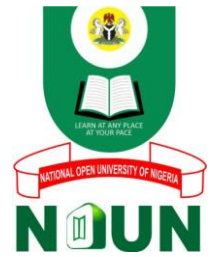




**NATIONAL OPEN UNIVERSITY OF NIGERIA  
AFRICA CENTRE OF EXCELLENCE ON  
TECHNOLOGY ENHANCED LEARNING**



**Postgraduate Student Handbook  
(2019-2022)**

**M. Sc.  
CYBER SECURITY**



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Enhanced Learning (ACETEL)  
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## **ACKNOWLEDGEMENTS**

This handbook, is produced in the African Centre for Excellence on Technology Enhanced Learning (ACETEL) for the Centre's postgraduate students. It is a product of the efforts and contributions of the Handbook Committee, and support of several persons in the University and Sectoral Partners. Our gratitude goes to: the Vice-Chancellor, Professor Olufemi Peters for the moral and financial support towards the production of this handbook; the Centre Leader, Professor Grace E. Jokthan, who constituted the Committee and supported it to develop this handbook; the Registry-Academic Office, Information and Communication Technology Directorate of the University, and Programme units within the Centre for their cooperation in providing information; and the Centre Secretariat for secretarial assistance.

The handbook is designed for easy reference, and contains concise information on the Centre and Programmes. It is our hope and expectation that students of the ACETEL will find the handbook useful.

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## **GLOSSARY OF TERMS**

## **VISION AND MISSION STATEMENTS OF THE NATIONAL OPEN UNIVERSITY OF NIGERIA**

### **Vision Statement**

To be regarded as the foremost University providing highly accessible and enhanced quality education anchored by social justice, equality and national cohesion through a comprehensive reach that transcends all barriers.

### **Mission Statement**

To provide functional, cost effective, flexible learning which adds life-long value to quality education for all who seek knowledge.

### **ANTHEM**

National Open University of Nigeria  
Determined to be the foremost university in Nigeria  
Providing highly accessible  
And enhanced quality education  
Anchored on social justice  
Equity, equality and national cohesion

Come to NOUN  
For functional, cost effective and flexible learning  
That adds lifelong value  
For all who yearn  
For quality education  
And for all who seek knowledge

**PHILOSOPHY, VISION AND MISSION STATEMENTS OF  
AFRICA CENTRE OF EXCELLENCE ON TECHNOLOGY ENHANCED  
LEARNING  
NATIONAL OPEN UNIVERSITY OF NIGERIA**

**Philosophy**

Leveraging on the affordances of technology to ensure digital literacy and enhance the quality of STEM education

**Vision**

To be recognised for excellence in research and development of ICT digital solutions and their secure deployment for learning with application to all sectors

**Mission**

Development of digital expertise to drive economic growth and transformation in the West African sub- region and beyond

## FOREWORD FROM THE VICE-CHANCELLOR

The National Open University of Nigeria, the only single mode open and distance learning institution in Nigeria and indeed in the West African sub-region has come a long way since its establishment in 2002. The University, which began with four Schools, has blossomed into its current number of eight Faculties. The institution prides itself in the uniqueness of its vision and mission – to be the foremost university that provides functional cost effective flexible learning which adds lifelong value to quality education for all who seek knowledge- and in implementing innovative methods that facilitate an enriching learning experience.



As it assiduously works towards the realisation of its vision and mission statements, NOUN continues to take great strides especially in using technology to make education accessible to millions of Nigerians, irrespective of age, gender, and employment status. To date, the institution has its automated admission, registration, continuous assessment, examinations, and is currently providing tutorial facilitation virtually.

It is on this premise the, University won the World Bank funded project of the Centre of Excellence on Technology Enhanced Learning (ACETEL). ACETEL runs six (6) academic programmes at Postgraduate level. These programmes focus on three Masters and three Ph. D. degrees in Cyber security, Artificial Intelligence and Management Information Systems. There are also Information technology skilled based short courses. Its programmes, academic staff, and graduates are among the best to develop digital tools in for education and research.

ACETEL handbook, which has been designed to meet international standards, complements the University's General Catalogue as a reference tool for information on matters specific to the Centre, its programmes, relevant policies, rules and procedures to guide students through the new experience of learning in ACETEL.

I urge every student of the Centre to read this handbook and make it a constant companion in order to get the best out of your learning experience at ACETEL. Welcome on board.

**Professor Olufemi Peters**  
Vice-Chancellor





## **WELCOME FROM THE CENTRE DIRECTOR**

Welcome to the Centre of Excellence on Technology Enhanced Learning (ACETEL). The Centre was launched at the Djibouti Workshop of World Bank and Association of African Universities (AAU) as one of the ACE Impact Project in February, 2019. The Centre offers six (6) programmes at the postgraduate level. They are M.Sc. Cyber Security, M.Sc. Management Information System, M.Sc. Artificial Intelligence, Ph.D. Cyber Security, Ph.D. Management Information System and Ph.D. Artificial Intelligence. We are pleased that all of these programmes

have the approval of the National regulatory body, the National Universities Commission (NUC). In addition, the Centre will offer fourteen (14) short courses Digital Literacy, Cyber Security, Entrepreneurship, Leadership and Project Management, Learning Technology, Programming, English Language for Non English Speakers, Cloud Computing, Block Chain, Open Government Data, Data base management, Data analysis and Artificial Intelligence. Our students spans through all regions in Africa generally but West African sub-region specifically.

In the area of research, the African Centre of Excellence on Technology Enhanced Learning (ACETEL) focuses its research on digitalization of learning in postgraduate programmes using open and distance learning mode. The aim of research in the Centre is to examine the Information technology needs in the education space with application to public sector; and to develop digital software learning tools which will build digital capacity for learning, skill acquisition and research.

Our capacities lie the utilisation of computer professionals at the Department of Computer Science, Information, Communication and Technology (ICT) Unit, Management Information System (MIS) Unit and educational researchers from the Faculty of Education. Beside these academics and researchers, the Centre also collaborate with other professionals in the public sector and educational researchers in other universities in Nigeria and beyond.

In a knowledge economy, we remain committed to ensuring that we produce postgraduates that are highly valued by employers. By your enrolment in the Centre, you have become a member of this special extended community. Therefore, I encourage you to take advantage of this unique opportunity to equip yourself so that you can contribute and make a difference in the world. Please take some time to go through this student handbook. It contains important information about your programme and the degree requirements that you must fulfill to earn a postgraduate degree. Ultimately, it is your responsibility to ensure that you satisfy all the requirements for your programme. In addition, the handbook also contains information about resources that are available at Centre such as library facilities, ICT, Virtual laboratory, recording studios and eLearning support, academic counseling services as well as University policies that will assist you as you navigate your

learning experience. I encourage you to consult it regularly as a reference tool. Best wishes for a successful and fulfilling learning experience.

**Prof. Grace E. Jokthan**  
Centre Director

### **PRINCIPAL OFFICERS FOR THE UNIVERSITY**

| <b>S/N</b> | <b>NAMES</b>             | <b>POSITION</b>                      | <b>EMAIL</b>         | <b>TEL. NUMBERS</b> |
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## **PART 1: INTRODUCTION**

### **1.1 About the National Open University of Nigeria**

The National Open University was first established on the 22<sup>nd</sup> July, 1983 by Act No. 6 of the National Assembly. It is the first and only single-mode university in Nigeria that is dedicated to the provision of higher education through the Open and Distance Learning (ODL) mode. Shortly after however, the National Open University Act of 1983 by which the University was established, was suspended on the 25<sup>th</sup> April 1984. In the Nation's search of a means of providing education for all her citizens, a National Workshop on Distance Education held in September 2000 and it called for the development and implementation of a National Policy on Open and Distance Education, the use of Open and Distance Learning to train teachers, and the re-establishment of the National Open University. Thus, in response to this call and eighteen years after its suspension, the University was resuscitated as the National Open University of Nigeria (NOUN) on 1<sup>st</sup> October 2002.

NOUN operates the open and distance education system which the National Policy on Education describes as a system that encompasses education for all, education for life, Lifelong learning, and Self-learning among others. The rebirth of NOUN, which has served as a springboard for ODL in Nigeria, is a demonstration of the country's irrevocable and unwavering commitment to education as a tool for personal and national development, and as a fundamental human right of her citizens.

The University's overall goal is to make education available to all who have the ability, and are willing and ready to benefit from functional and quality education provided through flexible and affordable distance learning.

### **1.2 Studying through Open and Distance Learning at NOUN**

Open and Distance Learning is a mode of learning that is characterised by the separation of the teacher in space and or time from the learner, and enables learners to exercise choice over their learning regarding what, how, where they learn, pace of learning, support for learning, when and where assessment of learning takes place. NOUN's approach to ODL has the following features:

- i. **Openness:** Removal of all barriers or restrictions to learning that characterise traditional education. They include restrictions by age, course and programme duration, location of study, and entry qualifications or recognition of prior learning and cognate work experience.
- ii. **Flexibility of learning:** The emphasis is on learning rather than teaching. It is students' responsibility to choose how they want to study, learn anywhere, anytime, and at their own pace mediated by technology. In other words, it is learner-centred rather than teacher-centred. Programmes can be completed up to double the normal duration of programmes.

- iii. **Accessibility:** Study Centres at state, community, and special (prison, paramilitary agencies and military units) levels to reach all segments, communities and individuals in the society who are committed to improving their circumstances through education including the disadvantaged and marginalised.
- iv. **Affordability:** Removal of financial barriers by allowing learners to pay as they study and by providing materials and other services on a cost recovery basis.
- v. **Multi-modal instructional delivery:** Delivery methods using a variety of media and technologies that is most easily available to learners ranging from print, audio, video, radio, television, and the Internet (web-based instruction).
  - Availability of course materials in Print, Compact Discs, eCourseware, and OER formats.
  - NOUN's eLearning platform of Directorate of Learning Content Management System (DLCMS) has provision for video tutorial lectures, online discussion classes with facilitators and peers, and assessment quizzes and practice tests. The instructional mode of delivery and learning provides the opportunity for learners who are employed or self-employed to acquire knowledge, skills and techniques which may be relevant to their present work situation or to improve their academic qualifications for better career prospects, without leaving their current location. ACETEL keys into the operations of this Directorate to her students effective instructional delivery.

### **Quality Assurance in African Centre of Excellence on Technology Enhanced Learning (ACETEL)**

To ensure high level of quality assurance in all the courses of all the programmes offered in ACETEL, the Centre, in collaboration with the Quality Assurance body of the university, insists on Total Quality Management (TQM) of all our programmes through qualitative method of admission that selects the best of qualified applicants. The centre also embarks on rigorous method of study material development that allows for only the best brains available to handle the develop course outline of all our courses to guide the development of study materials. In the same manner, the centre engages competent hands to develop the study materials. In addition, there is adequate supervision of all the administrative and academic activities to ensure quality in online facilitation videos, online lecture, tutorial, as well as tests and examinations administration in ACETEL. High technologies of information and communication will be deployed in all its availability to grapple with exigencies of the centre.

