

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

This programme aims to equip students with knowledge and abilities that will enable them to develop and manage large database systems.

2. RATIONALE OF THE PROGRAMME

Effective information management is crucial to the success of any business enterprise. The Database Management Systems programme is designed to address the information and data management requirements of businesses and other organisations in which information systems are used.

As a consequence of changes in business practice, database management systems have evolved from being viewed as specialized computer applications to being regarded as a central element of the business environment. The use of databases and database technologies is now inherent in all areas of business and extends to other fields such as engineering, medicine, law, and education, to name but a few. The study of database systems has therefore become an essential component of any computer science degree. Furthermore, as the complexity of database systems has increased, the demand for educated professionals with *specialist* knowledge across all aspects of database development and management has grown. Such demand is not limited to one region, market or a group of users but is growing globally as these technologies develop. This provides opportunities for well qualified professionals who can not only resolve current issues, but can also use their skills and experience to build and support the next generation of database technologies.

The Database Management Systems programme is distinct and addresses the particular skills requirements of business and industry that are associated with database technologies, taking into account the need to balance theory with practice. Specific modules consider areas that are directly related to the specialisation, such as database security and the development and management of distributed database systems. Other modules included in the curriculum provide a broader perspective of topics in computer science and provide knowledge and skills in the use of underpinning technologies. Throughout, the aim is to relate theoretical concepts to practice wherever possible through exposure to practical examples found in business or industry.

Due to the considerable growth in regional businesses, e-government, and other industries, as well as an increase in the general use of information systems, a specialist programme of this nature is of value locally and internationally. The Database Management Systems programme will equip the students with practical development and management skills that will enable them to seek employment as database developers, database managers, and IT managers in any organisation which makes use of databases and information systems.

BSc (Hons) - Database Management Systems

	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	Inferential Statistics	1	10	ELECTRONICS ENGINEERING	1	15	INTERNSHIP	Omani Studies	0	10	
	Computer Fundamentals	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	Operating Systems	2	10		COMPUTER ARCHITECTURE	2	15	
	FUNDAMENTALS OF COMPUTER HARDWARE	0	15	Database Application Development	1	10	Structured Query Language Server Administration	2	10		Data Warehousing	3	10	
	ELECTRICAL ENGINEERING	0	15	ELECTIVE - I	1	15	Management Information System	2	10		Project Planning	3	10	
				60							60			
Spring Semester	Calculus and Numerical Methods	1	10	Object Oriented Paradigm	1	10	Business Environment	0	10		Advanced Database Administration	3	10	
	Descriptive Statistics	0	10	Internet Development Suite	1	10	DATABASE ADMINISTRATION	3	15		Performance Tuning	3	10	
	Introduction to Internet	0	10	DBMS Technology	2	10	Database Security	3	10		ELECTIVE - III	3	10	
	SYSTEM ANALYSIS AND DESIGN	1	15	Programming with Procedural Language/Structured Query Language	2	10	Distributed Database Management System	2	10					Project Design and Implementation
	INTRODUCTION TO PROGRAMMING	0	15	PROJECT - I	2	20	ELECTIVE - II	2	15					
			60						60					
	Certificate in Computing			Diploma in Database Management Systems			Advanced Diploma in Database Management Systems				BSc (Hons) in Database Management Systems			

WHITE	10	COLLEGE REQUIREMENT
TURQUOISE	10	DEPARTMENTAL REQUIREMENT
YELLOW	13	MAJOR ELECTIVES
RED	2	PROJECT
LAVENDAR	4	ELECTIVES

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Level 0	125
Level 1	110
Level 2	125
Level 3	120
	480
Level 2+Level 3	245

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 database technologies.
2. deploy appropriate theory, practices and tools for the specification, design, deployment and marketing of a database management system.
3. evaluate a database management 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 database management system.
5. recognise the professional, commercial and ethical issues involved in the exploitation of database 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
Fundamentals of Computer Hardware	x					
Electrical Engineering	x					
System Analysis and Design	x		x			x
Introduction to Programming	x	x				
Fundamentals of RDBMS	x	x	x			x
Database Application Development		x				
Object Oriented Paradigm		x	x			
Internet Development Suite		x				x
DBMS Technology		x	x		x	
Programming with PL / SQL		x				
Project 1				x	x	x
Electronics Engineering	x					
Fundamentals of Computer Networks	x					
Operating Systems	x					
SQL Server Administration		x				
Management Information Systems			x	x	x	x
Database Administration		x			x	
Database Security	x		x			x
Distributed Database Management Systems	x	x				
Systems Project Management				x	x	
Computer Architecture	x					
Data Warehousing	x		x	x	x	
Advanced Database Administration		x				
Performance Tuning		x	x			
Project Planning	x	x	x	x	x	x
Project Design and Implementation	x	x	x	x	x	x