



# Master of Science in Information Security



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For over 50 years, United States International University-Africa has offered quality education to students from all over the world, with over 70 nationalities currently represented in our student population.

All USIU-Africa programs have been approved by the Commission for University Education (CUE) and the WASC Senior College and University Commission, ensuring that the highest standards have been met in Kenya and the United States respectively.

## Program description



The goal of the Master of Science in Information Security (MSc. ISEC) programme is to prepare the graduates for the intellectual, analytical and practical challenges of a career in Information Security. The MSc. ISEC programme will utilize an active, experiential learning environment that prepares students to apply the acquired knowledge of information security, for the betterment of organizational operations and society at large. It will contribute to the university mission outcomes which are higher order thinking; literacy; global understanding and multicultural perspective; preparedness for career; community service; and leadership and ethics.

## Program learning outcomes

1. Assess new developments in information security threats, technologies and controls.
2. Conduct a forensic audit on a range of information security breaches
3. Implement cryptographic enabled mechanisms to counter a range of information security breaches
4. Design network defense solutions to counter cyber threats in modern organizations' networks and systems
5. Analyze strategic information systems security governance and management in organizations
6. Execute scholarly information security research, communicate effectively, and develop professional skills in information security discipline.



## Mode of delivery

The Master of Science in Information Security programme will be delivered through face to face learning on part-time basis.

## Admission requirements

**The applicants must be holders of the following qualifications from local or international accredited universities:**

- a) BSc degree in Information Systems and Technology (IST), or related field such as Computer Science/Computer Technology, Cybersecurity, Mathematics and Computer Science, Electronic Engineering , Criminology with a GPA of 3.0 on a scale of 4.00 or its equivalent, or
- b) BSc degree in Information Systems and Technology (IST), or related field such as Computer Science/Computer Technology, Cybersecurity, Mathematics and Computer Science, Electronic Engineering, Criminology With a GPA of 2.50 on a scale of 4.00 with additional relevant training, evidence of research capability either through research, paper presentations or peer reviewed publications and relevant working experience, or
- c) BSc degree in Engineering, Statistics, or Physics with a GPA of 3.0, with a postgraduate Diploma in Computer Science with a credit pass.
- d) Holders of other related qualifications from recognized universities, considered by the CUE as equivalent to a degree in Computer Science with a GPA of 3.0.

**All applicants considered will be required to take and pass a placement exam on admission. Those who fail will take all the survey courses.**



## List of the institution's core courses

The MSc in Information System Security students will be required to complete 54 units to graduate which are made up of 49.5 units (fifteen courses) of core courses and one elective course of 4.5 credit units. Each course entails 45 lecture hours per trimester unless otherwise specified, and the 4.5 credit-unit courses have an additional lab component of 3 hours a week. Hence the total lecture and lab hours required to graduate is  $(16 \times 45)$  for lectures plus  $(4 \times 45)$  for courses with intense labs giving a total of 900 hours.

Degree Requirements:	54 Credit Units
Core Courses:	49.5 Credit Units
Elective Courses:	4.5 Credit Units

## Core Courses

49.5 Credit Units

ISC 6110	Network Security and Management	3
ISC 6120	Intrusion Detection and Prevention	3
ISC 6140	IT Security Techniques and Incident Handling	3
ISC 6210	Software Security	4.5
ISC 6220	Advanced Cryptography	3
ISC 6230	Information Security Auditing and Compliance	3
ISC 6310	Digital Forensics	4.5
ISC 6320	Ethical Issues in Information Security	4.5
ISC 6330	Information Security Governance and Management	3
ISR 6410	Research Methods in Computer Science	3
ISR 6420	Modern Issues in Information Security (Special Topics Course)	3
ISC 6430	Security architecture for cloud computing	3
ISR 6890	Research Thesis I (Proposal Stage)	3
ISR 6892	Research Thesis II (Experimentation/field)	3
ISR 6894	Research Thesis III (Thesis writing and defense)	3

## Elective Courses:

4.5 Credit Units

ISE 6440	Reverse Engineering and Malware Analysis	4.5
ISE 6450	Vulnerability Assessment and Penetration Testing	4.5

## A list of the programme's courses to be taken by the students by trimester

### Year 1 Semester 1

ISC 6110	Network Security and Management
ISC 6120	Intrusion Detection & Prevention
ISC 6140	IT Security Techniques and Incident Handling

### Year 1 Semester 2

ISC 6210	Software Security
ISC 6220	Advanced Cryptography
ISC 6230	Information Security Auditing & Compliance

### Year 1 Semester 3

ISC 6310	Digital Forensics
ISC 6330	Information Security Governance & Management
ISR 6410	Research Methods in Computer Science

### Year 2 Semester 1

ISR 6890	Research Thesis I (Proposal Stage)
ISR 6420	Modern Issues in Info Security (Special Topics Course)
ISC 6430	Security architecture for cloud computing

### Year 2 Semester 2

#### Elective

ISC 6320	Ethical Issues in Info Security
ISR 6892	Research Thesis II (Experimentation/field)

### Year 2 Semesters 3

ISR 6894	Research Thesis III (Thesis writing and defense)
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## CONTACTS

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