



كلية الشرق الأوسط
Middle East College

Middle East College

Muscat, (Sultanate of Oman)

Validated Programme Leading to the Award of:
BSc (Hons) Computer Science

1. ESSENTIAL QUALITIES AND ATTRIBUTES OF THE PROGRAMME'S GRADUATES

This programme aims to give students a strong foundation in core areas of computer science and to equip them with transferable skills and abilities that will enable them to independently extend their knowledge in related areas.

2. RATIONALE OF THE PROGRAMME

Computers have become an all pervasive influence on society. Their impact has been felt not only in the sciences and social sciences, but in almost all fields of endeavor where there is a significant amount of information to be taken, stored and manipulated. Their use in the many spheres of business activity has contributed to the creation of an all encompassing computer industry. Given the immense social influences of computers and the concurrent influence of the managers who "control" the machines, any computer science degree programme needs to give students an all-round awareness of these forces. With this in mind, this programme attempts to provide students with a theoretical and practical understanding of the tools and technologies used in the development of large software systems.

The approach has been to incorporate within existing courses, a measure of social awareness and responsibility. This has been accomplished by examining appropriate case situations of computer related developments and trying to assess their implications in the social context. With most computer systems now being high complex in nature, the idea is to raise awareness of the need for a disciplined approach to their development which focuses on understanding user requirements. The programme also aims to equip the students with knowledge and understanding of tools and methods that will enable them to manage this complexity effectively.

The study of Computer Science requires a good base in mathematics, with its formal methods and abstract thinking. However, it is also an engineering discipline, requiring concrete practical skills. The programme therefore includes significant study of design and implementation techniques, including algorithms, object oriented analysis and design principles, and the use of programming languages, with an emphasis on software engineering methodologies. Other subject areas include topics that enhance the student's analytical and logical reasoning skills. The curriculum includes a fine mix of theoretical concepts and practical exposure to industry-related examples which enable the student to appreciate the different stages of the software development life cycle.

As the use of computers continues to increase and influence the global economy, the need for skilled software developers is expected to rise. Graduates of this programme will be equipped to find employment as computer programmers or software engineers, or to use their skills within any computing-related profession.

BSc (Hons) - Computer Science													
	Year 1	CU Level	C.P	Year 2	CU Level	C.P	Year 3	CU Level	C.P	Summer	Year 4	CU Level	C.P
Fall Semester	College Mathematics	0	10	Discrete Mathematics	1	10	ELECTRONICS ENGINEERING	1	15	INTERNSHIP	Omani Studies	0	10
	Programming Logic Development	0	10	Business Communication	0	10	FUNDAMENTALS OF COMPUTER NETWORKS	1	15		SPECIAL TOPIC / SYSTEMS PROJECT MANAGEMENT	3	15
	English for Special Purpose	0	10	FUNDAMENTALS OF RELATIONAL DATABASE MANAGEMENT SYSTEM	2	15	Server Side Programming	2	10		DATABASE ADMINISTRATION	3	15
	FUNDAMENTALS OF COMPUTER HARDWARE	0	15	Object Oriented Paradigm	1	10	Object Oriented Programming using UML	2	10		Knowledge Management	3	10
	ELECTRICAL ENGINEERING	0	15	ELECTIVE - I	1	15	Data Structures and Algorithms	2	10		Project Planning	3	10
				60		60			60				60
Spring Semester	Calculus and Numerical Methods	1	10	Multimedia	1	10	Business Environment	0	10		Database Security	3	10
	Probability and Statistics	0	10	Object Oriented Programming	1	10	COMPUTER ARCHITECTURE	2	15		.NET Programming	3	10
	Introduction to Internet	0	10	Software Engineering	1	10	Internet Programming	2	10		ELECTIVE - III	3	10
	SYSTEM ANALYSIS AND DESIGN	1	15	Operating Systems	2	10	Advanced Object Oriented Programming	2	10		Project Design and Implementation	3	30
	INTRODUCTION TO PROGRAMMING	0	15	PROJECT - I	2	20	ELECTIVE - II	2	15				
			60		60			60				60	
	Certificate in Computing			Diploma in Computer Science			Advanced Diploma in Computer Science				BSc (Hons) in Computer Science		
WHITE	10	COLLEGE REQUIREMENT				Level 0	125						
TURQUOISE	10	DEPARTMENTAL REQUIREMENT				Level 1	120						
YELLOW	13	MAJOR ELECTIVES				Level 2	125						
RED	2	PROJECT				Level 3	110						
LAVENDAR	4	ELECTIVES					480						
	39					Level 2+Level 3	235						

3. PROGRAMME LEARNING OUTCOMES

On successful completion of the programme, students should be able to:

1. demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to computer science.
2. deploy appropriate theory, practices and tools for the specification, design, deployment and marketing of a computer system.
3. evaluate a computer system in terms of general quality attributes and assess the extent to which it meets the specification for its current use and future development.
4. present succinctly to a range of audiences (orally, electronically or in writing) rational and reasoned arguments that explain the construction, application and value of a computer system.
5. recognise the professional, commercial and ethical issues involved in the exploitation of computer technologies and be guided by the adoption of appropriate professional, ethical and legal practices.
6. work effectively as a member of a development team, recognising the different roles within a team and different ways of organising teams.

Transferable skills form an integral part of most modules. Self-directed learning and the necessity to work within tight deadlines are essential requirements in all parts of the curriculum. A variety of assessment techniques will ensure that students are given every opportunity to demonstrate skills in these areas.

4. PROGRAMME LEARNING OUTCOMES and CORE MODULES MAPPING

MODULE	1	2	3	4	5	6
Intoduction to Internet		x				
Programming Logic Development	x	x				
Fundamentals of Computer Hardware	x					
Electrical Engineering	x					
Electronics Engineering	x					
Introduction to Programming	x					
Fundamentals of RDBMS	x					
Multimedia		x	x			x
Object Oriented Paradigm		x	x			
Object Oriented Programming		x				
Software Engineering	x					
Operating Systems	x					
Project 1				x	x	x
System Analysis and Design	x		x			x
Fundamentals of Computer Networks	x					
Internet Programming		x				x
Advanced Object Oriented Programming		x				
Data Structures and Algorithms	x	x	x			
Computer Architecture	x					
Active Server Pages		x				
Object Oriented Design using UML	x	x	x			
Systems Project Management				x	x	
Database Administration	x				x	
Database Security	x		x		x	
Knowledge Management	x	x			x	
.NET Programming		x				
Project Planning	x	x	x	x	x	x
Project Design and Implementation	x	x	x	x	x	x