



**COVENANT UNIVERSITY**

**DEPARTMENT OF ELECTRICAL AND INFORMATION ENGINEERING  
COMPUTER ENGINEERING PROGRAMME  
ACADEMIC HANDBOOK**

2020 – 2024

## **COVENANT UNIVERSITY**

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Director, Centre for Research, Innovation and Discovery  
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Director, International Office and Linkages  
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Director, Covenant University Central Instrumentation Research Facility  
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Director, Covenant University Open Distance Learning  
**Dr Mayowa Agboola., B.Sc., M.Sc., Ph.D**

Director, Student Industrial Work Experience Scheme  
**Dr. Adeyinka A. Adewale, B.Sc, M.Sc, Ph.D**

## WELCOME MESSAGE FROM THE CHANCELLOR

Raising a New Generation of Leaders.

“Seest thou a man diligent in his business? He shall stand before kings; he shall not stand before mean men”.  
(Proverbs 22:29 - KJV)

Covenant University is a Royal Academy birthed on the platform of a compelling vision to raise a new generation of leaders, especially for the Continent of Africa. It is indeed the birthplace of “kings and queens”. I do believe that the greatest need of the 21st Century is that of leadership, whereas leadership is not an endowment, it is a commitment to the future that makes a leader.



Our mission at Covenant University is to develop the man who will, in turn, develop his world. We see the character as the anchor of leadership. The ability makes a manager, but integrity makes a leader.

Our experience over the years strongly indicates the great potential we have as a University in instituting a world class-learning context that is rich in educational opportunities, research and scholarship. The heart-warming positive feedback from employers on the excellent and exemplary conducts of our graduates is one of the many concrete validations of the University's unique vision. We are, however, looking ahead to the future we envision in driving excellence across all our programmes by ensuring that the stage is well anchored to actualise our set vision of raising a new generation of leaders.

Only a serious approach guarantees a glorious result. There is no short cut to any place worth going. Edmund Hilary, the first man that conquered Mount Everest, said, “It is not the mountain that we conquered but ourselves”. Covenant University is indeed a place where you are taught how to conquer yourself as part of the process of becoming outstanding in life. Therefore, if leadership and excellence are your goals, then Covenant University is the right place for you.

Starting from the 2013/2014 Academic Session, every student of the University shall be made to undertake at least a Certificate/Diploma Course in Leadership in addition to his/her major discipline.

Therefore, the currency of the curriculum and the inclusion of Leadership Certificate will be one of the unique selling points.

You are welcome to Covenant University, a Royal Academy, a Leadership Training Varsity.

**Dr. David O. Oyedepo**  
*Chancellor, Covenant University*

## FROM THE VICE-CHANCELLOR'S DESK

It is my great delight to welcome you to Covenant University where “*Eaglets*” are nurtured into “*Eagles*” as transformational leaders in their respective vocations and the society. Covenant is a vision-birther University with a compelling vision to raise a new generation of leaders in all fields of human endeavour, noting that leadership is a fundamental challenge to the advancement and development of Africa. We are on a mission to change the educational landscape of Africa through our departure philosophy; to create knowledge and restore the dignity of the black man through our curricula and pedagogy that are designed to be life-applicable. Our programmes are unique and in consonance with the unique products that we produce.

In our pursuit of this vision, our core values are the crucibles of our quality assurance processes in teaching, research, and community service. These core values—Spirituality, Possibility Mentality, Capacity Building, Integrity, Responsibility, Diligence, and Sacrifice—are the building blocks of our enterprise.

Further to our drive towards producing employable and industry ready graduates, our students continue to enrich their knowledge-base with respect to industry expectations through interaction with the Industry offered by the Town and Gown seminar series. Our custom built programmes—Entrepreneurial Development Studies (EDS), Total Man Concept (TMC) and Towards a Total Graduate (TTG), equip our students with unique skills to navigate life and becoming a total man.

In making the decision to pursue your undergraduate education at Covenant, you have chosen a distinctive institution with a rich spiritual heritage and academic prowess. Within a short period of 20 years, Covenant has demonstrated great potentials in instituting a world-class learning context that is rich in educational opportunities, research and scholarship. As a university acclaimed to be scholarly vibrant; with attestation of eight different rankings of Times Higher Education (THE) in one year, it is our desire to share and disseminate latest knowledge and ideas that are essential in driving the future of society and humanity.

During your time here, I encourage you to take an active role in your own academics, and understand that education at Covenant is as much about character, values, morals, and social responsibility as it is about intellectual development and critical thinking. Take the time to reflect on your total development as you pursue your dreams, aspirations and vision. We will assist and support you in the process of becoming what God has destined for you. In doing so, we will also challenge you to stretch your mind, heart and spirit.

This Handbook contains vital information and instructions that will help you to enjoy a most rewarding academic journey through your willing and delightful obedience.

**Prof. Abiodun H. Adebayo**  
*Vice-Chancellor, Covenant University*



*Covenant University Centre for Learning Resources*



*Covenant University Senate Building*



# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 THE NAME: COVENANT UNIVERSITY (CU)**

All over Africa, and Nigeria in particular, a great significance is attached to names. They portray meanings and convey important messages. Names reflect circumstances of birth or events. The word “Covenant” was chosen as an expression of the University’s total commitment and vows to make a Total Man of her students. It reflects the intention of the proprietors of the University to uphold a binding agreement with students to deliver their desires for excellence and career exploits by offering them the best in educational attainment and by offering their parents/guardians the best value for their investment. It is also common knowledge that every covenant is ratified by blood and, as a church-sponsored University, we consider the blood of Jesus Christ, which is the blood of the everlasting covenant, as our stronghold in the fulfilment of this awesome obligation. Covenant University vows to make of her graduates expert thinkers, leader-managers, and hyper-resourceful technocrats in all fields of human endeavour.

### **1.1 OUR VISION**

To be a leading World-Class University, committed to raising a new generation of leaders in all fields of human endeavour.

### **1.2 OUR MISSION**

To create knowledge and restore man's dignity through a Human Development concept of the Total Man, employing innovative, leading-edge, teaching and learning methods. We aim for application of research that promotes integrated, life-transforming values through Science, Technology and Human Capacity Building.

On October 21, 2002, the African educational landscape was radically altered by the formal entry of Covenant University (CU) into the Higher Education context. The University is located at Canaan Land, Ota, Ogun State, Nigeria. The University is a growing, dynamic vision-birther and vision-driven University, founded on a Christian mission ethos and committed to pioneering excellence at the cutting edge of learning.

The University’s specific mandate can be stated as follows:

- “Raising a new generation of leaders through a qualitative and life-applicable training system that focuses on value and skill development”.
- “Raising a new generation of leaders through a broad-based qualitative education built on sound biblical principles culminating in the birth of path-finders, pace-setters and trail-blazers”.
- “Raising a new generation of leaders who shall redeem the battered image of the black race and restore her lost glory as this trained army of reformers begins to build the old wastes, repair the wasted cities and raise the desolation of many generations”.

### **1.3 OUR FOUNDING PHILOSOPHY**

In response to the global demand for a departure from dogmatism to dynamism in the existing educational system, Covenant University is built on the following philosophical platform:

- A departure from form to skill
- A departure from knowledge to empowerment
- A departure from figures to future building
- A departure from legalism to realism
- A departure from “mathe-matics” to “life-matics”.

This is reflected in our motto: “Raising a New Generation of Leaders”.

### **1.4 OUR OBJECTIVES**

The objectives of the University are to:

- i. provide facilities for learning and give instructions and training in such areas of knowledge that will produce sound and mentally equipped graduates, who will provide intellectual leadership in academic institutions, industry and the public sector through the Total Man Concept approach;
- ii. develop and offer academic and professional programmes leading to the award of diplomas, first degrees and higher degrees, which emphasise planning, adaptive and technological maintenance, developmental and productive skills;
- iii. promote by research and other means, the advancement of knowledge and its practical application to social, cultural, economic, scientific and technological problems;
- iv. encourage and promote scholarship and conduct research in all fields of learning and human endeavour;
- v. disseminate scientific and technological knowledge among scientists, researchers, industries, trade services and other bodies; and
- vi. relate its activities to the technological, scientific and socio-economic needs of the people of Nigeria and to undertake other activities appropriate for a University of the highest standard.

### **1.5 OUR CORE VALUES**

Our Core Values as a University are the defining components of the Covenant University Vision and they reflect our beliefs in the encrypted truths that firmly define our purpose and the underlying ethos of our existence as a University.

As a University, we strongly uphold the practices embedded in our Core Values and strive to integrate these Values into all facets of our functions and operations as a University. We expect that students of Covenant University will visibly demonstrate and integrate the virtues embedded in these Core Values in their daily conduct as students who are being raised along the Vision lines of raising a New Generation of Leaders for the Continent of Africa on the Total Man Concept-driven developmental

platform. All students are expected to adhere strictly to the University's Core Values in their day-to-day activities within or outside the University.

The Covenant University Core Values are: Spirituality, Possibility Mentality, Capacity Building, Integrity, Responsibility, Diligence and Sacrifice.

**a. Spirituality**

This forms the bedrock of our existence as a University and defines every aspect of our operations and context. The Christian ethos underlies our activities and conducts at all times, and every student of Covenant University is expected to exhibit the character traits and dispositions of a Jesus-centred heritage. The Jesus - factor centred approach to all issues is non-negotiable and central in the pursuit of our mandate in raising a New Generation of leaders. To this end, therefore, students are to be committed to maintaining a high level of spirituality and act in such a manner as to facilitate their spiritual growth. Attendance at Chapel Services, which every student is expected to attend with a Bible, notebook and pen, are a compulsory and essential part of students' spiritual development. Students are also expected to demonstrate a deep reverence for God at all times.

