b>

## (d) Fourth Year Courses

Component	Semester 1		Semester 2	
	Subject	Credit	Subject	Credit
Faculty Core Course	TMC4013 – Technopreneurship and Product Development TMP4913 – Final Year Project I	3 3	TMP4935 – Final Year Project II	5
Programme Core Course	TMI3053 – Human Computer Interaction TMS4013 – Parallel Processing	3 3	TMS4093 – Advanced Topics in Computational Science	3
Elective Course	Elective Course II	3	Elective Course III Elective Course IV	3 3
<b>Sub-Total</b>	<b>5</b>	<b>15</b>	<b>4</b>	<b>14</b>
<b>TOTAL</b>	<b>26</b>	<b>68</b>	<b>19</b>	<b>62</b>

In addition, during semester breaks (December and May-June), the faculty also offers special programs and IT certification courses, such as 3P Program, CISCO, Oracle, Infosys, and Satyam, to increase the knowledge and skills of the students.

16. Career Prospects : Programmer, System Analyst, System Engineer, Statistician, Robotics Engineer, Research Engineer, Consulting/Investment Actuary, Operation Research Specialist, Numerical Methods Analyst, Applied Mathematician, Scientific Analyst, and any other Computer Science or Information Technology (ICT) related jobs.
17. Facilities Available : Hostels, Library/Resource Center, Student Interaction Room, Laboratories, Gymnasium, etc.