FACULTY OF COMPUTING AND ENGINEERING SCIENCES

MS Cyber Security

The MS (Cyber Security) program is of 2-years duration offered in the evening. It requires 33 credit hours, including 4 core courses (3 credits) and 5 elective courses (3 credits). To earn MS (Cyber Security) degree, the student has to complete a thesis (2 x 3 Credits). The maximum time limit to complete the MS (Cyber Security) degree is 4 years.

Why Study Cyber security?

The world is adapting innovative IT solutions such as mobile technology, online banking and electronic government services into everyday use. However, with so many e-solutions and such extensive use of the Internet, attention needs to be turned to the security issue. Cyber systems require innovative and secure IT solutions for everyday use. Therefore, the demand for skilled security professionals is arising to protect against cyber-attacks. Offered through the Department of Computer Science, MS (Cyber security) is designed to respond to the fast-growing demand for technical cyber security experts nationally and internationally. It provides the necessary foundations for the design and development of systems that need to be secure. The major focus will be given to the design of secure systems that exhibit confidentiality, integrity, and availability. The program will provide students with core skills in wide aspects of the security of information systems.

Key objectives of the program are as follow:

PEO-1 Recognize and evaluate security requirements and issues in organizations using IT systems.
PEO-2 Assess cyber security risk management policies to protect an organization's critical information and assets adequately.
PEO-3 Measure the performance of security systems within an enterprise-level information system to maintain and update an enterprise-level information security system.
PEO-4 Implement continuous network monitoring and provide real-time security solutions.

First Year

First Semester

CYS 5101	Applied Cryptography
CYS 5103	Network Security
CYS 5102	Information Security

Second Semester

CYS 5201	Digital Forensics
CYS 5xxx	Elective-I
CYS 5xxx	Elective-II

Second Year

Third Semester

CYS 5xxx	Elective-III
CYS 5xxx	Elective-IV
CYS 5109	Thesis (Part-1)

Fourth Semester

CYS 5xxx	Elective-V
CYS 5209	Thesis (Part-II)

Deficiency Courses
Programming Fundamentals (Core Programming Course)
Data Structures & Algorithms OR Design & Analysis of Algorithms
Computer Networks

Electives Courses

CYS 5234 Network Penetration Testing and Countermeasures
CYS 5237 Security in Mobile and Wireless Networks
CYS 5332 Ethical Hacking
CYS 5334 Malware Detection and Analysis
CYS 5232 Blockchain and Crypto Assets
CYS 5333 Intrusion Detection and Firewalls
CYS 5235 Reverse Engineering and Malware Analysis
CYS 5335 Security and Privacy for the Smart Grid
CYS 5233 Machine Learning for Cyber Security
CYS 5337 Security Modelling and Analysis of Mobile Agent Systems
CYS 5236 Security in Ad Hoc Sensor Networks
CYS 5336 Security in Cloud Environment
CYS 5231 Advanced Topic in Cyber Security - I
CYS 5331 Advanced Topic in Cyber Security - II

Course type	Min No. of Courses Min	No. of Credit Hours
Core Courses	4 x 3	12
Electives	5 x 3	15
Thesis	2 x 3	06
Total		**33**