**b. Possibility Mentality**

Students of Covenant University are expected to exhibit a royal carriage, attitude, habit and character, exuding self-confidence and dignity at all levels of interaction and in general conduct. They are expected to see themselves as persons of worth and value, taking pride in their uniqueness as individuals with a positive mind-set devoid of any trace of inferiority.

**c. Capacity Building**

This is related to commitment to a lifestyle of continuous academic and personal development, striving to be continuously relevant to the overall vision requirement of the University as well as her core mission, goals and objectives. Students are encouraged to constantly seek paths for self-improvement. Openness to learning new skills and taking on board new information is a trait expected of Covenant University students in order to have robustness and depth in the quality of their output.

**d. Integrity**

Students of Covenant University are expected to demonstrate traits of honesty, uprightness and trustworthiness at all times. They must ensure that they are accountable, transparent and open in all their dealings. They shall flag truth as a virtue at all times, particularly in conduct during examinations, obeying the rules and regulations of the University, being spiritually sound, morally upright and having a good conscience.

**e. Responsibility**

We are committed to inculcating a sense of responsibility in our students. We believe in the place of discipline for effective leadership. We expect our students to respond to issues as demanded, not as convenient. Here at Covenant University, our students are not permitted to do what they like but what is right. Punctuality at lectures, as well as prompt response to assignments as demanded, is a desired trait of responsibility.

## **f. Diligence**

Students of Covenant University are expected to be deeply committed to their assignments. We expect that they will extol the virtues of hard work and constantly strive towards excellent attainment in all they do.

## **g. Sacrifice**

Sacrifice is the ultimate price for outstanding leadership. It is the quality of sacrifice that defines great leadership. We therefore expect students of Covenant University to go the extra-mile and pay the extra- price in the attainment of their set goals. Raising an altar of sacrifice in pursuit of their dreams is what must distinguish and define the Covenant University student.

## **1.6 THE TOTAL MAN CONCEPT**

The Total Man Concept (TMC) is Covenant University's custom-built Programme that constitutes the core concept of her academic programmes. This concept centres on “developing the man that will develop his world.” It is designed to make the student become intelligently conscious of his environment and thus be able to maximise his potential.

The programmes of the University are first directed at “the person” before his profession. In this way, the University will raise a generation of experts who possess the capacity to face and manage challenges.

The TMC Programme centres on three components of the human personality: the spirit, the mind, and the body:

### **a) The Spiritual Man**

Spiritual development is to us a major force for the evolvement of the Total Man, as mental excellence and understanding are generated through the vital force in man, which is the Spirit of God and the Spirit of Intelligence. As a University sponsored by a Christian Mission, character formation is considered as a spiritual issue that is instilled by self-discipline and commitment to the principles enunciated by our Lord Jesus Christ.

Covenant University provides opportunities for spiritual development through various avenues, including spiritual formation programmes and counseling, and also by creating leadership opportunities.

### **b) The Intellectual Man**

Covenant University students enjoy the highest standards of excellence through the institution of academic programmes that are innovative, creative and functional. Covenant University also encourages students to be inquisitive, bold and forthright in asking questions and facing the challenges of academic leadership. The Total Man concept is also promoted through the introduction of a system of compulsory, theoretical and practical courses, all of which must be passed before one can be considered for a degree from the University. In addition to normal General Studies courses, we have included our own specially-designed courses in areas such as: biographical studies, entrepreneurship, family life, human development process,

leadership development, mental development, success concepts, work ethics and Towards the Total Graduate (TTG) Programme.

### c) The Physical Man

The body is a vital component of the Total Man. Covenant University is committed to providing avenues for sound physical development via recreational activities that engage the body and also enhance personality development, stimulating the cultivation of lifestyles that are conducive to healthy living. We thus encourage students to participate in sporting activities.

## 1.7 THE TOTAL GRADUATE

The Covenant University graduate will be mentally resourceful, intellectually reinforced, enterprisingly self-dependent, futuristically visionary and responsibility-sensitive to the changes demanded for the leadership role or dominion nature he is made for. He shall be a Total Man.

Covenant University provides a serene, safe, secure, pleasant and ICT driven teaching and learning environment.

Academic programmes are free of strikes, shut-downs and union face-offs. Well-stocked libraries and laboratories, as well as unrestricted access to the internet for study and research purposes



*Our Campus*

Covenant University pioneered the introduction of:

- i. Entrepreneurial Development Studies (EDS) aimed at preparing the student for self-employment; and
- ii. The Total Man Concept (TMC) aimed at developing the Total Man –Spirit, Soul and Body

Our graduates earn an additional certificate in leadership upon completion of their studies.



*Covenant University Landscape*

## CHAPTER TWO

### UNIVERSITY ADMINISTRATION AND CONTROL

Covenant University was established by the World Mission Agency (WMA), an arm of the Living Faith Church Worldwide Inc. The Board of Trustees of the Agency appoints the members of Board of Regents, which is the apex ruling body for the University. In his capacity as the *visioner* of the University, Dr. David Oyedepo serves as the life Chancellor of the University and the Chairman of the Board of Trustees of World Mission Agency.

The University's Vision of raising a new generation of leaders has necessitated the development of a unique approach to governance and management of the institution. Its founding philosophy is to specifically and emphatically promote change against the status quo, which had stagnated growth and development in the nation and in the African continent. The University is committed to a visionary resolution of these issues.

The other organs by means of which the University administration is carried out include: the Senate, and Management Board. Other statutory and academic Boards are as explained.

#### **2.0 BOARD OF REGENTS**

The Board of Regents is the Governing Council of the University. The Board serves as the apex ruling body of the University and exercises final authority and power in all policy, legal, administrative and financial matters of the University. It has the overall responsibility for the policies and operations of the University.

#### **2.1 THE CHANCELLOR**

The unique founding philosophy of change, which was birthed from the visionary base of the University, as well as the adopted strategies for its accomplishments, was considered crucial to the general and specific objectives of the University. The visionary direction and guidance had compelled the executive presence of the Chancellor who conceived the vision of the University. Consequently, the vision, as well as its governance imperatives, is shared with the faculty, staff and students at regular intervals. This vision has permitted and continues to permit stable formation, not only of the organisational structure but also of, the management culture, as well as helping to inculcate the values and ethos of the University into members of the University community. The Chancellor of the University is the Chief Executive Officer of the University. He also serves as the Chairman of the Board of Regents.

#### **2.2 THE PRO-CHANCELLOR**

The Pro-Chancellor shall, as may be directed by the Chancellor, undertake spiritual oversight of the University in the light of the Institution's foundation of faith and fear of God which is fundamental to successful living. The Pro-Chancellor shall as may be directed by the Chancellor, undertake the oversight and entrenchment of the University Vision and mission in the faculty, staff, and students from the underlining perspective of the University core values. The Pro-Chancellor shall, as may be directed by the Chancellor, maintain a functional platform for the discharge of the governance responsibilities of the Board. The Pro-Chancellor shall, as may be directed by the

Chancellor, entrench a culture of efficient management of the resources and investments of the University, through the prompt discharge of the finance and general-purpose duties of the Board.

### **2.3 THE VICE-CHANCELLOR**

The Vice-Chancellor is the Chief Academic Officer of the University. In this capacity, he/she is the Chief Responsibility Officer for the University's operations. Academic administration is planted firmly in the highest academic authority of the University, which is the Senate. The Vice-Chancellor is the Chairman of the University Senate and exercises all powers granted him/her in the law that established the University in respect of guiding and directing the University's academic activities. He/she holds in trust the Chancellor's executive responsibilities and authority in all areas where the Chancellor so delegates.

### **2.4 THE REGISTRAR**

He is the Chief Administrative Officer of the University and oversees the administrative efficiency of the University, engaging historical records and regulations. The Registrar chairs the University's Administrative Board, which serves as the University's apex administrative organ and clearance house for all operational issues. He monitors rules, regulations and policies as well as make recommendations on policies to Senate and Board of Regents.

### **2.5 OTHER OFFICERS OF THE UNIVERSITY**

#### **(a) THE DEANS OF COLLEGES AND SCHOOL OF POSTGRADUATE STUDIES**

Our Colleges were established to provide teaching, research and community service activities in Departments/Programmes approved for them by the Senate. A College Management Board and College Academic Boards are established for each College to determine direction and supervise the conduct and grading of examinations and other academic responsibilities and they make recommendations to Senate on any academic matter, including curriculum development and examination results through the Deans. The Dean is the Chief Academic Officer of the College/School. He is the Chairman of the College Management Board and he coordinates and regulates the teaching responsibilities and the conduct of examinations within the available facility and specified guidelines. He is also responsible for co-coordinating the day-to-day administration of the College, including the organisation of students' admission, registration, matriculation and examinations.

#### **b) THE SUB- DEANS OF COLLEGES**

Each College in the University is divided into three administrative units called Schools and a Deputy Dean may head each of them. The Deputy Deans oversee the coordination of activities of the School as they relate to the Colleges' Vision and Goals to ensure their foremost growth and development. They provide leadership and oversight for all the academic programmes of the Schools. They oversee strategic planning matters of the Schools and ensure that they are in tandem with the Vision of the University; continuous improvement of programmes and curriculum; promotion of community service activities; ensuring efficient teaching and quality delivery and monitoring of class attendance, student evaluation reports as they relate to the Schools' context, teaching and learning environment among others.



**c) THE DIRECTOR, PHYSICAL PLANNING AND DEVELOPMENT**

The overall development of Covenant University involves the provision of buildings, equipment, furniture, roads, water, electricity, healthcare facilities and educational facilities for the children of the staff and accommodation for staff and students. The Director of Physical Planning and Development is responsible to the Vice-Chancellor for the physical development as well as maintenance and care of the University estate. Officers of the unit are divided into three main groups: maintenance and services; rehabilitation; and development of new facilities.