### **1.3 About the Africa Centre of Excellence on Technology Enhanced Learning (ACETEL)**

The National Open University of Nigeria (NOUN) was established in 1983 as the only single mode open and distance learning (ODL) institution in Nigeria. The University has the mandate to deliver education to the door steps of Nigerians and beyond. To achieve this, the University must seek for and develop strategies that will improve the use of technology in the education space. This is due to the fact that the country and indeed Africa faces critical digital development challenges. The continent lacks a critical mass of skilled labour due to low access to, and high incidences of dropout from the formal education systems.

According to an African Developmental Bank (AfDB) report (2017), most African education systems are facing ‘a triple crisis – scarce human capital, low quality and poor inclusion, and a lack of alignment with private sector needs’. The report also notes that there are ‘too few scientists and engineers in sectors that drive African economic transformation’ highlighting a shortage of professionals in Science, Technology, Engineering, Mathematics (STEM) on the continent. STEM education has been directly linked to economic growth as they constitute the source of core critical skills needed to drive development. Africa, especially the West African sub-region, needs to do more to ensure the continent’s transformation in access to knowledge and the acquisition of critical skills needed for economic transformation.

The investment in research and development for leading the utilisation of technology in education and indeed all sectors is the focus of this project. In order to optimise the continent’s research, innovation and development potentials with respect to the application of technology in learning, the formation of an entity known as Africa Centre of Excellence on Technology Enhanced Learning (ACETEL) is being proposed. The Centre focuses on:

- i. Development of digital tools and solutions, skills in software development and mobile-based applications to build capacity in the region and increase access to education of the next generation of digital experts (researchers and professionals);
- ii. Development of digital policies to guide the development, use and regulation of IT tools that are underpinned by sound pedagogy and learner-centred design and its mainstreaming in the public sector;
- iii. Building capacity with a focus on development of 21<sup>st</sup> century skills to produce the next generation of digital experts (researchers and professionals) through technology-based postgraduate programmes, short courses and internships, and developing cyber security tools and training to create awareness so as to ensure protection from intruders and hackers in order to mitigate against cyber space risk such as privacy and online safety for children.

These strategies are expected to lead to the (a) development of virtual learning environment (VLE); (b) production of experts and skilled graduates in software

research and development; (c) higher expertise on animation and digital simulations and interactive learning to make young graduates more suited to the demands of the labour market; (c) development of projects in fields such as virtual labs, software applications, simulation and animation, in order to increase the technological readiness and enhance firm-level absorption of technologies.

The centre also facilitates the establishment of partnerships and linkages with the public and private sectors. These partners provides research opportunities, training, internship opportunities, to develop, adopt, and adapt technological tools for use in the education space and promote the mainstreaming of technology-based learning in the region. The expertise and facilities available at partner institutions are available to the Centre. A robust monitoring and evaluation mechanism that improves the Centre's management of outputs, outcomes and impact are integrated into the Centre's activities. These strategies are expected to increase digital literacy and enhance subscription to STEM education leading to economic development in the sub-region. In order to optimise the continent's research and innovation potential towards building the next generation of digital experts (researchers and professionals), the Centre focuses on the following:

- Achieve distinction in research and build capacity to address social and economic development in the region through training and improving skills of researchers in the development of digital tools, solutions, and skills in software development and mobile-based applications;
- Stimulate academic-industry collaboration in development of IT tools that are underpinned by sound pedagogy and learner-centred design principles;
- Stimulate specialisation and competencies in the higher education system and build capacity with a focus on development of 21<sup>st</sup> century skills through technology-based postgraduate programmes, short courses and internships;
- Stimulate research and networks on digital policy issues on the use and regulation of digital technologies and their mainstreaming in the public sector; and
- Develop cyber security tools and training to mitigate cyber space risks and promote cyber security.

## **EXPECTED OUTCOMES**

The expected outcomes of the Centre include:

1. Partnerships and linkages with collaborating institutions in public and private sectors that will increase digital literacy and enhance quality of STEM
2. A developed resource Centre for e-learning strategies and Virtual Learning Environment (VLE);
3. Digital experts and skilled graduates in software research and development, animation and digital simulations and interactive learning for graduate employability;



4. Investment in research and development projects in fields such as virtual laboratories, software applications, simulation and animation to increase technological readiness enhance firm-level technological absorption;
5. Provision of safe and secure digital environment and tools for conduct of online activities;
6. Curricula that integrate pedagogical and instructional design that is learner-centred and enhances learning, research and applied development in Africa;
7. Postgraduate programmes, short courses and facilitate workshops, seminars and internships, that will build capacity for technology innovation and improve technology-enhanced learning;
8. Increased access and subscription to STEM for improved performance;
9. Engagement with stakeholders in a consultative forum for the establishment of procedures leading to enactment of digital policies to ensure smart societies, digital governance and sustainable digital economies.

NOUN, by virtue of its operations, leverages extensively on external expertise. Similarly, the Centre will identify and constitute from among its Partners a team of technical consultants to guide on technological issues. The centre will engage users, regional and national academic partners, industry and policy partners in the identification of gaps in capacity, research topics, and needed solutions through stakeholder workshops as well as in testing, dissemination and up scaling of digital solutions. It will also disseminate its research findings and ICT solutions through conferences, workshops and staff/student exchanges, as well as the uptake of its ICT solutions and tools for the education and public-private sector, through its industry, and institutional partners and networks.

#### **1.4 Academic Programmes**

ACETEL has 2 postgraduate programmes in Cyber Security comprising 1 Masters programmes and 1 Ph. D. programmes.

The programmes are each coordinated by a Centre Leader, Academic Programme Coordinator, Academic staff members from the Faculty, Institutional and Sectoral Partners. The programmes are:

- i. M.Sc. Cyber Security
- ii. Ph.D. Cyber Security

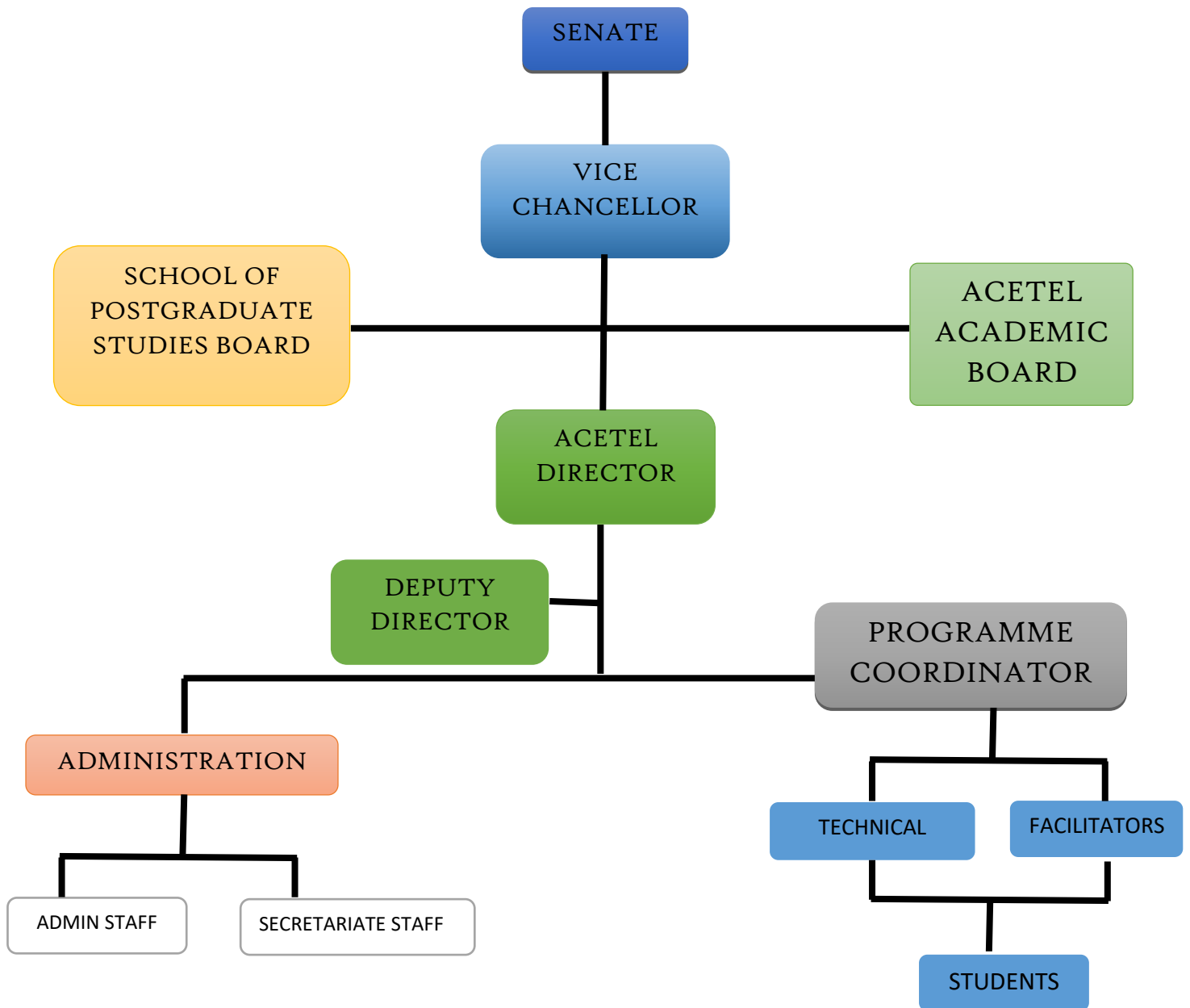
#### **1.5 Administration**

The Office of the Centre Leader/Director is responsible for the overall administration of the Centre. The Centre is headed by a Centre Leader who is assisted by other Coordinators.

For a list of current staff and their areas of responsibilities see appendix I or visit the Centre's webpage on the University's website [www.acetel@noun.edu.ng](http://www.acetel@noun.edu.ng).

Figure 1 illustrates the Centre's organisational structure:

# ORGANOGRAM



## **1.6 Orientation Programme**

Orientation programmes are organised for new students at the beginning of every academic semester during which you are familiarized with ACETEL and Open and Distance Learning (ODL) operations. The orientation programme takes place via virtual link at the various places where local and regional situated. The programme also gives you the opportunity to learn about the various facilities and support services that will enhance your learning such as first contact points at ACETEL, selection and registration of courses, information, guidance and counseling services, and use of ICT facilities. You will also have the opportunity to ask questions. You will receive information about the orientation programme through an SMS and email messages. You are advised to attend the orientation programme as it will assist you to commence your programme on good footing.

## **PART 2: PROGRAMME AND DEGREE AWARD REQUIREMENTS**

### **2.1 Introduction**

This section contains information on all you need to know about your programme requirements, registration, courses, research projects, industrial attachment, and plagiarism. You will also learn how to calculate your final grades.

#### **2.1.1 Programme Duration**

Masters programmes in ACETEL are for a minimum of three (3) and maximum of six (6) semesters.

#### **2.1.2 Course Registration**

Course registration is done online on the University's registration portal at [www.acetelnou.edu.ng](http://www.acetelnou.edu.ng). Students are expected to register for courses after they must have completed payments for the semester.

The course registration portal contains the list of all courses offered in each programme. Students are expected to register for a minimum of 10 credit units and a maximum of 20 credit units per semester and which must include a minimum of one (1) elective course per semester. Students are allowed to register for a maximum of 24 credit units where they have carried over courses failed from a previous semester.

