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# KABARAK UNIVERSITY

## SCHOOL OF SCIENCE, ENGINEERING AND TECHNOLOGY

## CURRICULUM

FOR

# MASTER OF SCIENCE IN INFORMATION TECHNOLOGY SECURITY AND AUDIT

**Submitted to**

**COMMISSION FOR UNIVERSITY EDUCATION**

**NOVEMBER 2019**



This Degree Programme Was approved by the Commission for University Education on:

09 NOV 2019

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# 2.0 CURRICULUM

## 2.1 Title of the Program

Master of Science in Information Technology Security and Audit

## 2.2 Philosophy of the Program

Kabarak University is a Christian, Liberal Arts, Science and Technology Institution. This means that all disciplines and programs are to be taught in pursuit of the Vision mentioned above. Kabarak University aims to provide Christian-based quality Education, consistent with the Vision and Mission of the University. The University will use "state-of-the-art" technology in the transmission of knowledge in its academic programs. The aspiration of Kabarak University is to provide a Christ-centered Institution for the education of the whole person, through the perspective of Biblical Christian Faith and Values. The University is committed to providing a comprehensive array of high quality educational programs in the Liberal Arts, Science and Technology.

## 2.3 Rationale of the Program

### 2.3.1 Needs assessment/market survey/situation analysis

During development of the Program, a number of stakeholders were involved. Firstly, the experts in the field of IT were invited to give their views on the Program. Their contribution led to reduction of the mandatory course units from 14 to the current 11. Secondly, the potential students were also involved and finally lecturers engaged the IT industry players by interrogating the supervisors of students during assessment of undergraduate students. The idea was to establish whether higher level skills are required by the IT industry.

### 2.3.2 Justification of the need for the Program

Data and system security have become critical concerns in nearly every industry and government sector, creating a demand for high-level information security expertise. The Master of Science in IT Security and Audit Program is prepared to meet the increasing needs of high-level information security expertise looking for opportunities to study in a Christian Environment. Kabarak University focuses on holistic education that meets physical as well as spiritual needs of her students. This Information Security and Audit Program provides opportunities for advanced skill development and masters research in information security topics such as information confidentiality, integrity, governance, compliance, audit assurance, and risk management. In the first year students will undertake course works to enable them acquire the necessary theoretical grounding before embarking on independent

research in the second year. In the second year, the candidates will also get an opportunity to write their thesis. Hence the combination of the Coursework as a practical research training and independent research equip graduates with the requisite theoretical knowledge and skills required of a Master of Science in I.T Security and Audit. People who choose this specialization are often pursuing senior leadership, consulting, or faculty positions in information security within military, government, education, and private sectors.

**Table 1. Responses of Respondents to the need of MSc. in IT Security and Audit training at the Kabarak University**

| | SD | D | SOD | N | SOMA | A | SA | CHISQ | P>CHISQ |
|---|---|---|---|---|---|---|---|---|---|
| Current training in computer science covers all computer needs? | 1.99 | 20.9 | 21.4 | 23.38 | 21.39 | 3.98 | 6.97 | 75.8 | <.0001 |
| We need graduates that can detect and protect our data from intrusion or hacking | 1.49 | 8.46 | 3.98 | 20.4 | 29.35 | 18.41 | 17.91 | 84.2 | <.0001 |
| In the last five years, my computer security has been breached more than once. | 6.47 | 3.48 | 3.98 | 9.95 | 28.86 | 24.38 | 22.89 | 97.2 | <.0001 |
| Even when our computers have protection from virus they still have been attacked | 1.49 | 2.49 | 0.5 | 7.46 | 32.84 | 11.94 | 43.28 | 243.4 | <.0001 |
| PhD IT Security and audit will meet some of this need | 0.5 | 1.5 | 2.5 | 13.5 | 15 | 26.5 | 40.5 | 186.2 | <.0001 |
| PhD IT Security and audit could enhance our defense on our company data as well as develop manpower for research | 1 | 1 | 3 | 14 | 11.5 | 32 | 37.5 | 187.8 | <.0001 |
| There is need for training in PhD IT Security and audit that can enhance data security and research needs | 1.52 | 1.01 | 3.03 | 15.66 | 15.66 | 24.75 | 38.38 | 160.8 | <.0001 |

The respondents somehow disagreed (SOD=23%, $\chi^2 = 75.8, P \leq 0.0001$) that the current training in computer science meet our national needs. They also somehow agreed (SOMA=29%, $\chi^2 = 84.2, P \leq 0.0001$) they need graduates that can detect intrusion or hacking (cybercrime) on their data. The respondents somehow agreed (SOMA=29%, $\chi^2 = 97.2, P \leq 0.0001$) that in the

last five years, their computer security has been breached more than once. Despite the fact that most computer sets are regularly protected by anti-virus software, the respondents strongly agreed (43%, $\chi^2 = 243.4, P \leq 0.0001$) that their computers sometimes get attacked. The respondents strongly agreed that launching a PhD Security and audit) will meet the human resource needs of this country (Table 1).

## 2.4 Goal of the Program

The goal of the Master of Science in IT Security and Audit course is to impart practical skills and knowledge in various aspects of IT Security and Audit. These include such areas as information confidentiality, integrity, governance, compliance, audit assurance, and risk management. This Program aims at providing skills in the area of research methods and techniques, thereby producing IT Security and Audit practitioners, scholars and educators.

## 2.5 Program Learning Outcomes

At the end of the program, a graduate of MSc in IT Security and Audit should be able to:

1. Analyze a wide variety of issues, discuss skills techniques and identify tools in information technology security and audit.
2. Identify and apply relevant techniques and tools to address information security needs in a wide variety of contexts in society, industry and government.
3. Undertake independent research and disseminate the findings using relevant media and in appropriate forums.

### 2.6 Mode of Delivery

The Master of Science in IT Security and Audit shall be by Coursework, Examination and Thesis, or Coursework, Examination and Creative Dissertation as described below:

- Course work, examination, and thesis.
- Face-to-face learning supported by ICT and e-learning tools
- Class discussions
- Class Presentations
- Group assignments

## 2.7 Academic Regulations for the Program

### 2.7.1 Minimum admission requirements

Bachelor's degree in Computer Science/IT Second Class (Upper); OR Second Class (Lower) with Postgraduate Diploma in Computer Science; OR evidence of extensive research experience as demonstrated by publications in peer reviewed journals.

### 2.7.2 Course requirements

a) The student's grade in each unit shall be based upon performance and/or participation in class, exercises, tests, assignments and final examination. Failure to attend class without a good reason, for more than two weeks may cause a student to be dropped from the rolls of the University at any time.

b) Obligations of the Lecturer

Lecturers have the following obligations:

i) Preparing the course outline based on the respective course syllabus upon which the course will be taught and final grade determined. Copies of the course outlines must be distributed to students and lodged with the Head of Department.

ii) Providing consultation to students for academic advising and mentoring.

iii) Providing the University with fair academic evaluation of the work of each student at the end of each semester.