This distinguished programme prepares those who aspire to be a leader of their current organizations, executives of service providers, network operators and corporate networks, or entrepreneurs who aspire to start up new technical ventures in the area of communication network and services. The Department of Information Engineering is the leading department in Hong Kong focused on networking and communication technologies. Our Part-time MSc programme, established in 1997, is a taught-course programme aiming at providing students with science and engineering backgrounds the essential knowledge to become leaders in the field of networking and communication. Join the thousands of our IE alumni who have already been making a big impact in the IE industry.

**PART-TIME MASTER OF SCIENCE DEGREE PROGRAMME IN INFORMATION ENGINEERING**

**- EQUIPPING THE LEADERS OF THE INFORMATION AGE**

**Features of the programme:**
- Two tracks for dual-ladder career advancement:
  1. Technology track – offers in-depth understanding of new IE technologies and trends; and
- Prominent IE industry leaders will be invited to share their experiences in IE project planning and management.
- Practical workshops on Internet security and server administration skills.
- Scholarships are available for students with strong academic records.
- Flexible study – programme can be completed in a 2- or 3-year part-time study.
- Broad coverage - student can elect up to two courses from other Part-time MSc programme within the Engineering Faculty (except the programme by the Department of Computer Science and Engineering).
- Convenient location - lectures will be conducted in weekday evenings either at the Hong Kong Science Technology Parks (next to Kowloon Tong MTR station) or at the CUHK campus.
PART-TIME M.SC. DEGREE PROGRAMME IN INFORMATION ENGINEERING

COURSE DESCRIPTION

Technical Track
- IEG7000 Computer Networks
  Local area network; internetworking components (switches, bridges, routers, etc.); Internet protocols; presentation and application protocols; network security; network system case studies.
- IEG7002 Switching Theory and Applications
  Concepts of switching, transmission, multiplexing and concentration; packet switching and routing principles; crossbar/bus/shared-memory switches; Ethernet switches; switching system-on-chip; parallel switching control in sorting, concentration, multicasting, and distribution; network traffic modelling, and performance analysis.
- IEG7004 Traffic Engineering
  Traffic characterisation; loss systems; network blocking probabilities; delay systems; performance evaluation methodologies: queueing analysis, discrete-event simulation, concept of quality of service and measurement.
- IEG7007 Multimedia Coding and Processing
  Digital text, image and video processing; standard of video compression; digital text, image, audio and video coding techniques; digital and passive and active components, optical system design, lightwave systems and networks; optical network management.
- IEG7006 System Administration and Network Security
  This is a 10-12 week workshop for students to gain hands-on experience in system administration and network security. Selected topics include the set up of DNS and mail servers, the set up of certificate and secured web server for e-commerce applications, the use of network monitoring tools, the set up of firewall, intrusion detection, and hacking techniques.

Technical and Management Track
- IEG7001 Wireless Communication Systems
  Physical characteristics of radio channels; cellular coverage; radio modem technologies; channel assignment; handoff and mobility management; wide area wireless network case studies: GSM and 3G; local area wireless network case studies: IEEE 802.11 and IEEE 802.15; satellite communications, GPS system.
- IEG7003 Network Programming and System Design
  Client-server system design, interprocess communication, sockets, blocking and non-blocking I/O, multi-threaded process, iterative and concurrent server designs; system-throughput bottlenecks; object-oriented programming (Java); case studies: FTP, RPC, Web.
- IEG7005 Optical Communication and Lightwave Networks
  Optical fibre and transmission characteristics, optical sources and transmitters, photo detectors and optical receivers, optical passive and active components, optical system design, lightwave systems and networks; optical network management.
- IEG7004 Traffic Engineering
  Traffic characterisation; loss systems; network blocking probabilities; delay systems; performance evaluation methodologies: queueing analysis, discrete-event simulation, concept of quality of service and measurement.
- IEG7007 Multimedia Coding and Processing
  Digital text, image and video processing; standard of video compression; digital text, image, audio and video coding techniques; digital and passive and active components, optical system design, lightwave systems and networks; optical network management.

Management Track (subjected to approval)
- Information Engineering and Technology Management
- Case Studies in Information Engineering Project Planning and Management
  This course offers students practical knowledge and insight in IE project planning and management through case studies of selected large scale IE infrastructural projects. Guest speakers will be invited to share their knowledge and experience. Examples are: financial institutions, banks, stock exchange, transportation and logistic infrastructures; railway, airport, cargo and container industry, corporate information / enterprise management systems and networks, government and public information networks. ISP and Telco networks etc. Students shall participate in hypothetical case planning of selected IE infrastructural projects.
- Innovation and Entrepreneurship in Information Engineering
  Entrepreneur characteristics; product innovation: factors driving innovation, creation and evaluation of new product ideas, risk assessment of commercialization, critical factors for success; business planning: market assessment and strategy; business model; product planning, financial planning, cash flow; financing options, negotiation and deals; formation of a new venture team, company and product building; execution and dealing with reality; exit strategies; case studies related to innovation and entrepreneurship in information engineering.
- Information and Software Engineering Practices
  Software life cycle, requirement analysis, specifications, system design and integration, object oriented design and development, software testing and maintenance, software quality and performance metric, documentation, CASE tools, software project planning and management, software intellectual property and security.

Further Information:
Application forms may be obtained from the Graduate School, 4/F., Academic Building No. 1, The Chinese University of Hong Kong, Shatin. Applications should be submitted to the Graduate School Secretariat of The Chinese University of Hong Kong (CUHK), Shatin. Applications will be invited to share their knowledge and experience. Examples are: financial institutions, banks, stock exchange, transportation and logistic infrastructures; railway, airport, cargo and container industry, corporate information / enterprise management systems and networks, government and public information networks. ISP and Telco networks etc. Students shall participate in hypothetical case planning of selected IE infrastructural projects.

Programme:
The Programme is designed to provide students with working experience in the field of information technologies, with particular emphasis on computer networking and communication systems.

Application Deadline:
15th March 2004

Tuition Fee:
HK$70,000 in five equal installments (One installment per term)

Study Period:
2 years (5-term)

Programme Organization:
Each course consists of twelve/thirteen 3-hour lecture / laboratory sessions over a period of 12 weeks to 13 weeks, and a recess followed by a 2 or 3 hours examination. Normally one or two courses will be offered per term. Lectures will be conducted during weekday evenings at the Tech Centre of Hong Kong Science & Technology Parks next to Kowloon Tong MTR station or at the campus of The Chinese University of Hong Kong (CUHK), Shatin. Access to the laboratories in the department at CUHK will be provided.

Graduation Requirements:
To fulfil the M.Sc. degree requirements, students are required to:
- complete a total of eight graduate courses, up to two of which could be graduate courses from other departments within the Engineering Faculty, subject to approval of departments concerned;
- achieve a GPA of 2.0 or above for the programme;
- Pass IT Proficiency Test. For details, please browse the homepage of Information Technology Services Centre http://www.itc.cuhk.edu.hk.

Application Requirements:
Applicants should normally hold a Bachelor degree in physical science or engineering with at least Second Class Honours or equivalent. The applicant must also satisfy the general entrance requirement of the Graduate School Secretariat.