##### **2.1.2.1 Prerequisite Course**

Some courses have prerequisites which are courses you must complete and pass before you can register for those courses. You will not be allowed to register for a course whose prerequisite course you have not passed and awarded the credit units.

##### **2.1.2.2 Registration procedure**

Students are required to visit the course registration portal at [www.acetelnoun.edu.ng](http://www.acetelnoun.edu.ng), and follow the instructions provided for registration. Upon completion of the exercise, you should print and keep a copy of the printout of your registered courses for your records and for clearance during end-of- semester examinations. Registration is activated only if there are sufficient funds in your e-wallet to cover the cost of the courses registered.

##### **2.1.2.3 Opening and Closing of the Course Registration portal**

The registration portal opens at the beginning of every semester and closes before the commencement of continuous assessment. Once the portal is closed, you will not be able to register for courses for the semester until it opens again for the next semester.

This means that students who were unable to register for their courses before the closure of the course registration portal are **Not Eligible** to take the TMA and examinations for the course(s).

### **2.1.3 Course re-registration**

You are not allowed to re-register for a course that you have already passed.

### **2.1.4 Add and/or Drop courses**

The ACETEL course registration portal makes provision for students to drop and add courses. To add or drop a course, visit the Course Registration portal and follow the instructions at [www.acetelnoun.edu.ng](http://www.acetelnoun.edu.ng). You should ensure that you add or drop courses before the course registration portal is closed.

### **2.1.5 Eligibility for Graduation**

Each postgraduate programme has its own requirement for graduation. See those requirements under each programme below.

### **2.1.6 Research Projects**

The research project is one of the requirements for the award of M. Sc. or Ph.D. degrees in ACETEL. It is a compulsory course of 6 credit units for which M. Sc. students must be duly registered in the third semester of their programme duration and 12 credit units for Ph. D. students. It is a long essay that involves research to be conducted on a topic that is approved by the Centre. The Project shall be written under the supervision of a subject matter expert that is either an academic staff in the Centre or a tutorial facilitator.

### **2.1.7 Grading, Moderation and Mode of Submission of Projects**

Projects are submitted directly to the Centre and are graded by the project supervisor, and subjected to internal and external moderation in the Centre. All Ph. D. projects would be subjected to external defense by an appointed Professor on the area of specialization the project is addressing.

#### **2.1.7.1 Grading of research projects**

Research Projects are graded as follows:

| <b>Score</b> | <b>Grade</b> | <b>Point</b> |
|--------------|--------------|--------------|
| 70 and above | A            | 5            |
| 60 – 69      | B            | 4            |
| 50 – 59      | C            | 3            |
| 45 - 49      | D            | 2            |
| 40 – 44      | E            | 1            |
| 39 and below | F            | 0            |

### **2.1.7.2 Mode of Submission of Projects**

There are guidelines for the submission of projects in ACETEL which students must comply with before a project is accepted by the Centre. All projects (whether Masters or Ph. D.) shall be printed and approved in line with the guidelines as specified for projects in the National Open University. Students are to submit 4 bounded copies of their research project, along with soft copies of the project in two (2) Compact Discs (CDs) to ACETEL.

**Note: The research project must be passed to be eligible for graduation.**

### **2.1.8 Industrial Attachment/Student Industrial Workplace Scheme (IT/SIWES)**

All Masters Students are expected to participate in at least six (6) weeks field attachment training before the end of the programme. It is a compulsory 6- credit unit course that must be passed to be eligible for graduation. The industrial attachment training must be carried out in a workplace that is relevant to students' discipline. Field supervisors shall be assigned to you to monitor and assess your' activities during the period of their attachment. Grading of the course is the same as for other courses and project (see Appendix III for information on Programme requirements for the IT/SIWES).

### **2.1.9 University Policies**

#### **2.1.9.1 ACETEL Copyright Policy**

ACETEL adopts the university copyright policy to protect the Centre's research works. Portions taken from the institution's course materials should be properly acknowledged and not used for commercial purposes. Students must also respect copyrights of non-institutions materials such as text books, research projects, images, audio or video materials by properly acknowledging the source and the author. Students are liable to violating owner's copyright through acts of plagiarism and piracy.

#### **2.1.9.2 Plagiarism**

Plagiarism is defined as 'the practice of taking someone else's work or ideas and passing them off as one's own' (Oxford Dictionary.com). Plagiarism is a serious crime and is an infringement of the rights of the copyright owner. It is an act of academic dishonesty to take ideas or work that was not originally one's own and present it as one's own ideas or your work and use it without proper acknowledgement of the source and author.

Examples of Plagiarism and the infringement of copyright owner's rights may include the following:

- Failure to obtain permission for the use of portions longer than a paragraph or to acknowledge the source and the name of the author from where sentences or passages not longer than a paragraph, figures, pictures have been taken and used word-for word;
- Paraphrasing of the ideas or works of others including those obtained from the Internet without acknowledging the source and the author of the work;
- Reproduction and sale of the institution's course materials is an act of piracy;
- Copying of another student's assignment and submitting it as one's own work; and
- Paying someone to do an assignment on one's behalf and submitting it as one's own work.

To avoid being guilty of copyright violations, students must ensure that they do the following:

- Cite all sources and names of authors from which information was obtained and used;
- Obtain permission for the use of materials that are longer than a paragraph; and
- Comply with the University's copyright policy.

Students are encouraged to avoid acts of plagiarism and other dishonest acts by learning to properly cite and acknowledge sources from which they have taken materials for their research or assignment.

## **2.2 Degree Award Requirements**

### **2.2.1 Compulsory and Elective Courses**

Programmes in ACETEL comprise courses that are either compulsory or electives. Compulsory courses are core courses that must be passed to be eligible for graduation. Elective courses are courses that are optional in terms of the number that students must register for and pass per semester. Compulsory courses and elective courses are programme-specific (see appendix IV for list of courses). For a detailed description of courses visit the Centre's web page at [www.acetelnou.edu.ng](http://www.acetelnou.edu.ng).

### **2.2.2 Minimum course credits for graduation**

Students must pass all compulsory courses and a minimum of one (1) elective course per semester.

### **2.2.3 General Studies Courses (GST)**

General Studies courses are designed to produce well-rounded, morally and intellectually capable graduates that: are equipped with digital skills to navigate through the ICT age; are capable of communicating effectively; have with the capacity

to appreciate and promote peaceful co-existence; have a broad knowledge of the Nigerian people for mutual understanding; and are independent critical thinkers capable of growing successful entrepreneurial endeavours.

General courses are compulsory courses that must be registered for and passed, in addition to the Programme's core compulsory and elective courses. Table 1 presents the general courses for the Africa Centre of Excellence on Technology and Enhanced Learning:

Table 1. Compulsory General courses for Programmes in ACETEL

| <b>LEVEL OF STUDY</b> | <b>COURSE CODE</b> | <b>COURSE TITLE</b>               | <b>CREDIT UNIT</b> |
|-----------------------|--------------------|-----------------------------------|--------------------|
| Masters               | GST807             | Study Guide for Distance Learners | 2                  |

## **2.3 M. Sc. Cyber Security**

### **Introduction**

The Africa Centre of Excellence on Technology and Enhanced Learning (ACETEL) is a world Bank funded centre established 2019, at National Open University of Nigeria (NOUN). The MSc. Cyber Security programme aims at admitting research-oriented graduates of Cyber Security Science and other related fields into the high echelon of cyber security professionalism. The programme is expected to exploit all the resources in NOUN to guide students into ground-breaking research areas towards concluding their studies with an internationally comparable dissertation by each student.

### **2.4 Philosophy**

The philosophy of M.Sc. Cyber Security programme is to build human capacity in theoretical and practical Cyber Security principles, through the use of cost-effective and flexible Open and Distance learning approaches, by combining the various innovative tools and practices leading to the production of entrepreneurial-based postgraduates who are adequately equipped with practical skills required to mitigate against cybercrime and develop high level manpower.

#### **2.4.1 Aim**

The aim of the programme is to provide advanced training in the Cyber Security principles with a view to inculcating in the students the competencies required to address the Cyber Security challenges.

#### **2.4.2 Objectives**

1. To provide graduates with solid foundation in Cyber Security Science.



2. To provide and promote sound practical and theoretical training in cyber security hardware, software, and application areas that will make our graduates useful in both private and public sectors of the economy.
3. To develop the students for the purpose of self-employment
4. To promote the career opportunities offered by Cyber Security Science and to meet with the ongoing needs of industries.

### **2.4.3 Competencies of Graduates**

At the end of a successful completion of the Master of Science in Cyber Security programme, our graduates should have abilities to:

1. Analyse cyber security problem, identify and define the requirements appropriate to its solution.
2. Analyse the impact of cyber security on individuals, organizations, and society.
3. Design, implement and evaluate a cyber-security-based system, process, component, or program to meet the desired needs.
4. Apply mathematical foundations, algorithmic principles, and cyber security science theories in the modelling and design of security-based systems in a way that demonstrates comprehension of the trade-offs in design choices.
5. Develop Cyber Security based entrepreneurial skills to thrive in this ICT age.

### **2.5 Entry Requirements**

To be admitted into the MSc. Cyber Security programme, a candidate is expected to fulfil the following minimum requirements:

- i. A Bachelor's degree from a recognised institution with a Second Class Lower in Cyber Security, Information Technology, Communication Technology, Computer Science, Computer Engineering, Electrical Engineering, Electrical/Electronics, Mathematics, Physics, Physics Electronics, Physics with Mathematics

OR

- ii. A minimum of 3-points from a recognised institution at the PGD level in Cyber Security, Information Technology, Computer Science, Communication Technology, Computer Engineering, Electrical Engineering, Electrical/Electronics, Mathematics, Physics, Physics Electronics, Physics with Mathematics

- (1) In addition, the candidate must possess a minimum of five credits in SSCE/GCE/NECO/NABTEB or its equivalent, at not more than two (2) sittings, in the following subjects: English Language, Mathematics, Physics, Chemistry and any of the following Biology, Agricultural Science, Computer Studies or Further Mathematics.

## Duration of Programmes

The programme minimum duration is 3 semesters and the maximum is 6 semesters.