**d) THE DIRECTOR, CENTRE FOR LEARNING RESOURCES**

The Centre for Learning Resources (CLR) is the academic heart of the University system. Its basic purpose is to provide students and all academic members of the community with materials, assistance and an environment that facilitate teaching, learning and research. Covenant

University's Centre for Learning Resources is being continuously equipped, as a fundamental requirement for academic excellence. The Director of CLR is the head of the University Library, and he is responsible to the Vice-Chancellor in growing and developing the University Library system. This includes the main Library, College Libraries and the departmental reading rooms.

**e) THE DIRECTOR, FINANCIAL SERVICES**

The Director, Financial Services Department, is responsible for ensuring financial prudence in the allocation and utilisation of the financial resources of the institution. This involves coordination, control and periodic evaluation of the financial system of the University, including the internal audit with a proactive audit strategy extending beyond compliance, probability and systems audit, to a value-for-money audit. The Director ensures that financial regulations are made, published in a Manual of Financial Procedures and followed through to ensure the efficient use of funds allocated to, or generated by the University.

**f) THE DIRECTOR, CENTRE FOR SYSTEM & INFORMATION SERVICES (CSIS)**

The Director manages the information system, provides technical support for portal administration, internet and intranet services, training and deployment of systems. CSIS generates and manages data from various sources, including candidate admission, student registration and examination processes for management decisions at various levels.

**g) THE DIRECTOR, ACADEMIC PLANNING UNIT**

The Director, Academic Planning Unit (DAPU) has the responsibility of collating, managing and interpreting data to guide the academic development of the University. The Director also ensures compliance with government policies, notably, the National Universities Commission (NUC) Benchmark Minimum Academic Standard (BMAS), the University status as they relate to academic matters and other academic requirements of Senate.



*African Leadership Development Centre*



*(Top & Down) Members of the Board of Regents in academic procession during a Convocation Ceremony*



*Students Convocation Procession*

## **CHAPTER THREE**

### **COLLEGE OF ENGINEERING**

There are presently four (4) Colleges in Covenant University – College of Business and Social Sciences (CBSS), College of Leadership Development Studies (CLDS), College of Engineering (CoE) and College of Science and Technology (CST). In 2014/2015 academic session, the College of Engineering (CoE) was carved out of the former College of Science and Technology.

#### **3.0 WELCOME ADDRESS FROM THE DEAN**

With anticipation in my heart and gratitude to God Almighty, I welcome you to the Computer Engineering programme of the College of Engineering (COE). The college presently has five departments. The Departments are: Civil Engineering, Electrical and Information Engineering, Mechanical Engineering, Petroleum Engineering and Chemical Engineering. The Department of Electrical and Information Engineering ([eie.covenantuniversity.edu.ng](http://eie.covenantuniversity.edu.ng)) offers programmes in Computer Engineering, Electrical and Electronics Engineering, and Information & Communication Engineering.

The college is walking in line with the vision of the university in helping to raise young stars, future leaders and world best engineers in all fields of endeavours for a better tomorrow. The college also has well-groomed lecturers ranging from professors, senior academic staff and well trained technologist. The non-teaching staffs are also available to work in hand with the academic staff in the college for a better and ready result. The students are groomed to tackle different challenges in the engineering field.

Our programmes are fully enriched with good course outlines, which are well packaged to prepare our students for the successful practice of their profession anywhere in the world. The programmes are also to help the students achieve their full potentials and skills to the highest level. The programmes are fully accredited by the NUC.

On this note, I would like to say a very big welcome once again to the Computer Engineering programme in the College of Engineering.

**Prof. David Olukanni**  
*Dean, College of Engineering, Covenant University*

#### **3.1 OVERVIEW OF THE COLLEGE OF ENGINEERING**

The College of Engineering (CoE) presently has five departments. The Departments are: Civil Engineering, Electrical and Information Engineering, Mechanical Engineering, Petroleum Engineering and Chemical Engineering. The Department of Civil Engineering offers programme in Civil Engineering, the Department of Electrical and Information Engineering ([eie.covenantuniversity.edu.ng](http://eie.covenantuniversity.edu.ng)) offers programmes in Computer Engineering, Electrical & Electronics Engineering, and Information & Communication Engineering, the Department of Mechanical Engineering ([mce.covenantuniversity.edu.ng](http://mce.covenantuniversity.edu.ng)) runs programme in Mechanical Engineering, the Department of Petroleum Engineering ([pet.covenantuniversity.edu.ng](http://pet.covenantuniversity.edu.ng)) runs programme in Petroleum Engineering while the Department of Chemical Engineering runs programme in Chemical Engineering.

The college is walking in line with the vision of the university in helping to raise young stars, future leaders and world best engineers in all fields of endeavours for a better tomorrow. The college also has well groomed lecturers ranging from professors, senior academic staff and well trained technologists. The non-teaching staffs are also available to work in hand with the academic staff in the college for a better and ready result. The students are groomed to tackle different challenges in the engineering field. Our programmes are fully enriched with good course outlines, which are well packaged to prepare our students for the successful practice of their profession anywhere in the world. The programmes are also to help the students achieve their full potentials and skills to the highest level.



*College of Engineering Building*



### 3.2 DEPARTMENTS AND PROGRAMMES

The College of Engineering (CoE) presently has five departments. The Departments are: Civil Engineering, Electrical and Information Engineering, Mechanical Engineering, Petroleum Engineering and Chemical Engineering. The Department of Civil Engineering offers programme in Civil Engineering, the Department of Electrical and Information Engineering (eie.covenantuniversity.edu.ng) offers programmes in Computer Engineering, Electrical and Electronics Engineering, and Information & Communication Engineering, the Department of Mechanical Engineering(mce.covenantuniveristy.edu.ng) runs programme in Mechanical Engineering, the Department of Petroleum Engineering(pet.covenantuniveristy.edu.ng) runs programme in Petroleum Engineering while the Department of Chemical Engineering runs programme in Chemical Engineering.

The Departments and Programmes in the College of Engineering, Covenant University are listed in the Table 3.1.

Table 1: **List of Departments and Programmes in the College of Engineering**

| <b>Department</b>                      | <b>Programme</b>                          | <b>Option</b> | <b>Degree</b> |
|--|---|---------------|---------------|
| Chemical Engineering                   | Chemical Engineering                      |               | B.Eng.        |
| Civil Engineering                      | Civil Engineering                         |               | B.Eng.        |
| Electrical and Information Engineering | Computer Engineering                      |               | B.Eng.        |
|  | Electrical and Electronics Engineering    |               | B.Eng.        |
|  | Information and Communication Engineering |               | B.Eng.        |
| Mechanical Engineering                 | Mechanical Engineering                    |               | B.Eng.        |
| Petroleum Engineering                  | Petroleum Engineering                     |               | B.Eng.        |

### 3.3 VISION

The vision of the College of Engineering (CoE) is to be a leading engineering centre of excellence involved in teaching, research and innovation.

### 3.4 MISSION

The mission of the College is to provide, through innovative teaching and research, sound engineering education aimed at producing a new generation of highly motivated, competent, skilful and innovative professional and academic engineers with a burning desire to tackle Africa's developmental challenges. The College strives to generate and provide high quality and high-tech knowledge in a student-friendly environment for the purpose of producing well-prepared leaders of tomorrow.



### **3.5 PHILOSOPHY**

The College, philosophically, aims at producing students with profound engineering knowledge in different disciplines collaborating in deployment of a wide range of skills and knowledge to provide solutions to societal problems. Situated in a Christian mission University, the College is committed to the goals of learning and faith – learning as both the means to and the result of dogged scholarship; and faith as the personal appropriation of truth for godly living.



*Cross-Section of Faculty and Staff at an Academic Event*



*E-Learning Facility at the Centre for Learning Resources (Library)*

## CHAPTER FOUR

### DEPARTMENT OF ELECTRICAL AND INFORMATION ENGINEERING

#### 4.0 WELCOME ADDRESS FROM THE HEAD OF DEPARTMENT

Welcome to the Computer Engineering Program of the Department of Electrical and Information Engineering. The Computer Engineering programme is hinged on the Covenant University vision and mission of “Raising New Generation of Leaders” with the objective of turning out graduates that are expert thinkers and prudent managers in their respective fields. The Computer Engineering Program is driven by a passion to equip students with the required skills to be able to advance the practice of Computer Engineering and to be able to develop solutions using the skills acquired during their training. This is achieved by putting in place a robust curriculum that meets up challenges in Computer Engineering through the acquisition of relevant skills. The program is adequately staffed with experienced faculty most of whom have made very valuable contributions in research, industry and teaching. The program also has state-of-the-art laboratory facilities and technical personnel who are both passionate about their jobs and always willing to work with faculty in ensuring that the students get the best in terms of both Engineering training and the University experience.

#### 4.1 OVERVIEW OF THE DEPARTMENT

The Department of Electrical and Information Engineering was founded in the 2004/2005 academic session under the College of Science and Technology in order to help provide the personnel needed to exploit the abundant natural resources and manpower for the growing industries of the nation. The Department is now housed within the College of Engineering. The Department of Electrical and Information Engineering offers three degree programmes namely: Bachelor of Engineering (B.Eng.) in Computer Engineering, Bachelor of Engineering (B.Eng.) in Electrical and Electronics Engineering and Bachelor of Engineering (B.Eng.) in Information and Communication Engineering.

The Department graduated its first set of Computer Engineering students in 2006/2007 academic session, the second set in 2007/2008 and the rest from 2008/2009 to 2019/2020 academic sessions. As at 2019/2020, the Department has produced thirteen (14) sets of Computer Engineering graduates. The duration of the Computer Engineering programme is five (5) years of ten (10) semesters. In the first two semesters, the students are engaged in the College of Science and Technology where they learn courses relating to fundamentals of basic sciences and engineering graphics. Subsequently, upon completion of the two semesters, successful students with Cumulative Grade Point Average (CGPA) above 2.0 and not more than the stipulated carryover units proceed to the 200 Level where they are introduced to the general engineering courses. The 200 Level culminates into an eight-week Student Work Experience Programme (SWEP) while the last six semesters are for general Electrical/Information and core Computer Engineering courses. The SIWES II (Students Industrial Work Experience Scheme) is over a period of twelve-week during the long vacation after the Omega (i.e. second) semester of 300 level, and is spent in the industry.

