

Bachelor of Engineering (Hons) Computer Hardware and Networking

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

The aim of this programme is to prepare students to apply the technology they have learnt in different areas of hardware and networking in real situations. In particular, this programme prepares students to practice their skills in the design and implementation of large-scale networks, and in the area of computer hardware, to enhance the proficiency of the students in identifying different hardware components and recognizing their relationship with, and use in, networking.

2. RATIONALE OF THE PROGRAMME

The programme is designed to address the requirements that have emerged consequent to the unprecedented growth in the use of computers and peripheral devices and the supporting networking technologies. In today's world that is rich in technology and science, use of computers has penetrated into many different activities including those that are closely associated with daily life. Be it business, science, the economy, the environment, education, fashion or cultural pursuits, computers have a well defined and constructive role to play. With the increasing use of individual or linked hardware devices, the challenges are ever growing.

These challenges are not restricted to one region, market or a group of users, although some of the issues may be user specific. They provide opportunities for well qualified professionals to not only resolve issues but also, with their experience and continuous research in real environments, to provide a variety of options by which to support the development of new easy-to-use products. With most of the hardware being activated through software and the employment of a growing range of networking techniques and principles, the scope for integrated design and development of the technologies of software, hardware and networking has increased enormously.

This programme is unique in addressing the needs of the region within established international practices. The curriculum includes subjects that help to sharpen the analytical skills and logical reasoning of students. The curriculum is a fine mix of

theory and practical work and involves in-depth exposure to real life situations through project work. There is a step-wise progression of evolving complexity and the increasingly abstract nature of the topics considered.

Career Opportunities

Growing regional requirements and industrial developments coupled with the country's plan of progress necessitate a programme of this nature. It aims to support the technology sector and the allied industrial development through enrichment of human resources with academic knowledge. Considering the industrial growth and use of computing devices in the region, a programme of this nature will be valuable. It will support the students by providing them with the necessary skills and knowledge to contribute professionally to the industry and help them meet the challenges of daily life in a technology environment.

BEng (Hons) - Computer Hardware and Networking

	Year 1	C.P	Year 2	C.P	Year 3	C.P	Summer	Year 4	C.P
Fall Semester	College Mathematics	10	Inferential Statistics	10	INTRODUCTION TO PROGRAMMING	15	INTERNSHIP	Omani Studies	10
	Computer Fundamentals	10	Business Communication	10	SYSTEMS ANALYSIS AND DESIGN	15		SPECIAL TOPIC / SYSTEMS PROJECT MANAGEMENT	15
	English for Special Purpose	10	COMPUTER ARCHITECTURE	15	Design of Network Security	10		DATABASE ADMINISTRATION	15
	FUNDAMENTALS OF COMPUTER HARDWARE	15	Digital Logic Design	10	Implementing Network Security	10		Principles of Routing	10
	ELECTRICAL ENGINEERING	15	ELECTIVE - I	15	Communication Server Administration	10		ELECTIVE - III	10
		60		60		60			60
Spring Semester	Calculus and Numerical Methods	10	Computer Network Protocols	10	Business Environment	10		Advanced Networking Technologies	10
	Descriptive Statistics	10	Network Administration	10	FUNDAMENTALS OF RELATIONAL DATABASE MANAGEMENT SYSTEM	15		Routing Protocols	10
	Introduction to Internet	10	Internet Administration	10	Microprocessors and Interfacing	10		ELECTIVE - IV	10
	ELECTRONICS ENGINEERING	15	Advanced Computer Hardware	10	Enterprise Mobility	10		PROJECT - II	30
	FUNDAMENTALS OF COMPUTER NETWORKS	15	PROJECT - I	20	ELECTIVE - II	15			
	60		60		60		60		
	<i>Certificate in Computing</i>		<i>Diploma in Computer Hardware and Networking</i>		<i>Advanced Diploma in Computer Hardware and Networking</i>		<i>BEng (Hons) in Computer Hardware and Networking</i>		

WHITE	10	
TURQUOISE	10	
YELLOW	13	
RED	2	
LAVENDAR	4	

3. PROGRAMME LEARNING OUTCOMES

On completion of this programme, graduating engineering students should be able to:

1. demonstrate knowledge and understanding of essential facts, concepts, principles and theories, and a sound grasp of science, mathematics and the technological base, relevant to computer hardware and networking.
2. analyse and interpret data and, when necessary, design experiments and use laboratory and workshop equipment to generate new data;
3. design a system, component or process to meet a given need, and evaluate the designs, processes and products of others in order to make improvements;
4. use a wide range of tools, techniques and equipment, including pertinent software;
5. communicate effectively with colleagues and others, using both written and oral methods;
6. work in a multi-disciplinary team and demonstrate an understanding of professional and ethical responsibilities;