## 2.6 Graduation Requirements

- i. The student must earn a minimum of 36 credit units to graduate as follows:  
Core courses=30 credit units including dissertation  
Elective courses= 6 credit units electives
- ii. The student must present two seminars before the final defense
- iii. The student is expected to publish in acceptable peer reviewed conference proceedings  
/journal
- iv. The minimum CGPA to proceed to dissertation is 3.00 and the minimum graduation CGPA is 3.00

## 2.7 Outline of Course Structure

The MSc. Cyber Security programme is structured into 3 semesters as shown below:

### First semester

#### Compulsory Courses

| Course Code               | Course Title                                 | Credit Unit | Status            |
|---------------------------|--|-------------|-------------------|
| <b>CST801</b>             | Fundamentals of Cyber Security & Cyber Crime | <b>2</b>    | <b>Compulsory</b> |
| <b>CST803</b>             | Advanced Cryptography                        | <b>3</b>    | <b>Compulsory</b> |
| <b>CST805</b>             | Computer and Network Security                | <b>3</b>    | <b>Compulsory</b> |
| <b>SCI801</b>             | Management and Entrepreneurship              | <b>2</b>    | <b>Compulsory</b> |
| <b>SCI802</b>             | ICT and Research Methodology                 | <b>2</b>    | <b>Compulsory</b> |
| <b>GST807</b>             | Study Guide for ODL                          | <b>2</b>    | <b>Required *</b> |
| <b>Total Credit Units</b> |  | <b>14</b>   |                   |

\* GST807 is required for students who have not enrolled in Distance Learning before

#### Elective Courses

| Course Code   | Course Title                     | Credit Unit | Status          |
|---------------|----------------------------------|-------------|-----------------|
| <b>CST807</b> | Secure Software Engineering      | <b>2</b>    | <b>Elective</b> |
| <b>CST809</b> | Security Architecture and Design | <b>2</b>    | <b>Elective</b> |
| <b>ATI805</b> | Machine Learning                 | <b>3</b>    | <b>Elective</b> |
| <b>ATI823</b> | Introduction to Algorithms       | <b>2</b>    | <b>Elective</b> |

### Second Semester

#### Compulsory Courses

| Course Code               | Course Title                               | Credit Unit | Status            |
|---------------------------|--|-------------|-------------------|
| <b>CST802</b>             | Malware and Digital Forensics              | <b>3</b>    | <b>Compulsory</b> |
| <b>CST804</b>             | Ethical Hacking and Penetration Testing    | <b>3</b>    | <b>Compulsory</b> |
| <b>CST806</b>             | Cyber war and Cyber Deterrence             | <b>2</b>    | <b>Compulsory</b> |
| <b>CST808</b>             | Incidence Management and Disaster Recovery | <b>2</b>    | <b>Compulsory</b> |
| <b>CST822</b>             | Seminar                                    | <b>2</b>    | <b>Compulsory</b> |
| <b>Total Credit Units</b> |  | <b>12</b>   |                   |

### Elective Courses

| Course Code   | Course Title                      | Credit Unit | Status          |
|---------------|-----------------------------------|-------------|-----------------|
| <b>CST810</b> | Web Security                      | <b>2</b>    | <b>Elective</b> |
| <b>CST812</b> | Cyber Law and Ethics              | <b>2</b>    | <b>Elective</b> |
| <b>MIS812</b> | System Development and Deployment | <b>2</b>    | <b>Elective</b> |

### Third Semester

| Course Code               | Course Title | Credit Unit | Status      |
|---------------------------|--------------|-------------|-------------|
| <b>CST899</b>             | Dissertation | <b>6</b>    | <b>Core</b> |
| <b>Total Credit Units</b> |              | <b>6</b>    |             |

\* Students are required to earn a minimum of 6 units elective before graduation.

## DETAILED COURSE CONTENT SPECIFICATION

### **CST801 Fundamentals of Cyber Security & Cyber Crime (2 Units)**

An overview of the various branches of computing security, cybersecurity concepts, challenges, and tools that are critical in solving problems in the computing security domain. Basics on network security, threat landscape, authentication, malware, cryptography, risk management, incident management; current trends in cybersecurity, cybercrime, Cyber threats, attacks, terrorism, investigation methods and techniques, economies of cybercrime, incidence management, emerging threats, cyber espionage, countermeasures, Cybercriminal behaviour.

### **Textbooks**

Computer Security Fundamentals, 3rd Edition by William (Chuck) Easttom Published by Pearson T Certification ISBN-13: 978-0-7897-5746-3

Information Security Fundamentals, 2nd Edition Thomas R. Peltier Published By: Auerbach Publications ISBN-10: 143981063X

Cybercrime and Digital Forensics: An Introduction by Thomas J. Holt, Adam M. Bossler, Kathryn C. Seigfried-Spellar 1st Edition (2015) Publisher: Routledge. ISBN-10: 9781138021303

### **CST802 Malware and Digital Forensics (3 Units)**

Malware Analysis, Malware Incident response; Analysing Physical Process Dumps for Malware Artefacts; Discovering and Extracting Malware and Associated Artefacts from Windows and Linux; Advanced Malware; Investigative and Forensic Methodologies; Forensic Analysis, Preservation and Examination of Volatile Data; Recovery of Deleted Files; Building Live Response Toolkit; Volatile Data and Non-Volatile Data Collection methodologies in Windows and Linux Live Systems; Data analytics; Windows System Forensics; Incident Response Tool Suites for Windows; Memory Forensics Methodology for Windows and Linux; Windows Memory Forensics Tools; Linux Memory Forensics Tools; Forensic Examination of Compromised Systems; Filesystem Forensics, Network Forensics, Using Linux as a Forensic Platform, Audit Trail, Report Writing, Expert Witness

### **Suggested Lab Work**

For the practical component of this course, students should be introduced to using antivirus tools to confirm maliciousness, using hashes to identify malware, gleaning information from a file's strings, functions, and headers. Perform static and dynamic analysis, demonstrate understanding of Sandboxing and Anti-sandboxing. Conduct investigative forensic methodologies to demonstrate the use of hex editors to extract file formats and systems, use of a Linux system as forensic station, artefact extraction from web browsers, recovering deleted files using forensic tools, write report on the investigation.

**Tools:** md5deep, PotentialKeylogger, ApateDNS, NetCat, Wireshark, VMware, FTK, Winhex, X-Ways Forensics, Autopsy/ The Sleuth Kit.

### **Textbooks**

Digital Forensics 1st Edition by Andre Arnes Wiley; 1 edition (2017) ISBN-10: 1119262380

Practical Windows Forensics by Ayman Shaaban and Konstantin Saproinov (2016) Packt Publishing

The Art of Memory Forensics: Detecting Malware and Threats in Windows, Linux, and Mac Memory by Aaron Walters, Andrew Case, Jamie Levy, and Michael Hale Ligh, 1<sup>st</sup> edition (2014) Publisher Wiley ISBN: 1118825098

File System Forensic Analysis by Brian Carrier, Addison-Wesley Professional 1<sup>st</sup> Edition (2015), ISBN-13: 978-0321268174

### **CST803      Advanced Cryptography (3 Units)**

Private-key cryptosystems; Advanced Encryption Standard (AES); Overview of modular arithmetic, discrete logarithms, and primality/factoring; Public-key cryptosystems; ElGamal cryptosystem, Basic signature schemes; Algebra and number theory; Discrete logarithm based cryptosystems and signatures: Elliptic Curve Cryptosystem (ECC), Digital Signature Standard (DSS), Selection of other signature schemes, Overview of discrete logarithm algorithms, Ethical aspects of public-key cryptosystems and signatures. Hashing, emerging SHA-3 standard. Interactive

protocols; Touch of complexity theory, Interactive proof systems; 0-knowledge proof systems, 0-knowledge authentication, Electronic cash; Chaum and Brands schemes, Private information retrieval; selected topics in quantum computing.

### **Suggested Lab Work**

For the practical component of this course the student should use GPG, OpenSSL to demonstrate symmetric and asymmetric encryption/decryption and MD5, SHA-1 to demonstrate hash functions. Study forms of attack (Dictionary attack, Brute force attack). Understand CrypTool, implement the algorithms for DES, RSA, MD5, SHA-1. Use Advanced Encryption Standard (AES) to protect volumes, Use Cipher Block Chaining to generate a MIC (Message integrity code), Database Encryptions, wireless security standards (WEP, WPA, WPA2), Using hashes to identify malware.

**Tools Needed:** Virtual Machine (Kali), CrypTool.

### **Textbooks**

Cryptography: Theory and Practice by Douglas R. Stinson, CRC Press, 3<sup>rd</sup> Edition 2006

Handbook of Applied Cryptography Alfred J. Menezes, Paul C. van Oorschot and Scott A. Vanstone, CRC Press 1996.

Cryptography and Network Security: Principles and Practice by William Stallings Pearson; 7<sup>th</sup> Edition (2016), ISBN-10: 0134444280

### **CST804 Ethical Hacking and Penetration Testing (3 Units)**

Focuses on penetration testing and vulnerability analysis. Introduces methodologies, techniques and tools to analyse and identify vulnerabilities in stand-alone and networked applications. An in-depth understanding of penetration (pen) testing and "ethical hacking", including requirements and reporting. Students will examine the business impact of testing and will conduct security testing (including network and web application penetration testing) in the lab environment that includes intelligence gathering, identifying and exploiting vulnerabilities, conducting post-exploitation exercises, and reporting results. Students will be required to create a comprehensive report summarizing the findings including recommendations to mitigate the risks identified. Topics will include social engineering, web application testing, managing a security test, and tools of attack

### **Suggested Lab Work**

For the practical component of this course the student should demonstrate Footprinting techniques on systems, Create Attack and Penetration Test Plan, compromise and exploitation of networks, social engineering methods.

### **Textbooks**

Hacker Techniques, Tools, and Incident Handling, 3rd Edition by Michael G. Solomon, Sean-Philip Oriyano Publisher: Jones & Bartlett Learning 2018. ISBN: 9781284147810

### **CST805 Computer and Network Security (3 Units)**

Contemporary Security, Network Intrusion detection systems, network threat and mitigation, Password Cracking, Port Scanning. Attacks and threats on computer; transmission protocols and layers. attacks on DNS and leveraging P2P deployments; Data analytics, monitoring real-time network activities enables agile decision making, detection of suspected malicious activities, utilization of a real-time visualization dashboard, and employment of a set of hardware and software to manage such detected suspicious activities.

### **Suggested Lab Work**

For the practical component of this course, the student should study and set the features of firewall in providing network security, set Firewall Security in different servers (Windows, Linux, Mac).

Study and analyse of different types of vulnerabilities for hacking Websites/Web applications. Perform an analysis the Security Vulnerabilities of E-commerce services, Blockchain Wallet, and Payment aggregator. Learn to use network security tools like GnuPG, KF sensor, Net Strumbler

### **Textbook:**

Cryptography and Network Security: Principles and Practice by William Stallings Pearson; 7<sup>th</sup> Edition (2016) ISBN-10: 0134444280

### **CST806 Cyber War and Cyber Deterrence (2 Units)**

Introduction to Cyber Warfare Threats landscape: definition of cyberwar, motivation, attackers, threats, fifth domain on warfare, differences between cyber warrior and traditional warrior; Analysis of Cyber Attacks; Cyber Weapons; Cyber Warfare Attacks and Tactics; Cyber Defence Tactics; Cyber Warfare Doctrine and Strategy; Cyber Warfare Capabilities by Nation; Legal Status and Ethics of Cyber Warfare; Emerging trends in Cyber Warfare.

### **Textbooks**

Inside Cyber Warfare: Mapping the Cyber Underworld Jeffrey Carr O'Reilly Media (2011) ISBN 1449310044

Cyber Warfare: Techniques, Tactics and Tools for Security Practitioners by Jason Andress and Steve Winterfeld, 2<sup>nd</sup> Edition Elsevier (2014) ISBN 978-0-12- 416672-1  
Cyber Warfare and the Laws of War by Heather Harrison Dinness Cambridge University Press (2012) ISBN 9780511894527  
The Basics of Cyber Warfare: Understanding the Fundamentals of Cyber Warfare in Theory and Practice by Steve Winterfeld and Jason Andress Elsevier (2012) ISBN 978-0-12- 404737-2

### **CST807      Secure Software Engineering (2 Units)**

Security requirements; Specification of security requirements; Software development lifecycle and Security development lifecycle; Programming languages and type-safe languages; Best security programming practices; Writing secure distributed programs: The security ramifications of class, field and method visibility. Character codes (i.e. ASCII, EBCDIC, UNICODE, Excess-3, Grey code, Error checking codes etc. with their needs and utilities.); Secure software, risk analysis, threat modelling, deploying cryptographic algorithms, defensive coding, penetration testing, static analysis, and security assessment; Security for web and mobile applications.