The SIWES III (Students Industrial Work Experience Scheme) is over a period of six consecutive months after the Alpha (i.e. first) semester of 400 level, and is spent in the industry.

The structure of Computer Engineering courses as taught in Covenant University is such that the students are introduced to and engaged in the core curriculum set out by the Benchmark Minimum Academic Standard (BMAS) of both the National Universities Commission (NUC) and the Council for the Regulation of Engineering in Nigeria (COREN). Sometimes

additional courses are added to the courses suggested by the BMAS in such a way as to facilitate a total Computer Engineering graduate that is up-to-date with the current global advancement drive.

The graduation statistics of the last five sets of Computer Engineering students are summarized in Table 2.

**Table 2: Summary of Graduated Students for Five Years**

| Class of Degree   | 1 <sup>st</sup> |      | 2 1    |      | 2 2    |      | 3 <sup>rd</sup> |      | Total |
|-------------------|-----------------|------|--------|------|--------|------|-----------------|------|-------|
| Gender            | Female          | Male | Female | Male | Female | Male | Female          | Male |       |
| Academic Sessions |                 |      |        |      |        |      |                 |      |       |
| 2017\2018         | 8               | 4    | 7      | 11   | 0      | 19   | 0               | 8    | 57    |
| 2018\2019         | 2               | 7    | 4      | 15   | 4      | 18   | 0               | 4    | 54    |
| 2019\2020         | 1               | 7    | 9      | 14   | 3      | 20   | 0               | 0    | 54    |
| 2020\2021         | 6               | 8    | 10     | 19   | 3      | 27   | 0               | 1    | 74    |
| 2021\2022         | 4               | 9    | 13     | 19   | 5      | 18   | 1               | 2    | 71    |
| Total             | 21              | 35   | 43     | 78   | 15     | 102  | 1               | 15   | 310   |

#### **4.1.1 Vision**

The vision of the Department is derived from Covenant University’s vision, which is succinctly captioned — Raising a New Generation of Leaders!. Therefore, the Department is raising a new generation of leaders in Electrical and Information Engineering.

#### **4.1.2 Mission**

The mission of the Department is to create universally applicable and technologically relevant knowledge in the field of Electrical and Information Engineering, with the aim of promoting an integrated and universal education with real-life, real-time applicability vis-à-vis, Science, Technology and Human Capacity Building.

#### **4.1.3 Philosophy**

The Philosophy of the Department is derived from the departure philosophy of Covenant University. Electrical and Information Engineering as the backbone of a knowledge-based economy, is highly dynamic and versatile. Therefore, the Department’s Programmes aim to contribute effectively to the knowledge-based economy by putting in place curricula that meet these challenges in Computer Engineering, Electrical and Electronics Engineering, and Information and Communication Engineering. The training is to produce graduates, who will be producers rather than mere consumers of knowledge and who, upon graduation, will be functional engineers in industries, research assistants and scholars in the academia, or successful entrepreneurs in the Electrical and Information Engineering sectors.

#### **4.1.4 Objectives**

The Department places emphasis on the following objectives:

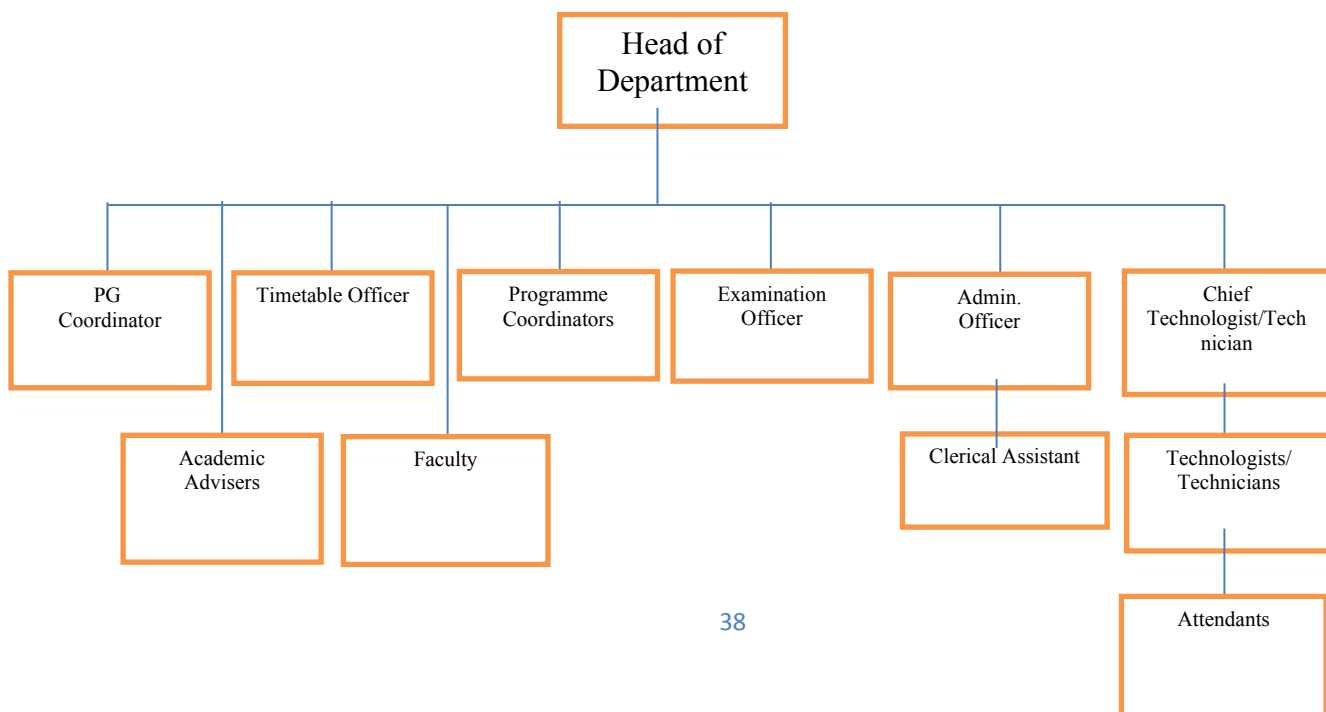
- i). to facilitate a good grasp of a broad spectrum of engineering principles by students;
- ii). to facilitate the acquisition of practical work experience.

- iii). to inculcate entrepreneurial, marketing, and management skills in students.
- iv). to enable students to engage extensively in electrical and information engineering research and development.
- v). to design engineering projects and supervise their implementation.
- vi). to design and implement components, machines, equipment and engineering systems.
- vii). to design and develop new products and production techniques in industries.
- viii). to install and maintain complex engineering systems for optimal performance in our environment.
- ix). to adapt and adopt exogenous technology in order to solve local engineering problems.
- x). to be able to exercise original thought, have good professional judgment and be able to take responsibility for the execution of important tasks.
- xi). to be able to manage people, fund, materials and equipment.
- xii). to improve on indigenous technology for deployment to the solution of local problems.

#### 4.1.5 Goal-Attainment Strategies

The Department of Electrical and Information Engineering appreciates the fact that conducive learning environment has to be created. The components of the ideal environment include Curriculum, Right Human Resources, Qualified students & Learning Facilities. With the right environment, the curriculum is structured to produce professionals capable of producing appropriate and imaginative solutions that are not only technically proficient and contemporary but also economically feasible and relevant in all their ramifications. Students are guided by the right human resources, procedures and conducive learning environment. Laboratory practicals and their supervision are structured to enable students acquire the knowledge and skills for the practice of the profession.

#### 4.1.6 Administration and Control



**Figure 1: Departmental Organogram**



*Students Working in EIE Laboratories*

#### **4.1.7 List of Academic Staff in the Department**

Table 3 contains the list of full-time academic staff in the department while Table 4 contains the list of adjunct/visiting academic staff.

Table 3: **List of Full-Time Academic Staff in the Department**

| S/N | Name of Staff            | Qualification              | Professional Status              | Designation                             | Courses Taught                                 |
|-----|--------------------------|----------------------------|----------------------------------|---|--|
| 1.  | Dr. Isaac. A. Samuel     | Ph.D., M.Eng., PGD         | MNSE, COREN Rgd.                 | Associate Professor & HOD               | EIE315, GEC324<br>EIE529                       |
| 2.  | Dr. Osemwegie Omoruyi    | Ph.D., M.Sc., B.Eng.       | MNSE, COREN Rgd.                 | Lecturer I (Acting Program Coordinator) | EIE411<br>CEN511<br>CEN513<br>EIE326<br>EIE529 |
| 3.  | Prof. S. Daramola        | Ph.D., M.Sc., B.Sc.        | MNSE, COREN Rgd.,                | Professor                               | CEN527<br>CEN523                               |
| 4.  | Prof. Anthony Adoghe     | Ph.D., M.Eng., B.Eng.      | MNSE, COREN Rgd.                 | Professor                               | EEE510<br>EIE510<br>EIE529<br>CEN527           |
| 5.  | Prof. Emmanuel Adetiba   | Ph.D., M.Eng., B.Eng.      | MIEEEE, MNSE, COREN Rgd., MIEEEE | Professor (Fmr. HOD EIE, Fmr. Dir. ICT) | GEC215<br>EIE418<br>GEC225<br>EIE520<br>EIE529 |
| 6.  | Dr. Ayokunle A. Awelewa  | Ph.D., M.Eng., B.Eng.      | MNSE, COREN Rgd.                 | Associate Professor                     | GEC321,<br>EIE412, EIE413,<br>EIE529           |
| 7.  | Dr. Adeyinka A. Adewale  | Ph.D., M.Sc., B.Eng.       | MNSE, COREN Rgd., MIEEEE         | Associate Professor (Dir. SIWES)        | CEN414<br>CEN514<br>EIE326<br>EIE529           |
| 8.  | Dr Moses A. Olaniyan     | Ph.D., M.Eng., B.Eng.      | MNSE, COREN Rgd., MIEEEE         | Associate Professor                     | CEN512,<br>CEN515                              |
| 9.  | Dr. Okokpujie Kennedy    | Ph.D., M.Eng., MBA, B.Eng. | MNSE, COREN Rgd., MIEEEE         | Senior Lecturer                         | EIE526   |
| 10. | Dr, Adebayo Abayomi-Alli | Ph.D., M.Sc., BTech        | MNSE, COREN Rgd, NCS             | Senior Lecturer                         | EIE522<br>CEN523                               |
| 11. | Dr. Olumide. O. Olusanya | Ph.D., M.Sc., BTech        | MIEEEE                           | Senior Lecturer (Visiting)              | CEN515, EIE526                                 |
| 12. | Engr. Tiwalade Odu       | M.Eng., B.Eng.             | MNSE, COREN Rgd., MIEEEE         | Lecturer II                             | GEC310,<br>CEN513,<br>EIE520, EIE529           |
| 13. | Engr. Temitope O. Takpor | M.Eng., B.Eng.             | MNSE, COREN Rgd.                 | Lecturer II                             | CEN416,<br>CEN523,<br>CEN527, EIE529           |



