



1. Awarding Institution	Universiti Teknologi Malaysia		
2. Teaching Institution	Universiti Teknologi Malaysia		
3. Programme Name	Bachelor in Computer Science (Software Engineering)		
4. Final Award	Bachelor of Computer Science (Software Engineering)		
5. Programme Code	TC10 (SCS)		
6. Professional or Statutory Body of Accreditation	-		
7. Language(s) of Instruction	Bahasa Melayu and English		
8. Mode of Study (Conventional, distance learning, etc)	Conventional		
9. Mode of operation (Franchise, self-govern, etc)	Self-govern		
10. Study Scheme (Full Time/Part Time)	Full Time		
11. Study Duration	Minimum : 3 ½ yrs Maximum : 5 ½ yrs		
Type of Semester	No. of Semesters		No. of weeks
	Full Time	Part Time	Full Time Part Time
Long	7		14
Short	0		0

12. Entry Requirement	<ul style="list-style-type: none"> • Matriculation Science Stream: Passed with at least Grade C (2.00) in Mathematics AND passed with at least grade C (2.00) in ONE (1) of these subjects: Physics, Chemistry, Biology, Computer Science • STPM with minimum of C in Advanced Mathematics or Computing and one of the following subjects: Chemistry, Physics or Biology. • Diploma in computer Science from UTM or equivalent with at least PNGK: 2.50 OR Candidates with PNGK < 2.50, with at least 2 years working experience in related area
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13. Programme Objectives
<ol style="list-style-type: none"> i. To produce graduates who are capable to practice software engineering principles and methodologies which comply with international standards in solving real world problems across different application areas. ii. To produce graduates who are capable to plan, analyze, design and implement software projects. iii. To produce graduates who are capable to manage and assure the quality of software projects. iv. To produce graduates who are capable to communicate effectively in a team and with stakeholders. v. To produce graduates who are capable to independently conduct lifelong learning and adapt readily to changing situations. vi. To produce graduates who are capable to demonstrate consistent professional ethics with high integrity.



14. Programme Learning Outcomes		
Intended Learning Outcomes	Teaching and Learning Methods	Assessment
(a) Technical Knowledge and Competencies		
LO1		
Ability to demonstrate knowledge and understanding of the theory and principles of Computer Science	Lectures, tutorials, laboratory works, problem-based learning	Examinations, laboratory works, discussions, problem-based exercises, group projects, independent projects.
LO2		
Ability to design and write in at least two different programming languages	Lectures, tutorials, laboratory works, problem-based learning	Examinations, laboratory works, discussions, problem-based exercises, group projects, independent projects.
LO3		
Ability to solve real world problems with appropriate 'state-of-the-art' technology	Project supervision, lectures, tutorials, independent research, laboratory works, seminars, directed-reading	Examinations, seminar presentations, discussions, problem-based exercises, group projects, independent projects, industrial training feedback
LO4		
Ability to demonstrate knowledge and understanding of the software engineering principles and methodologies	Lectures, tutorials, laboratory works, case study, directed-reading	Examinations, laboratory works, discussions, problem-based exercises, group projects, independent projects, peer review.
LO5		
Ability to produce requirement models and software design using current tools and techniques	Project supervision, lectures, tutorials, independent research, laboratory works, seminars, directed-reading	Examinations, seminar presentations, discussions, case studies, group projects, laboratory works.
LO6		
Ability to creatively develop, manage and configure different range of scales of software engineering project	Project supervision, lectures, seminars, laboratory works, directed-reading, simulation exercises, independent study	Project reports, project and configuration planning, examinations, case study, laboratory work, seminar presentations, group project.
LO7		
Ability to assure and improve the quality of the software process and products	Project supervision, lectures, invited speakers, case studies, directed reading, group research	Quality assurance plan, examinations, seminar presentations, seminar report, group research project.
LO8		
Ability to identify and create business opportunities in information and communication technology applications	Project supervision, lectures, invited speakers, industrial visit, seminars, directed reading, brainstorming	Examinations, seminar presentations, seminar report, group project



(b) Generic Skills		
Intended Learning Outcomes	Teaching and Learning Methods	Assessment
L09		
Ability to lead and participate effectively in a team	Group projects presentation	Oral presentations, peer evaluation
L10		
Ability to undertake lifelong learning and actively participate in change (Adaptability)	Tutorials, laboratory works, group project assignments, independent reading	Group reports, learning logs/diaries (learning portfolios), seminar presentation
L11		
Ability to present technical solutions to a range of audience (Communication Skills)	Individual presentation, group research projects, industrial training	Oral presentation, peer evaluation, academic and industry evaluations
L12		
Ability to demonstrate behaviors that are consistent with the Code of Professional Ethics and Responsibilities	Independent research projects, group research projects, industrial training	Industrial training report, independent project report, peer evaluation, learning portfolios
L13		
Ability to think positively and poses self-esteem	Independent research projects, group research projects, industrial training	Written assignment, thesis.