### **Suggested Lab Work**

Programming assignments leading to extensive practice in problem solving and program development involving the use of the various data structures, encryption, algorithms implemented in the course.

### **Textbooks**

Software Security: Building Security in by Gary McGraw. Addison-Wesley, ISBN 978-321-35670-3

Software Security Engineering: A Guide for Project Managers by Julia H. Allen, Sean Barnum, Robert J. Ellison, Gary McGraw, and Nancy Mead. Addison-Wesley, ISBN 978-0-32-150917-8

### **CST808      Incident Management and Disaster Recovery (2 Units)**

An Overview of Information Security and Risk Management: Overview of Risk Management, Contingency Planning and Its Components, Role of Information Security Policy in Developing Contingency Plans. Planning for Organizational Readiness; Disaster Recovery Philosophy, Principles and Planning, Contingency Plan Components, Agency response procedures and Continuity of Operations, Planning Processes, Continuity and Recovery Function, Steps of Disaster Recovery Planning Elements Required to Begin Contingency Planning, Contingency Planning Policy, Business Impact Analysis, BIA Data Collection, Budgeting for Contingency Operations. Contingency Strategies for IR/DR/BC; Data and Application Resumption, Site Resumption Strategies. Incident Response: Planning, Detection,

Decision Making, Strategies, Recovery and Maintenance. Business Continuity Planning, Crisis Management and International Standards in IR/DR/BC

### **Textbooks**

Principles of Incident Response and Disaster Recovery by Michael E. Whitman; Herbert J. Mattord and Andrew Green Publisher: Cengage Learning 2nd Edition, (2014) ISBN: 9781111138059

Incident Response & Computer Forensics, Third Edition 3rd Edition by Jason T. Luttgens, Matthew Pepe and Kevin Mandia Publisher McGraw-Hill Education; 3 edition (2014) ISBN 9780071798686.

### **CST809 Security Architecture and Design (2 Units)**

Fundamental components to security architecture; Components design; Principles of secure component design; Component identification; Anti-reverse engineering techniques; Side-channel attack mitigation; Anti-tamper technologies; open and distributed systems; and protection mechanism; formal security models and evaluation criteria; Project on modelling secure system.

### **Suggested Lab Work**

Programming assignments leading to extensive practice in endpoint security, mail security, network security, cloud security, BYOD. Design systems using Open Enterprise Security Architecture (O-ESA), Secure Collaboration-Oriented Architectures (OSCOA), SABSA security architecture frameworks. Conduct Architecture Risk Assessment.

### **Textbooks**

Securing Systems: Applied Security Architecture and Threat Models 1st Edition by Brook S.E. Schoenfield CRC Press (2015)

### **CST810 Web Security (2 Unit)**

Security Fundamentals, Creating Web Pages And running web servers, JavaScript: the language, and the browser runtime, Client-side attacks and defences, Single Page Applications, Web application back ends, Web application backing stores, Advanced side channel attacks, Web privacy, Human factors / Usable web security, Scaling and securing web applications, Advanced tooling and performance techniques.

### **Textbook**

The Tangled Web: A Guide to Securing Modern Web Applications by Michał Zalewski (2012) Publisher William Pollock

### **CST822 Seminar (2 Units)**

Split into First and Second Semesters

Literature study, writing up and oral presentation of a topic on an aspect of Cyber Security as approved by the Centre.



**CST812 Cyber Law and Ethics (2 Units)**

Legal and policy challenges of evolving cybersecurity threats at national and international level, legal frameworks; Cyber regulation, Standards, law and technology; National and International governing authorities; Security governance and policy; Privacy law; Security policy development cycle; Property-rights legislation; Virtue ethics; Utilitarian ethics and deontological ethics.

**Textbooks**

Cyberethics: Morality and Law in Cyberspace by Richard Spinello, 6th Edition (2016), Jones & Bartlett Learning, ISBN-13: 978-1284081398.

Cyber War: Law and Ethics for Virtual Conflicts, by Claire Finkelstein, Kevin Govern, Jens David Ohlin (Editors), Oxford University Press; 1 edition (2015) ISBN-13: 978-0198717508

Cyberlaw: The Law of the Internet and Information Technology by Brian Craig, 1st Edition (2012), Pearson, ISBN-13: 978-0132560870

**CST899: Dissertation (6 Units)**

Students will be expected to carry out a study in a relevant area of Cyber Security and submit a report which involves an extensive use of cyber security analysis tools. The thesis should lay much emphasis on the application of Cyber Security in the society.

**GST807 Study Guide for Distance Learning (2 Units)**

Introduction to the Open and Distance Learning (ODL) System: History of the Open and Distance Learning System, Characteristics of the Open and Distance Learning System, Teaching and Learning in the Open and Distance Learning System. Study Skills for the Distance Learner: Listening, Speaking, Reading, Writing, Study Strategies. Assessment and Evaluation Modes in Open and Distance Learning (ODL): Overview of Assessment in ODL, Instructional-Based Assessment Modes, Semester Examination, Assessment of Non-Examinable Courses. Learners' Support Services: Definition and Purposes of Learners' Support Services, Types of Learners' Support Services, Sources of Learners' Support Services, Benefits of Learners' Support Services.

**Recommended Reading**

- COTTRELL, S., 2003. The Study Skills Handbook. 2<sup>nd</sup> Edition. Basingstoke: Palgrave.
- LEE-DAVIES, L. and BAILEY, S., 2007. Developing work and study skills. [electronic resource]. London: Thomson Learning.

**Assessment methods:**

- Group Essay, Seminars, Group presentation, Examination

**SCI801      Management and Entrepreneurship (2 Units)**

The course will cover business environment, general management, financial management, entrepreneurship development, feasibility studies, marketing and managerial problem solving.

**SCI 802: ICT and Research Methodology (2 Units)**

This course should cover essentials of Spreadsheets, Internet technology, Statistical Packages, Precision and Accuracy of Estimates, Principles of Scientific Research, Concepts of Hypotheses Formulation and Testing, Organization of Research and Report Writing.

**Laboratory Requirements**

See attached

**2.8      List of Academic Staff and Facilitators**

ACETEL has chosen to operate on academic Staff supported on the field by Instructional Facilitators to ensure quality in instructional delivery. Therefore, ACETEL has the following academic staff and facilitators to man the programmes:

### 2.8.1 Academic Staff

| Name of Staff                 | F/T         | Qualification with Dates  |
|-------------------------------|-------------|---|
| Prof. Adesina Simon Sodiya    | Facilitator | Ph.D Comp. Sci, 2004 M.Sc. Comp. Sci.1999, BSc. Comp. Sci. 1992   |
| Prof. Okesola Julius          | Facilitator | Ph.D Comp. Sci, M.Sc. Comp. Sci., BSc. Maths & Comp.  |
| Prof. Olumide Babatope Longe  | Facilitator | Ph.D Comp. Sci, 2010,. Comp. Sci. 2005, BSc. Comp. Sci. 1998  |
| Prof. Adebukola Onashoga      | Facilitator | Ph.D Comp. Sci, 2010, M.Sc. Comp. Sci. 2004, BSc. Mathematical Science 2000   |
| Dr. Vivian O. Nwaocha         | Facilitator | Ph.D Computer Science (2017) , M. Sc Computer Science (2006), PGD Computer Science and Engineering (2002), B. Eng Metallurgical and Material Engineering (1995) |
| Dr. Olalere Morufu            | Facilitator | Ph.D Security in Computing 2016, M.Sc. Comp. Sci. 2011, BSc. Tech. Industrial maths 2005  |
| Dr. Aderonke Thompson         | Facilitator | Ph.D Computer Science., M.Sc. Computer Science., BSc. Computer Science.   |
| Dr. Idris Ismaila             | Facilitator | Ph.D Comp. Sci, 2014, M.Sc. Comp. Sci. 2009, B. Tech Maths & Comp. Sci. 2002  |
| Dr. Joshua Jegede Abayomi     | Facilitator | Ph.D Security & Computing 2017, MSc. Comp. 2004, BSc. Comp. Sci. 1998.  |
| Dr. Moses Ashawa              | Facilitator | Ph.D IT. Cyber defence 2022, M.Sc Comp Sci. 2017 , Bsc. Comp 2013   |
| Dr. Abiodun Adeyinka          | Facilitator | Ph.D Comp. Sci. 2020<br>M.Sc. Comp. Sci. 2012<br>B. Tech. Comp. Sci. 2008   |
| Dr. Abdulhamid M. Shafi       | Facilitator | Ph.D Computer Science., M.Sc. Computer Science., BSc. Computer Science..  |
| Dr. Bagiwa A. Mustapha        | Facilitator | Ph.D Comp. Sci, 2017 M.Sc. Comp. Sci. 2011, BSc. Comp. Sci. 2006  |
| Dr. Joseph A. Ojeniyi         | Facilitator | Ph.D Computer Science., M.Sc. Computer Science., BSc. Computer Science..  |
| Dr. Donfack Kana              | Facilitator | Ph.D Comp. Sci 2015, M.Sc. Comp. Sci. , BSc. Comp. Sci.   |
| Dr. Oloyede Ayodele           | Facilitator | Ph.D Comp. Sci, 2016 M.Sc. Comp. Sci.2005, BSc. Tech. Elect. Elect. 2002  |
| Dr. Zareefa Saleh Mustafa     | Facilitator | Ph.D Defence & Security 2016, MSc. Mobile Comp. 2009, BSc. Computer Science..2004   |
| Dr. Seheed Yakubu Kayode      | Facilitator | Ph.D Comp. Sci 2018. M.Sc Comp Sci. 2014 B.Sc. Comp 2011  |
| Dr. Lawal Ibrahim Alhaji      | Facilitator | Ph.D Computer Science., M.Sc. Computer Science., BSc. Computer Science.   |
| Dr. Osanaiye Opeyemi Ayokunle | Facilitator | PhD Elect. Electronic Egnr. 2016, M.Sc Telecoms 2007. 2007, B.Sc Electronic Egnr 2011   |
| Dr. Noma Adamu Mohammed       | Facilitator | Ph.D Computer Science., M.Sc. Computer Science., BSc. Computer Science..  |

|                              |             |  |
|------------------------------|-------------|--|
| Dr. Aborisade Dada           | Facilitator | Ph.D Computer Science., M.Sc. Computer Science., BSc. Computer Science.. |
| Dr. Okunade A. Oluwasogo     | Facilitator | Ph.D Computer Science, M.Sc. Computer Science, B.Sc Computer Science     |
| Mrs. Oluwatoyosi V. Oyewande | Facilitator | M.Sc Forensic IT, B.Sc Computing   |
| Mrs Farida S. Garki          | Facilitator | M.Sc Forensic IT, B.Sc Computing   |

It is envisaged that additional academic staff would be appointed as the years go by. They would be responsible for a whole range of activities of *Learning and Tutoring*: admission of students into the programme; registration of students into the programme; recruitment of facilitators; editing of course materials, development of some course materials, proof reading of galleys for printed course materials; preparation of the Semester examinations, and Coordination of the marking of examination answer scripts.