|     |                          |                 |       |                |                                      |
|-----|--------------------------|-----------------|-------|----------------|--------------------------------------|
|     | Mrs. Comfort Lawal       | M.Eng. B.Eng.   | MIEEE | Asst. Lecturer | EIE411,<br>CEN511,<br>EIE527, EIE529 |
| 15. | Mr. Emmanuel O. Simonyan | M.Eng<br>B.Eng. | MNSE  | Asst. Lecturer | EIE411<br>CEN512<br>CEN523<br>EIE529 |

### List and Qualification of other Engineering Faculty

| S/N | Name of Staff                 | Qualification          | Professional Status | Designation (Status) | Courses Taught   |
|-----|-------------------------------|------------------------|---------------------|----------------------|------------------|
| 1.  | Prof. Olayinka S. Ohunakin    | Ph.D., M.Sc., B.Sc.    | MNSE,<br>COREN Rgd. | Professor            | GEC320           |
| 2.  | Dr. Gbenga Omotosho           | Ph.D., M.Eng., B.Eng.  | MNSE,<br>COREN Rgd  | Senior Lecturer      | GEC214<br>GEC219 |
| 3.  | Engr. Dr. Philip. O. Babalola | Ph.D., M.Eng., B.Eng.  | MNSE,<br>COREN Rgd  | Senior Lecturer      | GEC217           |
| 4.  | Engr. Dr. Isaac Akinwumi      | Ph.D., M.Eng., B.Eng.  | MNSE,<br>COREN Rgd  | Senior Lecturer      | GEC213<br>GEC223 |
| 5.  | Dr. Dirisu Joseph             | Ph.D., M.Eng., B.Eng.  | MNSE,<br>COREN Rgd  | Lecturer I           | GEC212           |
| 6.  | Dr. Richard Leramo            | Ph.D., M.Eng., B.Eng.  | MNSE,<br>COREN Rgd  | Lecturer I           | GEC222           |
| 7.  | Dr. Azeta Joseph              | Ph.D., M.Eng., B.Eng.  | MNSE,<br>COREN Rgd  | Lecturer I           | GEC222           |
| 8.  | Dr. Araoyinbo Alaba Oladejji  | Ph.D., M.Sc., B.Eng.   | MNSE,<br>COREN Rgd  | Lecturer I           | GEC219           |
| 9.  | Dr. Agudosi Elochukwu         | Ph.D., M.Sc., B.Sc.    | MNSE,<br>COREN Rgd  | Lecturer I           | GEC221           |
| 10. | Dr. Dike Humphrey Nwenenda    | Ph.D., M.Eng., B.Tech. | MNSE,<br>COREN Rgd  | Lecturer II          | GEC210           |
| 11. | Dr. Udo Mfon Okon             | Ph.D., M.Sc., B.Tech.  | MNSE,<br>COREN Rgd  | Lecturer II          | GEC214<br>GEC223 |
| 12. | Dr. Mosobalaje Olatunde Olu   | Ph.D., M.Sc., B.Tech.  | MNSE,<br>COREN Rgd  | Lecturer II          | GEC210           |

|     |                                |                          |                    |             |        |
|-----|--------------------------------|--------------------------|--------------------|-------------|--------|
| 13. | Dr. Ekpe Ikenna<br>Christopher | Ph.D., M.Sc.,<br>B.Tech. | MNSE,<br>COREN Rgd | Lecturer II | GEC212 |
|-----|--------------------------------|--------------------------|--------------------|-------------|--------|

Table 4: **List and Qualification of other Non-Engineering Faculty**

| S/N | Name of Staff         | Qualification              | Professional Status | Designation (Status)          | Courses Taught                    |
|-----|-----------------------|----------------------------|---------------------|-------------------------------|-----------------------------------|
| 14. | Dr. Azubuike Ezenwoke | B. Sc., M.Sc.,<br>Ph.D.    | MNCS, CPN           | Senior Lecturer<br>(Adjunct*) | CST111, CST121                    |
| 15. | Dr. Ebikaboere Ovia   | PhD, M.Sc.,<br>B.Sc.       |                     | Senior Lecturer<br>(Adjunct)  | GST211, GST311,<br>GST211         |
| 16. | Dr. Samuel T. Owoeye  | B. Sc., M.Sc.,<br>Ph.D.    |                     | Senior Lecturer<br>(Adjunct)  | TMC211, TMC311,<br>TMC221, TMC321 |
| 17. | Dr. Michael Agarana   | B. Sc., M.Sc.,<br>Ph.D.    |                     | Senior Lecturer<br>(Adjunct)  | MAT111, MAT121,<br>MAT112, MAT122 |
| 18. | Dr Maxwell Omeje      | B. Sc., M.Sc.,<br>Ph.D.    |                     | Senior Lecturer<br>(Adjunct)  | PHY111, PHY112,<br>PHY121, PHY122 |
| 19. | Dr Joseph Adekoya     | PGD.,<br>M.Tech.,<br>Ph.D. |                     | Senior Lecturer<br>(Adjunct)  | CHM111,<br>CHM122, CHM123         |

#### 4.1.8 Technical Staff

Table 5 contains the list of technical staff in the Department.

Table 5: **List of Technical Staff in the Department**

| S/N | Name                | Qualification | Professional Status | Designation | Assigned Laboratory |
|-----|---------------------|---------------|---------------------|-------------|---------------------|
| 1.  | Engr. G. A. Afolabi | HND, PGD,     | MNSE,               | Senior      | Electrical          |

|    |                               |                |                  |                         |   |
|----|-------------------------------|----------------|------------------|-------------------------|---|
|    |                               | M.Eng          | Rgd COREN        | Technologist III        | Machine/Power                                 |
| 2. | Mr. M.A Daramola              | HND, PGD, M.Sc | NATE, Rgd COREN  | Senior Technologist III | Electronics                                   |
| 3. | Mrs. O.R.Olomo                | HND, M.Sc      | NATE, Rgd.COREN  | Technologist I          | Microprocessor                                |
| 4. | Mr. D. Ajakaiye               | HND, PGDM, MBA | NATE             | Technologist I          | Computer Networking and Telecommunication     |
| 5. | Mr. J.O. Odetola              | HND            | NATE, Rgd. COREN | Technologist I          | Applied Electricity                           |
| 6. | Mr. K.V. Adeyeye              | HND            | NATE, Rgd. COREN | Technologist I          | Control and Instrumentation                   |
| 7. | Mr. A.G. James                | HND, MIT       | NATE, Rgd. COREN | Technologist I          | Digital System and Prototyping /PCB Lab       |
| 8. | Mr. L.S. Raheem               | HND            | NATE, Rgd. COREN | Technologist I          | Electric Machine/Power                        |
| 9  | Mr. Moses Kayode              | HND            | NATE, Rgd. COREN | Technologist II         | High Voltage                                  |
| 10 | Mr. Odetola Oyekunle.T        | HND            | NATE             | Technologist III        | Control and Instrumentation                   |
| 11 | Mr. S. Ariba                  | B.Eng.         | NATE             | Technologist III        | High Voltage Lab                              |
| 12 | Mr. C. Ogbodor                | HND            | NATE             | Technologist III        | Electronics                                   |
| 13 | Mr. T. Olusanya               | HND            | NATE Rgd. COREN  | Technologist III        | Microprocessor                                |
| 14 | Mrs. Y. O. Owosho             | HND, PGD       | NATE Rgd. COREN  | Technologist III        | Software Engineering (Computation) Laboratory |
| 15 | Miss.Chinedu Jennifer Chidima | HND: PGD       | NATE             | Technologist III        | Applied Electricity Laboratory                |
| 16 | Mrs.West Olajumoke Peju       | HND            | NATE             | Technologist III        | Research Laboratory                           |

#### 4.1.9 Non-Academic Staff

Table 6 contains the list of non-academic staff in the Department

Table 6: **List of Non-Academic Staff in the Department**

| S/N | NAME | QUALIFICATION | DESIGNATION |
|-----|------|---------------|-------------|
|-----|------|---------------|-------------|

|    |                     |                                    |                         |
|----|---------------------|------------------------------------|-------------------------|
| 1  | Miss Hannah Oyewole | B.Sc, SHRM IR<br>MMP               | Assistant Registrar III |
| 2. | Mr. Salami Emmaneul | B.Sc, Marketing M.Sc<br>Management | Assistant Registrar III |
| 3  | Etormi Patience     | SSCE                               | Office Assitant         |

## **4.2 COMPUTER ENGINEERING PROGRAMME**

### **4.2.1 Undergraduate Programme**

PROGRAMME:                      COMPUTER ENGINEERING

DEGREE AWARDED: B.Eng. (Honours) COMPUTER ENGINEERING  
 DURATION: 5 Years (10 Semesters)

#### 4.2.2 Admission Requirements

- i) Credit level passes in five (5) subjects in the NABTEB/SSCE/GCE/NECO O/L or their equivalent must be obtained in not more than two sittings and must include Mathematics, English Language, Physics, Chemistry, and credit pass in either Further Mathematics, Biology or Technical Drawing.
- ii) U.T.M.E Subjects include English Language, Mathematics, Chemistry and Physics.
- iii) The candidates must fulfil all other Admission Requirements as prescribed by the Senate of Covenant University.