15. Classification of Subjects			
No.	Classification	Credit Hours	Percentage
i.	University		
	a. General	8	14.3
	b. Language	6	
	c. Co-curriculum	2	
ii.	Faculty Core	66	58.9
iii.	Programme Core	24	21.4
iv.	Programme Electives	6	5.4
	Total	112	100

For engineering programme please fill up the following classification. (Others please refer to the Statutory Body guidelines)

A	Engineering Subjects (a) Lecture (b) Laboratory/Workshop (c) Industrial Training (d) Final Year Project		
	Total credit hours for Part A		
B	Related Subjects (a) Applied Science/Maths/Computer (b) Management/Law/Humanities/Ethics (c) Co-Curriculum (d) Others		
	Total credit hours for Part B		
iii.	Total Credit Hours for Part A and B		

16. Total credit hours to graduate	112 credit hours
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17. Programme structures and features, curriculum and award requirements

The course is offered in full-time mode and based on a 2 Semester Academic Year with several subjects being delivered and assessed in each Semester. Assessment : 25-50% examination, 50-75% coursework

Award requirements:

Students should:

- Achieve a total of 112 credit hours with minimum CPA of 2.0.
- Pass industrial training (equivalent to 12 credit hours) at Semester 6.
- Complete the undergraduate project.





YEAR 1		
SEMESTER I		
SCJ1013	Teknik Pengaturcaraan I	3
SCR1013	Logik Digital	3
SCD1513	Teknologi & Sistem Maklumat	3
SCI1113	Matematik Komputan	3
UHS1152	Hubungan Etnik	2
UHB1412	English for Academic Communications	2
JUMLAH KREDIT		16
SEMESTER II		
SCJ1023	Teknik Pengaturcaraan II	3
SCD1523	Pangkalan Data	3
SCR1043	Organisasi & Senibina Komputer	3
SCJ1203	Kejuruteraan Perisian	3
SCV1023	Interaksi Manusia Komputer	3
ULT1022	Tamadun Islam & Tamadun Asia (TITAS)	2
UQRxxx1	Ko-Kurikulum	1
JUMLAH KREDIT		18
YEAR 2		
SEMESTER III		
SCR2213	Komunikasi Rangkaian	3
SCI2113	Permodelan & Simulasi	3
SCJ2013	Struktur Data dan Algoritma	3
SCD2613	Analisis dan Rekabentuk Sistem	3
SCJ2153	Pengaturcaraan Berorientasikan Objek	3
ULT2132	Islam & Isu-isu Semasa	2
JUMLAH KREDIT		17
SEMESTER IV		
SCJ2103	Pembangunan Aplikasi	3
SCR2043	Sistem Pengoperasian	3
SCJ2253	Kejuruteraan Keperluan dan Pemodelan Perisian	3
SCJ2303	Pengaturcaraan Internet	3
UHB2422	Advanced English for Academic Communications	2
UHS2xx2	Elektif UHS	2
UQRxxx1	Ko-Kurikulum	1
JUMLAH KREDIT		17
YEAR 3		
SEMESTER V		
SCJ3203	Teori Sains Komputer	3
SCJ3553	Kepintaran Buatan	3
SCJ3323	Senibina dan Rekabentuk Perisian	3
SCJ3253	Teknik Pengaturcaraan III	3
SCJ3032	Projek Sarjana Muda I	2
UHB3xx2	Elektif Bahasa Inggeris	2
JUMLAH KREDIT		16
SEMESTER VI		
SCK3118	Latihan Praktik	8
SCK3114	Laporan Latihan Praktik	4
JUMLAH KREDIT		12
YEAR 4		
SEMESTER V		
SCJ3343	Jaminan Kualiti Perisian	3
SCD3763	Keusahawanan IT	3
SCJ4xx3	Matapelajaran Elektif I	3
SCJ4xx3	Matapelajaran Elektif II	3
SCJ4134	Projek Sarjana Muda II	4
JUMLAH KREDIT		16



18. Mapping of Programme Learning Outcomes to Subjects

	L01	L02	L03	L04	L05	L06	L07	L08	L09	L10	L011	L012	L013
Faculty Core													
(SCJ1013) Programming Technique I	b	b	c	c					1	2	2	2	2
(SCR1013) Digital Logic	a		b						1	1			
(SCD1513) Technology & Information System	a		b						2		2		
(SCI1113) Mathematic Computing	a		b										2
(SCJ1023) Programming Technique II	a	a	b	b	c				1	2	1	2	2
(SCD1523) Database	a	c	b					C	1		2		
(SCR1043) Computer Organization & Architecture	a	c	c						1	1			
(SCJ1203) Software Engineering			a	a	a	b	b		1	2	1	1	2
(SGV1023) Human Computer Interaction	a	b	c						2		2		
(SCR2213) Network Communication	b		c					c	1		2		
(SCJ2123) Modeling & Simulation	a	c	c						2	2	2		
(SCJ2013) Data Structure & Algorithm	a	a	b	b	c			c	2	2	1	2	2