### **PART 3: GRADE POINT AVERAGE (GPA) AND CUMULATIVE GRADE POINT AVERAGE (CGPA)**

At the end of examinations, they are graded and scored. The raw scores are recorded and are weighted to produce a single point average for each of the courses registered for and for which students have written the Tutor Marked Assignments and Examinations.

#### **3.1 Formula for calculation of GPA and CGPA**

The Grade Point Average shall be calculated by multiplying the Grade Point (GP) attained in each course by the credit units for the course. The GPA of all the courses are added up and divided by the total number of credit units taken in a semester or session. The **GPA** is computed on semester by semester basis. The formula for calculating the GPA is the following:

$$\text{GPA: } \frac{\text{GPE}}{\text{TCC}} = \text{GPA.}$$

The cumulative grade point average is the Total Grade Point Earned (TGPE) divided by the Total Credits Carried (TCC). The **CGPA** is calculated at the end of two (2) or more semesters. The formula for calculating **CGPA** is the following:

$$\frac{\text{TGPE}}{\text{TCC}} = \text{CGPA}$$

#### **KEY:**

|      |   |  |
|------|---|--|
| TCC  | - | TOTAL CREDIT CARRIED   |
| TCE  | - | TOTAL CREDIT EARNED  |
| TGPE | - | TOTAL GRADE POINT EARNED (CREDIT POINT X WEIGHTED GRADE POINT) |
| CGPA | - | CUMMULATIVE GRADE POINT AVERAGE                                |
| WGP  | - | WEIGHTED GRADE POINT   |

#### **3.2 GRADE POINTS**

|              |   |   |   |   |
|--------------|---|---|---|---|
| 70 and above | - | A | - | 5 |
| 60 - 69      | - | B | - | 4 |
| 50 - 59      | - | C | - | 3 |
| 45 - 49      | - | D | - | 2 |
| 40 - 44      | - | E | - | 1 |
| 39 and below | - | F | - | 0 |

#### **3.3 End of Programme Clearance**

Upon the release of the graduation list, graduating students are required to undergo a clearance process as contained in the Centre website.

## **PART 4: ASSESSEMENT AND EVALUATION**

### **4.1 Introduction**

Assessment and Evaluation are the means by which students' learning outcomes are measured against the stated learning objectives for each course and programme. Three types of assessment are employed in NOUN:

**(i) Self-Assessment exercises:** These are exercises found within each study unit of the course materials. Although not graded, they are designed to help students assess their progress as they study.

**(ii) Continuous Assessment:** This type of assessment is designed to provide students an opportunity to assess their learning and progress over the duration of the course. The results constitute 30% of students' final score in a course.

**(ii) End of Semester Examinations:** As the name implies, semester examinations assess students on the entire course at the end of a semester. The examinations constitute 70% of students' total score in a course.

**Note:** Students must be duly registered for each course in the semester to be eligible for the continuous assessment and the End-of-semester examinations.

### **4.2 Tutor Marked Assignments (TMA)**

Continuous assessments in NOUN are automated in the form of computer marked assignments and are administered online. This would take the form of projects, modelling, practicals as approved by ACETEL Academic Board. You can access the TMA portal at [aceteltma@noun.edu.ng/](mailto:aceteltma@noun.edu.ng).

The TMA portal opens after course registration for the semester and it closes just before the examinations begin.

### **4.3 End-of-Semester Examinations**

Two types of examinations are employed at the Centre of Excellence on Technology Enhanced Learning. They are the eExamination and the Pen-on-Paper (PoP) examinations. The examinations are conducted at the end of every semester at the Study Centres or any other location as may be arranged by the Centre. For undergraduate students, the examinations account for 70% of the total score for the course.

### 4.3.1 Pen-on-Paper (PoP) Examinations

PoP examinations are written based examination administered in a face to face context to Masters Students. The number of questions per course is according to the credit units of a course. For a three (3) credit unit course, there are 5 questions of which four (4) must be attempted while for a 2 credit unit course, there are 4 questions of which three (3) must be attempted for the digital programmes.

### 4.3.2 General Assessments Modes

#### M. Sc. Programmes

| S/N | Academic Programmes | Modes of Assessment |                                       |                            |                  |                  |                         |              |
|-----|---------------------|---------------------|---------------------------------------|----------------------------|------------------|------------------|-------------------------|--------------|
|     |                     | Portfolios (10%)    | Mini-projects with presentation (20%) | Laboratory Practical (10%) | Internship (10%) | Assignment (20%) | Final Examination (30%) | Total (100%) |
| 1.  | M.Sc. Cybersecurity | √                   | √                                     | √                          | √                | √                | √                       |              |

### 4.3.3 Opening and Closing of Examination Portal

As it is for course registration, students must also register for examinations they wish to undertake. The portal for examination registration opens alongside the course registration portal. Students who do not register the examinations will not be allowed to write examinations in the relevant course.

## 4.4 Examination Procedures

Examinations are a very important component of a learning process. Therefore credibility and integrity of the processes must be maintained. Thus, there are policies, rules and regulations to guide the conduct of examinations.

### 4.4.1 Policies

Policies guiding the administration of examinations in NOUN include the following:

#### (i) Deferment of Examinations

In conformity with the provisions of Open and Distance learning (ODL), the University has set guidelines for the deferment of examinations and the conditions that warrant deferment thereof: For instance, students who wish to defer their examinations must apply well in advance instead of waiting until the end of semester when examinations are about to commence. These guidelines are laid out in the **“Policy on Deferment of Examinations”** (see Appendix V). Students are advised to read the document and acquaint themselves with the requirements for deferring their examinations or even courses.

**(ii) Remarking of Scripts**

The University has put a policy in place to guide requests for remarking of scripts and re-computation of results. The provisions of this policy can be found on “**Policy of Re-Marking of Students’ Examination Scripts and Re-computation of Results**” For instance, a student who wishes to request for the re-marking of his/her script(s) must appeal within 30 days from the date of publication of the results. There is a fee per course for this service (see Appendix VI). Students should familiarise themselves with the procedures before making requests for the remarking of their scripts.

**(iii) Examination Rules and Regulations**

There are laid down rules and regulations guiding the end- of -semester examinations. Students are advised to read these rules carefully before they proceed to write any examination as examination misconduct is taken very seriously in NOUN and strict disciplinary measures have been put in place for defaulters (see Examination Rules and Regulations in appendix VII).

**(iv) Examination Misconduct**

Malpractice refers to any breach of the Matriculation oath. Examples of examination malpractice are: cheating, fighting, impersonation, verbal or physical attack on lecturer(s) and staff. Examination malpractice is regarded as a very serious offence by the university and so it attracts high sanctions. The penalty ranges from a warning to outright expulsion. Students are advised to desist from all forms of examination misconduct.

#### **4.5 Disciplinary measures for Examination Malpractice**

The punishment for examination malpractice is premised on a decree promulgated by the Federal Government on Examination Malpractices in 1999. The main sections and points of the decree which every student should be familiar with are contained in the NOUN General Catalogue (2104-2017) and have been reproduced in Appendix VIII.

#### **4.6 Students’ Challenge of Results**

Students who are not satisfied with the grade / results receive from any course after receipt have opportunity to challenge the results by writing a letter of complaint to Centre Director through the Programme Coordinator requesting for the review or remark of the papers.



## **PART 5      LEARNER SUPPORT SERVICES**

### **5.1      Introduction**

Learner support refers to the facilities and services that the institution makes available to facilitate students' learning. The facilities which include eLibraries, laboratories and eLearning platform are designed for you to meet physically and virtually, study, socialise and work collaboratively regardless of your location.

### **5.2      Facilitation**

#### **5.2.1      Introduction to ACETEL eLearning Platform**

NOUN is leveraging on the advancements achieved in Information Communication Technology (ICT) by using technology to mediate the distance between students and teachers who are tutorial facilitators in a distance learning and eLearning context. ACETEL eLearning platform that is designed to enable student learn at their own pace and location. The platform has several features such as course content in e-book and video formats, online class discussions, general forum for interaction among peers, facilitation for interaction with tutorial facilitators, and assessment for practice quizzes, tests and assignments.

The course materials for the programmes in ACETEL are available on the platform in e-book format for students. This is accessible on smart phones, notepads, or any system that uses safari, iOS, chrome or internet explorer. There is an introductory demo to the elearning platform that shows students how to use the platform. Students are encouraged to visit the eLearning platform and register at [www.acetelnoun.edu.ng](http://www.acetelnoun.edu.ng).

#### **5.2.2      Tutorial Support**

The facilitation feature on the platform enables facilitators to interact with students through several features such as online class discussions, general forum, and assessments.

**Facilitation procedure:** Students are expected to ask questions about aspects of the course content that may not be clear; participate in online class discussions initiated either by the facilitator or their peers; and assess their understanding through practice quizzes provided by tutorial facilitators on the eLearning platform.

**Role of Students:** As distance learners, students are responsible for their learning. The course materials are designed for interactive and self-instructional learning. Students are therefore expected to study their course materials before interacting with their tutorial facilitators and peers on the eLearning platform.

**Role of Facilitators:** The tutorial facilitators comprise academic staff of the Centre and other tutorial facilitators that have qualifications that are comparable with lecturers in conventional universities. These facilitators are available to guide students through the course content towards achieving their learning goals. Students are encouraged to interact with their facilitators on the platform.

### **5.3 Library Services**

Centre of Excellence on Technology Enhance Learning has a standard and well equipped library at the Headquarters in Lagos as well as an online eLibrary known as “[Information Gateway](#)” to support teaching, learning, and research activities of the university. Its major aim is to facilitate access to scholarly resources that will enrich in students’ learning. The main hub of the Library is located at the headquarters of the University, while each study centre also has a library. The ACETEL Library has both print and electronic resources. The electronic resources from the e-library of University will help you in your studies, research in pursuit of scholarship. Each resource provides very helpful tools to assist you navigate through the contents.

### **5.4 Language Services**

The Centre will leverage on the language laboratory facilities for English and French located at the Faculty of Arts to solve language problems the students might face. The services of English and French Faculty members would be involved to assist the students in developing deep understanding of the two languages. The centre will also utilize the facilities at that Visitors Information & Call Centres (VICC) Unit of the University to interpret course into French and English languages and during the language training for the students.

### **5.4 Information Communication Technology (ICT)**

ACETEL has the ICT Unit that demonstrates the significant role that ICT plays in the Centre operations. It is responsible this Unit to provide IT services and infrastructure to facilitate electronic handling of your data and activities in the Centre relating to admissions, registration, examinations and student identity cards.

### **5.5 Channels of Communication**

Direct all enquiries to [acetel@noun.edu.ng](mailto:acetel@noun.edu.ng), +234-8182972097.

## **PART 6      [STUDENTS' ISSUES AND POLICIES](https://acetel.nou.edu.ng)** (https://acetel.nou.edu.ng)

### **6.1      Introduction**

This section informs you of your rights and responsibilities as a student of ACETEL. Your obligation is to abide by the code of conduct of the University. It is the University's responsibility to provide high quality services and channels through which students' complaints can be addressed and resolved.