#### 4.2.3 Graduation Requirements

Students must take and pass a minimum of 236 credit units to graduate from the 5-year Bachelor of Engineering (B.Eng.) degree programme in Computer Engineering, as shown in Table 7.

Table 7: Graduation Requirements for B.Eng. (Computer Engineering)

| Level | Core Courses | Elective Courses | SWEP | SIWES | University Courses | NUC Courses | Total |
|-------|--------------|------------------|------|-------|--------------------|-------------|-------|
| 100   | 35           | 0                | 0    | 0     | 4                  | 10          | 49    |
| 200   | 38           | 0                | 0    | 0     | 4                  | 6           | 48    |
| 300   | 41           | 0                | 0    | 0     | 4                  | 2           | 47    |
| 400   | 22           | 0                | 12*  | 6     | 2                  | 0           | 42    |
| 500   | 38           | 4                | 0    | 0     | 6                  | 0           | 48    |
| Total | 174          | 4                | 12   | 6     | 20                 | 18          | 234   |

\*This includes 12 units of SWEP in 200 and 300 levels.

### 4.3 STUDENTS ACADEMIC INFORMATION



*Covenant University Students going to their various classes*

#### **4.3.1 DEFINITION OF A STUDENT**

A student in Covenant University is anyone who has been duly registered, having met all the requirements for admission to a programme of choice in the University and is actually involved in all academic and non-curricular activities on campus.

Such a person must be duly matriculated and resident on campus, except otherwise declared by termination/cessation of studentship or official policy declaration by Management, a sequel to imposed penalty as contained in the Student Handbook.

If in the course of the semester or session a student is suspended, such a student shall lose all the rights of studentship during the period of suspension.

Again, if a parent indicates an intention to withdraw his or her ward from the University, such a student will be so allowed.

#### **4.3.2 ADMISSION POLICY**

The undergraduate programmes of the University are focused on raising a new generation of leaders equipped in their total personality to positively influence their community and restore hope to the citizens of their nations and to mankind. Assessment of academic potentials is not the only basis for a candidate's admissibility. As a Christian Mission University, intending students of the University must be God-fearing. Prospective students are expected to demonstrate in their conducts the Core Values of the University.

#### **4.3.3 UNDERGRADUATE ADMISSION REQUIREMENTS**

The minimum entry requirement for undergraduate programmes in Covenant University is the possession of credit level passes in 5 subjects at the Ordinary Level examination of **WAEC/NECO/NABTEB/IGCSE**. The subjects must include English Language and Mathematics.

These must have been obtained at not more than two sittings. There are other requirements that may be specific to a College and/or a Programme.

In addition to the above, candidates must fulfil the statutory requirement of sitting for the UTME examination of the Joint Admissions and Matriculation Board (JAMB) in the year they intend to apply for admission. It is mandatory for applicants to attain the prescribed cut-off mark in the UTME examination.

Applicants must also undergo the post-UTME screening exercise conducted by the University, i.e., the Covenant University Scholastic Aptitude Screening (CUSAS).

#### **4.3.4 INTERNATIONAL ADMISSION**

An international student at Covenant University is defined as any intending student applying to the University for consideration for admission who is:

1. a foreigner, i.e. a citizen of a country other than Nigeria;
2. a Nigerian who resides in a foreign Country/a Nigerian who is a citizen of a foreign country;
3. a Nigerian, in the diaspora, whose School Certificate, High School or O'Level examinations is /was not sat for or obtained in Nigeria but which has been translated or equivalent to Nigerian O'Level standards;
4. a Nigerian, who is also a citizen of another country, this shall be supported with documentation such as, international passport, birth certificate, etc.

To be eligible for consideration, applicants must fulfil the following requirements:

A. Obtaining, completing and return of the admission application form.

Submission of relevant results/certificates, and satisfying the minimum academic entry requirements.

B. Submission of a letter of reference from a spiritual leader.

Application forms for International Applicants can be completed online at <http://admission.covenantUniversity.edu.ng> at the prescribed fee. Payment can be made online through electronic payment platforms or through cash deposits at designated banks.

#### **4.3.5 COURSE-UNIT SYSTEM**

Covenant University runs the Course-Unit System, meaning that courses are quantified in units. Courses are run on a semester basis. Each academic session is divided into two semesters, namely Alpha Semester and Omega Semester. The Alpha and Omega semesters consist of at least 14 teaching weeks and **three** weeks of examination.

##### **4.3.5.1 Status of a Course**

A course is classified into three categories as follows:

- **Core or Compulsory courses** are courses that must be taken unconditionally and passed.
- **Required courses** are those courses registered for at the department and must be passed.
- **Optional or Elective courses** include those courses that may be taken to make up the minimum number of credits to be passed in order to graduate.

#### 4.3.5.2. Grading System

Each course has three grading components. These include:

- Percentage score grade.
- Letter grade.
- Grade point.

Table 8 - Components of Course Grading

| Percentage Score | Letter Grade | Point Grade |
|------------------|--------------|-------------|
| 70 – 100         | A            | 5           |
| 60–69            | B            | 4           |
| 50–59            | C            | 3           |
| 45–49            | D            | 2           |
| 0–44             | F            | 0           |

#### 4.3.5.3 Course Registration

Bona-fide students of Covenant University must first meet the necessary requirements of having paid the prevalent tuition fees among others before they are qualified to embark on the course registration exercise of each semester/session.

The modalities of course registration currently operational in the University are listed below:

##### 1. Registration within Approved Limits

- A student is required to register and pass all prescribed courses from any programme for which he/she is enrolled in the University. However, all cases of failed courses shall be carried over at the next available opportunity.
- Students who are carrying over courses shall be required to register the failed or dropped courses first. A combination of all failed/dropped courses and current semester's courses shall not exceed 25 units per semester.



- The maximum number of units a student shall be allowed to register per semester is 25 units while the minimum is 15 units.

## 2. Excess Unit Loads

- To address the registration challenges being faced by students, especially those in the graduating class, the registration of six (6) extra units above the 25 maximum units per semester may be allowed provided such students' CGPAs are not below 3.0 on a 5.0 scale or 2.4 on a 4.0 scale.
- All applications for consideration to registering extra credit units above the approved maximum limit shall be directed to the Registrar for onward processing to the Senate Business Committee (SBC).
- Any other request related to the aforementioned should be directed to the office of the Vice-Chancellor.

### 4.3.6 ACADEMIC PROGRESSION OF STUDENTS

The following shall apply regarding the academic progression of students from one level to another in Covenant University:

#### 4.3.6.1 Academic Classification

The rating of a student's performance and categorization of the class of the degree shall be based on the cumulative grade point average obtained by each student in all prescribed courses and approved electives taken at Covenant University. The existing class of honors degree are as indicated below:

Table 9 – Degree Classification

| <b>Class of Degree</b>      | <b>Cumulative GPA</b> |
|-----------------------------|-----------------------|
| First Class                 | 4.50 – 5.00           |
| Second Class Upper Division | 3.50 – 4.49           |
| Second Class Lower Division | 2.50 – 3.49           |
| Third Class                 | 1.50 – 2.49           |

#### 4.3.6.2 Academic Standing

A student who has satisfactorily completed all requirements for the degree with an end of session Cumulative Grade Point Average (CGPA) of not less than 1.50 and less than 20 credit

units of failed courses, shall be deemed to be in **Good Standing (GS)**, and thus shall be promoted to the next academic level in the same course. A student whose CGPA is **less than 1.50 or has a minimum of 20 credit units of failed courses** shall be deemed to be **Not in Good Standing (NGS)**. This category of students shall not be promoted to the next academic level.

#### **4.3.6.3 Probation**

Probation is a status granted to a student whose academic performance falls below an acceptable standard. A student that is Not in Good Standing (NGS) but with CGPA of 1.0 - 1.49 is deemed to be on Probation and shall be allowed to remain in the same course level in order to retake only the courses that are failed during the first attempt at that level, while already passed courses are retained. In addition, he/she will be allowed to register for any outstanding dropped courses. This provision is subject to the residency policy of the University.

However, the grade earned for a repeated course shall be recorded and used in the computation of the Grade Point Average (GPA) in the usual way. Please note that no student is allowed to be on probation twice.

#### **4.3.6.4 Withdrawal**

A student with a Cumulative Grade Point Average (CGPA) of less than 1.0 at the end of the session in his/her first attempt in a particular programme shall be asked to withdraw from that programme. Also, a student whose Cumulative Grade Point Average (CGPA) was below 1.5 at the end of a particular year of probation shall be required to withdraw from the University. However, in order to minimize waste of human resources, consideration is given to withdrawal from programme of study and possible transfer to another programme in the University bearing in mind the residency policy of the University. **In the circumstance of a change of programme of study, the student must satisfy the basic entry requirement (BRQ) for the new course.**

#### **4.3.6.5 Repeating Failed Course Units (Non-Graduating Class)**

Subject to the conditions for withdrawal and probation, a student could retake the failed course units at the next available opportunity, provided that the total number of credit units carried during that Semester shall not exceed 20, and the Grade Points earned at all attempts shall count towards the CGPA. Also, at the point of registration of courses, the failed/dropped courses MUST be registered first.