	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	L10	LO11	LO12	LO13
(SCD2613) System Analysis & Design	b	b	a						2		2		
(SCJ2153) Object-Oriented Programming	b	a	b	b	c		b		1	2	1	2	2
(SCJ2103) Application Development		a	a	a	c	a	a	a	1	1	1	1	2
(SCR2043) Operating System	a	c	b						2		2		2
(SCJ3203) Theory of Computer Science	a		c							2	1	2	2
(SCD 4763) Information Technology Entrepreneurship	b		a					a	1	2	1	2	2
(SCJ 3032) Project I	b		a	a	a	b		a		2	1	1	2
(SCJ 4134) Project II	a	a	b	a	a	b		a		2	1	1	2

Key:

Technical Skills: a = major contribution to outcome; b = moderate contribution to outcome; c = minor contribution to outcome

Generic Skills: 1 = Substantial (with assessment); 2 = not substantial (introduce)



	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	L10	LO11	LO12	LO13
Program Core													
Software Engineering													
(SCJ2253) Requirements Engineering and Software Modeling			a	a	a	c	b		1	2	1	2	2
(SCJ2303) Internet Programming		a	b		c				1	2	1	2	2
(SCJ3553) Artificial Intelligence	b		a							2	1	2	2
(SCJ3323) Software Design and Architecture		c	a	a	a		b		1	2	1	2	2
(SCJ3253) Programming Technique III	b	a	b	b	b				1	2	1	2	2
(SCJ4343) Software Quality Assurance			c	a			a		1	0	1	2	2

Key:

Technical Skills: a = major contribution to outcome; b = moderate contribution to outcome; c = minor contribution to outcome

Generic Skills: 1 = Substantial (with assessment); 2 = not substantial (introduce)



	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	L10	LO11	LO12	LO13
Program Electives													
(SCJ4483) Web Technology	c	a	b	b					1	2			
(SCJ4603) Knowledge-Based & Expert System	c	a	a						1	2			
(SCJ4383) Software Construction	a	a	b	a	b		c			2	1	2	2
(SCJ4403) Special Topics in Software Engineering			a	a					1	2	1	2	2
(SCJ4423) Real Time Software Engineering	b	a	b	a	a		b		1	2	1	2	2
(SCJ4463) Agent Oriented Software Engineering	b	a	b	a	b		b		1	2	1	2	2
(SCJ4363) Software Project Management			a	a	b	a	a		1	2	1	1	2
(SCJ4553) Computational Intelligence	c		a							2	1	2	2

Key:

Technical Skills: a = major contribution to outcome; b = moderate contribution to outcome; c = minor contribution to outcome

Generic Skills: 1 = Substantial (with assessment); 2 = not substantial (introduce)



19. Career Prospects

Graduate of the programme can work as a Software Engineer, Software Project Engineer, System Analyst, System Engineer, Software Quality Engineer, Software Configuration Engineer, Software Architect, Software Process Engineer, Software Test Engineer, Software Maintainer, Academician, Researcher, and Software Designer.

20. Cross Campus Programme

nil

21. UTM Degree ++ Programme

Students are given a chance to enroll in certificate programmes offered by Centres of Excellence in the university during their semester breaks. Among related courses offered under the UTM Degree++ programmed are: Linux Fundamental, Linux Network & Administration, PC Installation, PHP Application, MySQL, ASP,.Net, PLC programming, Robotics, data analysis software and OpenGL.

22. Facilities available

List of laboratories:

1. Seven (7) teaching laboratories and two (3) general programming laboratories with capacity of 60 computers for each laboratory.
2. Software Engineering Department: Internet Technology Lab., Intelligent Technology Lab., CASE Lab., and Advanced Computer Lab with capacity of 60 computers for each laboratory.
3. Computer System & Communication Department: Communication & Network Lab., System Software/UNIX Lab., Analog & Digital Lab., and Project Lab with capacity of 60 computers for each laboratory.
4. Information Systems Department: Information System Development Lab., Database Lab., and Project Lab with capacity of 60 computers for each laboratory.
5. Computer Graphics & Multimedia Department: Geography Information System Lab., Multimedia Lab., Image Processing Lab., and Graphic Design Lab with capacity of 60 computers for each laboratory.
6. Modeling & Industrial Computing Department: Simulation & Modeling Lab., Computational Science Lab., CAD Lab., and Manufacturing Automation System Lab with capacity of 60 computers for each laboratory.