### **6.2      Code of Conduct**

As a student, you are expected to observe all the rules and regulations of the University which include but not limited to the following:

- Students of the ACETEL are required to be self-disciplined and responsible, as they study at their own pace.
- Students are strongly advised to desist from cultism and other acts that may lead to indiscipline.
- Students are expected to conduct themselves in an orderly and peaceful manner.

### **6.3      Studying Tips**

Studying at the ACETEL gives you the unique opportunity to study while you are engaged in work or other activities. It is therefore important for you to note that this new mode of learning requires a different approach to studying:

- Excellent time management skills will be needed to keep up with the pace of work.
- It is necessary to study consistently as it is easier to spread out work than to do so much within a short space of time especially if you are engaged in an employment.
- You need to develop a weekly study plan – timetable.
- Review your work at the end of each week and modify your plan accordingly.
- Attempt all activities recommended in your course materials.
- Use memory enhancing aids (e.g. mnemonics, visualisation, revision etc).
- For self-help study groups with other ACETEL students within your locality as this helps spur you on to achieving your goals as you will not want to let yourself down.

### **6.4      Students' Complaints**

The ACETEL has made provision to address any grievances or needs that students may have.

## 6.5 Sexual Harassments Policy (<https://acetel.nou.edu.ng>)

The Centre is at the fore front of promoting gender equality in the University community. It also encourages the formation of an enabling work and study environment for both staff and students. ACETEL, acknowledges that while sexual harassment is not limited to women, and therefore, as part of efforts to create this enabling environment, will continue to raise the level of moral standards among staff and students. The Centre is therefore dedicated to enlightening its public on the evils of sexual harassment and other associated anti - social conduct

Sexual harassment has very grave effects on the overall productivity of staff and students in the university. Consequently, it is a very serious infraction, requiring punitive actions.

Examples of conducts that may constitute sexual harassment, among others are:

- Sexual pranks, teasing, vulgar jokes
- Verbal abuse of a sexual nature
- Physical touching of a sexual nature
- Giving sexually suggestive gifts
- Making sexually suggestive gestures
- Posting sexually suggestive pictures
- Unwanted hugging
- Groping without permission.
- Forceful sexual intercourse (Rape)

### **Policy Statement 1**

**To enlighten all staff / learners about the impacts and ills associated with sexual harassment, and thereby create a sense of social responsibility.**

### **Implementation Strategies**

- i. Adopt and implement the university's Anti - Sexual Harassment policy.
- ii. Produce and disseminate a code of conduct leaflet and on the university's website issues on anti- sexual harassment at the start of every academic session.
- iii. Incorporation of the anti-sexual harassment policy into the staff conditions of service.

### **Policy Statement 2**

**The University ensures an environment, free of sexual harassment for all and achieve gender equity and equality.**

### **Implementation Strategies**

- i. Formulate procedures to be followed in cases of sexual harassment.
- ii. Institute structures like the Anti-Sexual Harassment Committee to ensure fair hearing for all parties.

- iii. Institutionalise support for victims of Sexual harassment by designated Counsellors.

### **Procedures to be followed by Complainants**

- i. Filing complaints
- ii. Follow up with face-to face interaction with members of the Anti-Sexual Harassment Committee.
- iii. Committee.
- iv. Complainants are encouraged to provide substantial or circumstantial evidence.

### **N.B**

- The composition of the committee will have a representative for either staff or student depending on the complainant.
- Where the matter is reported to the Police or other Security Agencies directly, the Centre will not take any action, in order not to interfere with the police investigation and findings. On completion of the police investigations, the Centre can take appropriate actions according to its policies, code of conducts and bylaws.

### **Review Mechanisms**

- i. When the complainant is a student, and is not satisfied with the outcome, he/she can appeal to University Senate.
- ii. Where the complainant is a staff, and is not satisfied with the decision, he/she can appeal to the University Council.

### **Advice to prevent Sexual Harassment**

- i. Students/staff should be security conscious always, and must avoid situations that can compromise their safety, therefore students are advised to avoid lonely, remote places and paths.
- ii. Counselling on Sexual harassment should be an integral part of the Orientation exercises.

### **Responsibilities of the university management**

- i. The university shall implement the Anti- Sexual Harassment Policy.
- ii. There shall be prompt investigation of cases of sexual harassment.
- iii. The university's management should institute appropriate disciplinary action for offenders.

### **Policy Statement 3**

- i. **The university advises all staff and students to report incidences of sexual harassment and vices to the designated quarters for appropriate action., while the university ensures the privacy of all complainants**

The university recognizes that there are incidences of false accusations of sexual harassment, it shall take appropriate measures to punish accusers, if claims of sexual harassment is discovered to be false.

### **Implementation Strategies**

The Anti-Sexual Harassment Committee will:

- i. Obtain the victim's consent to proceed and write a report to the Centre/ University management.
- ii. Start appropriate processes outlined in 8.1 above.
- iii. Make recommendations commensurate with offence, such as suspension, demotion, loss of remuneration, loss of promotion, dismissal, expulsion (students) and warning.

The university's management will:

- iv. Implement sanctions/ recommendations within the shortest time possible.
- v. Create an institutionalized procedure for workshop training on Anti-Sexual Harassment for counselors and other interested members of the Centre Community.
- vi. Ensure that the policy shall be extensively disseminated to every member of the University community through appropriate channels.
- vii. Be fully committed to the implementation of the policy.
- viii. Initiate an internal complaints procedure that ensures privacy of all parties involved.

### **Policy Statement 4**

**To regularly monitor and evaluate the policy process to determine the level of implementation and progress in attaining aims of policy**

#### **Implementation Strategies**

The university's management will:

- i. Ensure that there is a mechanism in place for tracking cases of sexual harassments and their resolutions.
- ii. Compile reports annually on the implementation progress of this policy, for research purposes and evaluation.

### **Disciplinary Actions**

The Centre shall create and implement a disciplinary action process to ensure equality and consistency across all cases of sexual harassment in the university as contained in the Staff Conditions of Service and student handbook.

## **6.6 Risk Mitigation Policy (<https://acetel.nou.edu.ng>)**

Risk Mitigation is an enabling function that adds value to the activities of the organisation and increases the probability of success in achieving our strategic objectives. It's about managing uncertainty and creating an environment where surprises are minimised. This document defines the practices adopted by the Centre to identify risk, in order to reduce potential negative impacts, and improve the likelihood of beneficial outcomes. The benefits of creating a practical Risk Mitigation Framework that can be applied across all parts of the Centre include a consistent, structured approach to identifying and managing risk, supports the achievement of the University's strategic and operational goals by managing risks that may otherwise

impede success and encourages an open and transparent culture where risk discussion and awareness are supported. Others are better decision making practices that support risk informed choices, prioritize actions and distinguish between alternative courses of action; encourages an understanding of the risk environment within which the University operates and provides assurance to the Vice Chancellor and Centre Director that critical risks are being identified and managed effectively.

The Mitigation of risk happens every day across all parts of the University, in many different ways. The following examples are put in place on how the University will mitigate risk of health and safety at work, code of conduct, research, physical security, internal audit, academic quality, business continuity and emergency management. The process used to identify and manage risk at University aligns with the ISO 31000:2009 Risk Mitigation Standard.

### **An Effective Enterprise Risk Management System**

For risk Mitigation to be effective, it is important that University staff and stakeholders have a shared understanding of what an effective system for risk Mitigation looks like, and how we will achieve this. The ISO 31000:2009 Standard recommends organisations adopt the following principles that risk mitigation adds value, is an integral part of organizational processes, part of decision making, explicitly addresses uncertainty and its practices are systematic, structured and timely. Also, the principle of available information, alignment with university and internal risk management; dynamic iterative and responsive to change facilitates continual of the university at large and ACETEL in particular. The Risk Mitigation Office will periodically review and confirm that each principle continues to be satisfied and is tailored to meet the needs of the University.

Risk Mitigation is embedded within University and ACETEL systems and processes to ensure that it is part of everyday decision making. In particular risk mitigation must be embedded in the following key processes like annual planning and budgeting processes, project and programme management and development and review of University policies and procedures and procurement and asset management. The Centre is exposed to a diverse range of internal and external factors and influences that make it uncertain whether, when and the extent to which our objectives will be achieved. The objectives referred to are expressed in the Standard as ‘the overarching outcomes that the organisation is seeking. These are the highest expression of intent and purpose, and typically reflect its explicit and implicit goals, values and imperatives or relevant enabling legislation. The Centre articulates its strategic intent and purpose through its Implementation Plan. Risk treatment options should be based on cost benefit analysis of outcomes, i.e. does the cost of applying the required treatment or control outweigh the impact or the benefit? Treatments are essentially based on one (or a mixture) of the following options.

The assessment is used to determine the severity of the risk and identify those which are unacceptable to the University and require Management attention and further

treatment. It also forms the basis of ongoing monitoring. The following table is to be used as a guide to determine whether a risk requires additional treatment. If the assessed risk rating is above the tolerable level for that impact area, then treatment is required that will either reduce the likelihood of the event occurring, or the impact should it be realised. If the risk rating is at or below the target level as indicated then the risk may be accepted. (Please note that project risk tolerance and acceptability should be specified as part of a risk and issues Mitigation plan for the project.) The Risk Mitigation Office will support risk owners in this process, and undertake an annual review of identified risks and controls, encompassing strategic, environmental, and annual planning changes.

The Centre treats and accepts risks by avoiding, mitigating, retaining, transferring and accepting the risk if the benefits outweighs the cost.

## **6.7 Environmental And Social Safeguards Policy (<https://acetel.noun.edu.ng>)**

### **Identification of specific hazard**

#### **6.7.1 Environmental pollution resulting from use of hazardous materials**

##### **Policy 1: Hazardous Materials ACETEL develops**

- i. a hazardous materials inventory and update yearly.
- ii. work practices and procedures for handling hazardous materials for either routine maintenance or major renovation/demolition.
- iii. and implement any required training for the supervisors and/or workers involved with the handling of hazardous materials, as well as emergency response personnel.
- iv. a plan to move to "green" building materials and "sustainable sites" for routine maintenance and renovations.

##### **Policy 2: Contamination resulting from improper waste disposal ACETEL would:**

- i. Connect sewage component of waste to a central/ municipal sewage disposal system. In the event where the municipal treatment plant is not available, a sewage treatment plant would be integrated into the projects civil works.
- ii. Provide civil works with deliberate and appropriate technology plan for signage of collection points and storage points for waste, and tidiness of waste management areas.
- iii. Recycle, re-use and refurbish/repair the listed categories of solid wastes in the workshop/works department.
- iv. Train staff regularly on current practices of waste management.
- v. E-mail staff (ACETEL) to inform them of achieved successes and challenges in waste management.