#### **4.3.6.6 Prerequisite for Progressing into the Graduating Class**

The maximum number of units a student shall be allowed to register per semester is 25 units while the minimum is 15 units. This provision is subject to the Residency policy of the University.

Please note that no student that is not likely to graduate on any ground should be allowed into the final class. All outstanding issues must be resolved at the penultimate year (300L and 400L respectively for a 4-year and 5-year programme).

Consequently, only students in the penultimate year with a minimum CGPA of 2.0 and pending units (failed/unregistered courses), which can be accommodated in the 25 units per semester of final year workload, shall proceed to the final year.

Students with more than 25 units of courses per semester shall remain in the penultimate class but may be allowed to register few final year courses after they have registered the failed/unregistered courses.

#### **4.3.6.7 Penultimate Class**

Students in the penultimate class would be allowed to register and take all failed and unregistered courses; if less than 25 units, they will be allowed to take courses from the final year.

#### **4.3.6.8 Probation for Lower Level**

100 level, 200 level and 300 level (for 5 years program) on probation would take only failed and unregistered courses for the semester.

#### **4.3.6.9 Transfer**

100 level students who could not make up a CGPA of 2.0 in the College of Engineering are expected to transfer to the College of Science and Technology. They would be accepted in the departments of industrial physics, industrial mathematics and industrial chemistry. Concerned students should please pick their change of course forms from the academic affairs

#### **4.3.6.10 Release of Examination Results**

1. At the end of each semester, the Registrar shall publish a provisional list of successful students in course examinations soon after the recommendations of the College Boards to the Senate Business Committee have been considered and approved by Senate.
2. The Registrar shall publish the final year results of students for the award of degrees after Senate approval.

#### **4.3.6.11 Special Graduation Requirement**

For any student to be adjudged qualified to be certificated by Covenant University as her graduate, he/she is expected to have successfully gone through the **Towards A Total Graduate (TTG)** Course which is specially designed as a consolidated approach towards raising a new generation of leaders equipped in their total personality to positively influence their community and restore hope to the citizens of their nations and to mankind in general.

This course shall partly examine and provide teachings and counsel on the character status for Covenant University Students. There shall be a lecture component for this programme as well as appropriate examinations/tests to validate levels of comprehension in the course and the character disposition of the intending graduate. Attendance at all lectures and examinations/test is compulsory for graduating students. Students who fail the TTG Programme shall not be deemed to have graduated until the failure is remedied.

#### **4.3.6.12 Award of Covenant University Degree**

Covenant University has the right to refuse the award of its Degree to any student who has exhibited gross acts of misbehaviour in the University. The award of the University's Degree is subject to both good academic and behavioural performance of the student throughout his/her studentship. A graduate of Covenant University must, therefore, be found worthy in character and learning.

#### **4.3.6.13 Regulations on Students' Examinations**

This presents the regulations governing all examinations at the University. This is to avoid those pitfalls that have tended to erode the public's confidence in University Degrees. Students are admonished to study well, attend lectures and cultivate the habit of personal reading and studying. All students should observe the regulations, as ignorance of them shall not be entertained.



*Covenant University Students during Examinations*

#### **4.3.6.14 Admission to Examinations**

Only students who have been duly admitted, registered and matriculated with signed Student Code of Honour and payment of the required fees will be allowed to take examinations, subject to the clauses below:

All such students must have a minimum of 75% attendance in the courses selected, before being allowed to take their examinations. Each lecturer keeps and uploads to the portal the class attendance register for courses taught. Any student that fails to meet the 75% attendance in any course would be deemed to have failed the course. The determination of the 75% eligibility requirements is also affected by student's compliance with attendance at other mandatory events, such as Chapel services, public and inaugural lectures, hostel roll-call etc.

Students who are serving any disciplinary action will not be allowed to retake any examination already written during the course of serving such penalties, except as

decided at the discretion of University Management. Such examinations will be carried over to the next academic session by such students.

#### **4.3.6.15 Use of Assigned Seats by Students**

The invigilators shall assign seats to candidates. A candidate shall neither choose a seat for himself/herself nor refuse a seat assigned to him/her by the Invigilator.

#### **4.3.6.16 Dress Code during Examinations**

Students must comply with the dress code regulations during examinations, including the hanging of their current identity cards.

#### **4.3.6.17 Punctuality during Examinations**

Students are expected to report at the Examination Hall at least 30 minutes before the commencement of the examination. Students who report late to the examination hall may be admitted at the discretion of the Chief Invigilator, but no student shall be admitted 30 minutes after the commencement of the examination.

#### **4.3.6.18 Visiting the Conveniences during Examinations**

No student is allowed to leave the examination hall with the intention of returning, except to visit the conveniences. An appropriate examination attendant will accompany such a student.

#### **4.3.6.19 Unauthorised Communication during Examination**

Students must maintain utmost silence during examinations. No student is allowed to communicate with any other student during examinations. Students who need clarification are advised to raise their hands to draw the attention of the Invigilator.

#### **4.3.6.20 Personal Requirements**

Students are expected to go into examination halls with their biros, erasers, rulers, pencils and any other materials that are permitted. No borrowing of any material is allowed during examinations. Students are not allowed to bring any papers, books or bags into the examination hall. However, where a particular course requires the use of tables, graphs, etc., the University shall supply these during examinations. Also, scientific calculators, organisers, etc., are not allowed during examinations unless specifically permitted by course lecturers. Students are advised to search themselves before entering the examination halls.

#### **4.3.6.21 Use of Wrong Matriculation Number**

It is unlawful to sign in a wrong matriculation number, hence it is important for students to memories their matriculation numbers.

#### **4.3.6.22 Filling of Examination Answer Booklets**

Students are advised to ensure that the necessary documentation and instructions are followed before submitting their answer scripts to the Invigilator.

#### **4.3.6.23 Possession of Used or Unused Scripts**

Students are not allowed to take away any used or unused scripts from the examination hall as it constitutes a gross violation of Examination conduct. Such student will be made to face Students Disciplinary Committee (SDC). This is viewed as unauthorized access to Examination material.

#### **4.3.6.24 Submission of Examination Scripts**

No Student is allowed to leave the examination hall without handing over the examination script to the Invigilator. On handing over the script, the student must ensure that he/she signs out on the attendance register. However, students are not permitted to leave the examination hall without the permission of the Invigilator, who may wish to reconcile the number of scripts with the number of students present in the hall.

### **4.4 REGULATIONS ON STUDENTS' CONDUCT**

A high standard of personal discipline and integrity is expected of every student. Covenant University regards all acts of unethical, immoral, dishonest or destructive behavior as well as violations of University regulations, as serious offences. It is the responsibility of each student to know these regulations.

#### **4.4.1 UNIVERSITY'S MANDATORY ATTENDANCE POLICY**

Covenant University has an accountability system in place to ensure that her students are accounted for at all times. This system was designed to enable the effective discharge of our in loco parentis obligations, and the University's attendance policies are sacrosanct for accountability sake.

These policies are all intertwined as default in one affects the other, and they cover attendance of the following:

- a. Lectures
- b. University General assemblies, which includes chapel services and other mandatory prayer meetings, welcome assembly, departure assembly, public and inaugural lectures, Founder's Day events etc.
- c. Daily roll call at the halls of residence

Consequently, defaults in any of these events jeopardize the University's ability to fulfil her leadership development objectives and therefore attracts punitive implications to the defaulters.

The University has invested in biometrics and other identity capturing mechanisms to ensure the authenticity and effectiveness of attendance data capturing and processing, and all students have been educated on the enrollment protocols and operational modalities.

However, provisions have been made to cater for condonable circumstances in which it is impossible to comply with the attendance policies. Students should familiarize themselves with the guidelines for seeking excuse permits for the approved condonable reasons.

The University Management will communicate the compliance updates of students to their parents and guardian on a weekly basis through emails and SMS, via registered parental email addresses and phone numbers. This is to ensure that parents are abreast of their conducts while on campus and to follow up as necessary.

#### **4.4.2 RESIDENCY CONDUCTS**



##### **Halls of Residence**

The residence life of students is a communal life where a student's moral character and conduct can be molded. The residency policy is to enhance peaceful coexistence amongst the students and facilitate good administration in the Halls of Residence.

##### **Resumption and Closure**

Students are expected to resume and vacate the campus as publicized by the University Management. Any student who refuses to resume on the set date of resumption, except for cases of ill health and other mitigating circumstances, which must have been duly reported to the Dean, Student Affairs prior to resumption, shall be liable for violating the Responsibility Core Value.

##### **Eligibility for Accommodation**

No student shall be granted accommodation unless he or she has completed the residency agreement forms, paid all required fees and been properly registered as a student of the University. It is The Dean, Student Affairs or his representative who assigns accommodation to students.

#### **4.4.3 EXEAT**

Exeats are given to students as necessary. There are three types of exeat: Canaan land Exeat, Day Exeat and Home Exeat. Canaan land Exeats are given to students by their Hall Officers on request while the day and home exeats are given on application to the Dean, Student Affairs through the Hall Officers. Applications for day and home exeats are only granted by the Dean or his/her representative, subject to parental confirmation. No student is allowed to be absent from the Hall of Residence without exeat.

#### **4.4.4 DRESS CODE**

The University attaches great importance to modest and decent dressing. Dressing adds value to a person's personality, self-confidence and self-worth. Indeed, "the way you dress is the way you are addressed." Dress code is one of the unique aspects of Covenant University's culture that students must imbibe to make their academic pursuits pleasurable. The dress code regulations subsist during the academic period, 8.00 am - 6.00 pm.