## **Insensitivity to human rights.**

### **Policies 3: Human Rights and Physically Challenged Persons**

Based on the identified disabilities in the work place/school, the following policies are formulated:

- i. **Employability:** Physically challenged individuals in ACETEL would be given a fair share of total employment and student enrolment.
- ii. **Competitive, Integrated Employment:** Physically challenged individuals would benefit from having jobs in ACETEL alongside those without disabilities and are paid the same wages for same or similar work.
- iii. **Supportive Employment and Return-to-Work/Stay-at-Work:** ACETEL would provide a Social Security Disability Insurance or Supplemental Security Income for people who became permanently disabled while on the job.
- iv. **Para-Transit Access:** ACETEL would provide access to transit systems which allows people with disabilities to reliably get to work/learning environment and participate in a rich social life.
- v. **Communication and Assistive Technology in the Workplace:** ACETEL would provide advanced information and communication technology which have helped in the development of working tools for people with various disabilities such as: computers with QWERTY keyboards and refreshable Braille displays, websites, online systems, digital screen magnification and software products such as JAWS (Job Access with Speech) for windows and NVDA (Non-Visual Desktop Access) for interaction.
- vi. In addition, there would be provision for on-site American Sign Language services or Video Remote Interpreting to assist with in-person communication in the workplace/learning environment, as well as providing employees/scholars with hearing disabilities access to Video Relay Services to aid in communication with outside parties.
- vii. **Physical Barriers, Building Access, and Workplace/Learning Environment:** ACETEL would ensure the accessibility of physical spaces and the availability of reasonable workplace/learning environment.
- viii. In cases of **Ambulatory disability**, ramps and elevators and special provisions in the design of their conveniences shall be considered in the architectural design of the structure.
- ix. ACETEL would ensure that office equipment that allows for height adjustable work surfaces to accommodate different wheelchair heights and limb mobility are purchased and installed.
- x. **Flexible Hours and Extended Medical Leave Policies:** ACETEL would support physically
- xi. ACETEL would provide smoking zones for people with smoking habits, while smoke detectors should be installed in other no smoking zones including the toilets.

- xii. ACETEL would ensure there is no marginalisation or stigmatisation of HIV carrying persons.

#### **4. Political and Religious Induced Insurgency**

##### **Policies 4: Political and Religious induced insurgency**

ACETEL would ensure:

- i. Religious needs like break periods within prayer times and holidays during festive periods are accommodated.
- ii. Incentives and welfare packages be given to workers during festivities.
- iii. That the organization dress code (if any) would not interfere with religious beliefs and requirement.
- iv. The hosting of religious based programs when the need arises for interested members.
- v. Employees/Learners records are verified for past possible criminal activities prior to engaging their services or enrolment as the case may be.
- vi. Unauthorised gathering and unlawful groups within the university/centre be sanctioned.

#### **5. Crisis and Emergency Management**

##### **6. Policy 5: Crisis and Emergency Management**

ACETEL would ensure;

- i. That there is a sick bay with a stand-by ambulance service and first aid kit for employees and learners. The University would consider retaining specific medical consultants which patients under crisis can be referred to.
- ii. That during construction a certified safety officer frequently briefs the site on safety tips and provides them with safety gears to be worn at all time within the construction site. Also, safety signs like; slippery floor, glass transparency, heavy machine area and caution lines in multi-storey structures should be displayed at all times.
- iii. Periodic Health and Safety Education to staff/student and also taking part in realistic practices.
- iv. Visible muster points, fire exits and fire alarms to alert occupants in case of fire. In addition, exit points in the building have to be clearly labelled, and so should assembly points. There should be legible notices on the walls that direct people what to do in case of an emergency
- v. That there is provision of adequate fire fighting devices within the structure which are checked regularly for maintenance.
- vi. There are procedures in place for routine responsive cleaning and caution signs for wet areas.
- vii. That there is proper security detailing for staff/student on official field trips to sensitive areas.

## **7. Unfavourable work/learning environment**

ACETEL would ensure:

That the structures are designed to accommodate more natural light with wide windows and open lobbies. The use of open courtyards and atrium courts where applicable to light up spaces in the structures should be adopted.

It adopts the use of burning fossil fuel (to power generators) as a back-up for power failure from the national grid. It should however be emphasised that zero emission is part of the projects objective to minimise contributions to green house effect. Solar and Wind Energy are strongly recommended as an alternate source of power supply.

Temperature: Provisions should be made to modify the external climatic conditions (hot or cold) in the working/learning environment. These modifications can be done artificially or naturally.

ACETEL would ensure:

- i. That structures are designed with adequate ventilation (to specifically take care of stuffiness, dampness and suffocation) by introducing ventilation lobbies and all the spaces within the structure should be cross ventilated (minimum of two windows on either walls of the space).
- ii. That artificial interventions for ventilation and temperature modifications are included in their design by use of central air conditioning systems, split and window units. The service of a competent technician for these systems should be involved during periodic maintenance to avoid failure resulting from poor design and execution.
- iii. Pollution: this could be caused by emissions and poor oxygen diffusion within the structure. Emissions could arise from the proximity to waste dumping sites or failures from the conveniences.
- iv. ACETEL would ensure:
- v. That these emissions are taken care of during the design stage of the structure by providing adequate vents and drains in the conveniences to take out stench and waste water that could cause discomfort in the environment. Proper waste management by provision of waste basket in the conveniences for solid wastes should be provided.
- vi. That oxygen diffusion would be controlled by introduction of potted plants and green areas within the structure at the conceptual design stage. Ventilation fans should be a component of the ventilation system in the design of the structure.
- vii. ACETEL would ensure that pest control is considered from the conceptual stage of the design by avoiding dead corners and dark neglected spaces in the structure. Organic pesticide treated nets should be used where necessary. There should be periodic fumigation of the structure to control sporadic, endemic and epidemic pest conditions.
- viii. ACETEL would ensure that constant and adequate water supply is provided for in the structure. A central hot and cold water supply through the structure with

taps or drinking fountains points at the lobbies should be provided to service the users at all times. A water treatment plant should be captured in the design of the structure to control the quality of water supply to the building.

### **Human Factor:**

ACETEL would ensure:

That a worker/learner is not assigned workload beyond his/her ability and professional capabilities to ensure efficient delivery of projects and assignments.

- i. That a worker/learner is not oppressed and should get adequate support such as: sponsorship, resources and encouragement from the supervisors/superiors/management.
- ii. Positive cordial relationships is maintained amongst staff to guarantee a harmonious working environment. Staff should be made to understand their individual roles within the organisation.
- iii. Frequent board and welfare meetings is organised with staff/learners to provide a conducive working/learning environment.
- iv. A mixture of closed and open office design to accommodate sensitive tasks and interaction for easy flow of work.

### **8. Conveniences:**

ACETEL would ensure:

6.7.1 That at the design stage of the structure, adequate conveniences with good proximity are provided for the staff/learners to ensure maximum comfort.

6.7.2 Offices and other spaces are equipped with comfortable furniture and working equipment that can be used to facilitate delivery of the assignment. In cases of multi-storey buildings, adequate and convenient circulation (lifts, staircases, walkways, and ramps) would be provided for the users

## **6.8 [NOUN-ACETEL SCHOLARSHIP POLICY](https://acetel.nou.edu.ng) (https://acetel.nou.edu.ng)**

**ABOUT THE AWARD:** There are two categories of Award: The Centre awards Scholarships to Postgraduate candidates to enable them undertake higher degree studies in ACETEL at Masters and Doctorate levels and for short professional training in ICT.

ACETEL awards scholarships on the affordances of technology to ensure digital literacy and enhance the quality of Science, Technology, Engineering and Mathematics (STEM) education, and also provides access to postgraduate education, training and professional development opportunities for suitably qualified Africans. ACETEL scholarship alumni are expected to contribute actively to development in their Countries.

**TO BE TAKEN AT:** Africa Centre of Excellence on Technology Enhanced Learning (ACETEL), National Open University of Nigeria.

**PRIORITY FIELDS:**

- 1) Artificial Intelligence
- 2) Cyber Security
- 3) Management Information System
- 4) Short Courses

|                         |                                   |
|-------------------------|-----------------------------------|
| Internet of Things      | English language for non-English  |
| Cloud Computing         | Speakers                          |
| Block Chain             | Digital Literacy                  |
| Open Government Data    | Cyber Security                    |
| Data Base Management    | Entrepreneurship                  |
| Data Analysis           | Leadership and Project Management |
| Artificial Intelligence | Learning Technology               |
|                         | Programming                       |

**COMMENCEMENT:** 2020

**Type:** Masters, Doctorate Degrees and Short Courses

**Eligibility:** To be considered for a postgraduate scholarship or short course award, applicants must meet the following requirements:

- Citizen of African country.
- Minimum academic requirement: Bachelor's or Master's degree or equivalent for Masters and Doctorate Degrees, or a minimum of 5 credits at O'levels for short courses
- Demonstrate a clear vision of how the knowledge and training gained through the scholarship will be used to improve reform in their home countries
- Satisfactory English or French proficiency to enable full participation in a training course delivered in English or French
- Satisfy all requirements of the Nigerian Government for the appropriate student visa.

**Target Group**

- Nationals of African Countries.
- Professionals working in the Public Sector, the Private Sector or a Non-Governmental Organisation (Civil Society).
- Qualified candidate who wishes to undertake a Masters degree or Doctorate degree in one of the listed priority fields of study.
- You have a clear vision on how you will use the knowledge and training gained through the programme to improve reform in the proposed field of study.
- Gender Equality: ACETEL targets equal participation of females and males. Applications from female candidates are strongly encouraged, and mechanisms are in place to support female applicants and awardees.

- Disability Inclusion: ACETEL aims to ensure that people with disabilities are given fair and equal opportunity to apply and obtain a scholarship.
- Inmates: Qualified inmates.
- Special consideration will be given to Regional candidates (West African Sub-Region)

**Number of Scholarships:** 15 for Postgraduate and 40 for Short courses annually

**Value of Scholarships:** The scholarship budget is valued at \$3000 for Masters students, \$4000 for Doctorate Degree students and \$100 for Short Courses

**Duration of Scholarship:** For the duration of candidate's programme

## **GLOSSARY OF TERMS**

### **Course**

A course is a major content segment comprising topics in a particular subject. At ACETEL, multiples of related courses make up a programme of study leading to a postgraduate degree qualification.

### **Course Credit Unit System**

This should be understood to mean a 'quantitative system of organisation of the curriculum in which subject areas are broken down into unit courses which are examinable and for which students earn credit(s) if passed'. The courses are arranged in progressive order of difficulty or in levels of academic progress. ACETEL also has a policy of odd number representing first semester and even number representing second semester.

### **Credit**

A Credit is the unit of measurement for a course. At ACETEL, 1 credit unit is estimated to be the equivalent of 7 study units. A 1 credit unit course is estimated to take 30 study hours to complete and is broken down as follows: Study time- 21 hours, TMA-4 hours, and Facilitation-5 hours.

### **Semester**

A **Semester** is an academic period of twelve weeks, excluding examination period. ACETEL offers two semesters of study per year: January to March and July to September.

### **Core/Compulsory Course**

A course which every student must compulsorily take and pass in any particular programme at a particular level of study.

**Elective Course**

A course that students take within or outside the Centre. Students may graduate without passing the course provided the minimum credit unit for the course had been attained.

**Module**

A module is made up of a number of thematically related study units.

**Study unit**

A study unit is the smallest segment of a course material that treats a topic within a module. The content should take about 3-4 hours of study.

**Programme**

A programme comprises a set of prescribed courses offered at different levels of study. It also refers to a particular field of study made up of courses e.g. Masters programme in Cyber security. At ACETEL, a programme of study leading to a degree qualification is made up of general, compulsory and elective courses.

**Pre-requisite Course**

A course which student must take and pass before taking a particular course in a following semester or at a higher level.