##### **4.4.4.1 Dress Code for Female Students**

1. Female students must be corporately dressed during normal lectures, public lectures, special ceremonies, Matriculation, Founder's Day, Convocation and examinations. To be corporately dressed connotes a smart skirt suit, skirt and blouse, or a smart dress with a pair of covered shoes. Casual wear is not allowed during University assemblies.
2. All dress and skirt hems must be at least 5 -10 cm (2-4 inches) below the knees.
3. Female students may wear decent "native" attire or foreign wear outside lecture and examination halls.
4. The wearing of sleeveless native attires or baby sleeves and spaghetti straps without a jacket is strictly prohibited in the lecture rooms and in the University environment.
5. Any shirt worn with a waistcoat or armless sweater should be properly tucked into the skirt or lose trousers. It should never be left flying under the waistcoat/armless sweater
6. The waistcoat /armless sweater must rest on the hip. "Bust coats", terminating just below the bust line are not allowed. However, shirts with frills are allowed.
7. Jersey material tops are not allowed for normal lectures and other University assemblies.
8. Skirts could be straight, flared or pleated. Pencil skirts and skirts with uneven edges are not allowed. Lacy skirts are better worn to church. None should be tight or body-hugging.
9. The wearing of dropping shawls or scarves over dresses or dresses with very tiny singlet-like straps (spaghetti strap) is strictly prohibited in the Chapel services, lecture and examination halls and in the University environment.
10. The wearing of strapless blouses or short blouses that do not cover the hip line is strictly prohibited in the lecture and examination halls and in the University environment.

##### **4.4.4.2 Dress Code for Male Students**



Male students are expected to dress corporately to the lecture halls, examination halls and University assemblies. To be corporately dressed connotes wearing a shirt and necktie, a pair of trousers, with or without a jacket, and a pair of covered shoes with socks. The tie knot must be pulled up to the top button of the dress shirt.

1. For national days such as Independence Day, the national dressing code may be observed. Any shirt with indecent inscriptions or any sign with hidden meaning is strictly outlawed.
2. Bandless trousers must never be worn without suspenders. Singlets and shorts above the knee are not allowed.
3. No male student is allowed to wear jumpy trousers i.e. trousers above the ankle in the University.
4. Folding, holding and pocketing of one's tie along the road, lecture halls, University assemblies, etc., is strictly prohibited in the University.
5. Wearing a tie with canvas is not allowed in the University environment. Jerry curls and treated hair are strictly prohibited.
6. Male students may wear "native" or traditional attire outside lecture hours and examination halls, especially during the weekend.
7. No male student is allowed to wear scarves, braided hair, earrings and ankle chains in the University.
8. Wearing of long-sleeved shirts, without buttoning the sleeves is not allowed.
9. Shirt collars should not be left flying while collarless shirts are not allowed.
10. Shirts must be properly tucked into the trousers.

#### **4.4.5 EXAMINATION MISCONDUCT**

Students are admonished not to be involved in any form of examination misconduct as cheating of any kind during examinations is strictly prohibited. Any action by a student, which prejudices the integrity and sanctity of the University examinations, shall be considered to be examination misconduct, punishable by appropriate disciplinary action.

This section summarizes what constitutes examination misconduct. Examination misconduct not covered in this section shall be appropriately addressed by the Student Disciplinary Committee.

##### **Impersonation**

Entering into an agreement with another student or any other person to undertake examination, test, laboratory work or other assignments on behalf of a student.

##### **Unorthodox Means**

Obtaining by any improper means examination papers and using such materials or distributing to other students.

**Falsification of Academic Records for Admission**

Falsifying academic records or submitting false credentials and documents for purposes of gaining admission into the University or for any other academic purpose.

**False Medical Certificate**

Submission of a false medical certificate, or obtaining such a certificate under false pretenses for examinations or any other academic purpose.

**Re-submission of Used Materials**

Submitting an essay, report or assignment to satisfy some, or all of the requirements of a course, when that essay, report or assignment has been previously submitted or is concurrently being submitted for another course whether in this University or any other institution.

**Writing on Unauthorized Materials**

Writing on any unauthorized paper or material(s) during an examination.

**Unauthorized Change of Seating Position**

Changing the assigned seating position in the examination hall without the permission of the Invigilator.

**Possession of Unauthorized Written Materials**

Possession of written or photocopies of relevant notes or notes written on any part of the body, clothing, instruments such as set square, slide rules, rulers, calculator, etc., or having notes written on chairs, tables, desks, neckties or drawing boards during examinations.

**Copying from Unauthorized Materials**

Copying from any book or note on to any part of clothing, body, table, desk or instruments like set square, slide rule, protractors, calculators etc.

**Consulting Recommended Books or Lecture Notes**

Consulting lecture notes or recommended textbooks in any format including digital or electronic during examinations.

**Passing Unauthorized Materials to Others**

Passing any unauthorized material to another student during examinations.

**Receiving Unauthorized Help from Others during Examinations**

Receiving or giving help to another student.

**Destruction of Unauthorised Materials**

Destruction of any unauthorized note or paper found on a student during an examination or refusal to hand over the same.

**Disobeying Examination Instructions**

Disobeying instructions from examination officials. This includes writing before the start of examination or after the call for students to stop writing in an examination.

**Refusal to Complete Misconduct Form**

Refusal to complete examination misconduct form.

**Smuggling of Answer Scripts**

Smuggling in or out of the examination hall, any answer script or continuation sheet or any question paper not meant to be taken out of the examination hall.

**Attacking Invigilator(s) or Lecturer(s)**

Attacking an invigilator or any examination official in or out of the examination hall or exhibiting an unruly behavior towards the Invigilator or Examination Official.

**Failure to Return Examination Booklets**

Failure to return examination booklets after examinations constitutes examination misconduct.

**4.4.6 GENERAL****University General Assemblies**

University General Assemblies include the following:

- 
- a. Sunday Worship Services.
  - b. Chapel Services.
  - c. Founders Day Events, Public/Inaugural Lectures.
  - d. Welcome and Departure assemblies.
  - e. Other Special Academic or Spiritual Programmes organized by the University Authority.

These assemblies are mandatory for all students of the University. No student is allowed to remain in the room whenever there is a University General Assembly. Students are expected to be seated at least fifteen (15) minutes before the commencement of any General Assembly. The University does not condone any act of lateness. Students must ensure that they sign attendance, in and out, during any such assemblies.

**4.4.7 COUNSELLING SUPPORT**

Any student who experiences any emotional or social discomfort should feel free to speak with the Chaplain, the Director of the Counselling Centre, Dean, Student Affairs, Hall

Mentors, Hall Officers, or any other officer designated to provide spiritual and emotional counselling to students. Every student is expected to relate well with other students and other members of the University Community.

Covenant University shall perform its role as 'in-loco-parentis' to students and shall assist students to develop spiritually, academically, emotionally, socially and physically during their studentship in the University. The Student Support Programme (SSP) also provides a rich anchor in this respect.

#### **4.4.8 CULTURAL ETHICS**

An important aspect of our culture is respect for elders. All Covenant University students are to give due respect and honor to their elders, faculty and staff of the University.

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### **4.5 ACADEMIC STRUCTURE**

#### **4.5.1 Course Structure**

The courses offered by Computer Engineering students in their five years of study, that is 100 level to 500 level, is presented in Tables 8-12, respectively.

**Table 10: 100 Level Computer Engineering Courses by Semesters**

|              |                    | ALPHA SEMESTER                              |                                       |           |               | OMEGA SEMESTER |  |  |           |               |             |  |
|--------------|--------------------|---|---------------------------------------|-----------|---------------|----------------|--|--|-----------|---------------|-------------|--|
| Core Courses | Course Code        | Course Title                                | Status                                | Units     | Pre-Requisite | Course Code    | Course Title                                 | Status                                 | Units     | Pre-Requisite | Total Units |  |
|              | GEC117             | Technical Drawing                           | C                                     | 1         | -             | MAT121         | Calculus                                     | C                                      | 3         | -             |             |  |
|              | MAT111             | Algebra                                     | C                                     | 3         | -             | MAT122         | Vector Algebra                               | C                                      | 3         | -             |             |  |
|              | MAT112             | Trigonometry and Geometry                   | C                                     | 3         | -             | PHY121         | Electricity and Magnetism                    | C                                      | 2         | -             |             |  |
|              | PHY111             | Mechanics and Properties of Matter          | C                                     | 3         | -             | PHY122         | Atomic and Nuclear Physics                   | C                                      | 2         | -             |             |  |
|              | PHY112             | Heat, Sound and Optics                      | C                                     | 3         | -             | PHY129         | Physics Practical II                         | C                                      | 1         | -             |             |  |
|              | PHY119             | Physics Practical I                         | C                                     | 1         | -             | CHM123         | General Organic Chemistry                    | C                                      | 3         | -             |             |  |
|              | CHM111             | General Physical Chemistry                  | C                                     | 3         | -             | CHM122         | General Inorganic Chemistry                  | C                                      | 2         | -             |             |  |
|              | CHM119             | General Chemistry Practical I               | C                                     | 1         | -             | CHM129         | General Chemistry Practical II               | C                                      | 1         | -             |             |  |
|              |                    | <b>Sub-Total</b>                            |                                       | <b>18</b> |               |                | <b>Sub-Total</b>                             |  | <b>17</b> |               | <b>35</b>   |  |
|              | University Courses | EDS111                                      | Entrepreneurial Development Studies I | V         | 1             | -              | EDS121                                       | Entrepreneurial Development Studies II | C         | 1             | EDS111      |  |
|              |                    | TMC111                                      | Total Man Concept I                   | V         | 1             | -              | TMC121                                       | Total Man Concept II                   | C         | 1             | TMC111      |  |
|              |                    | TMC112                                      | Total Man Concept – Sports I          | V         | 0             | -              | TMC122                                       | Total Man Concept – Sports II          | C         | 0             | TMC112      |  |
|              |                    | <b>Sub-Total</b>                            |                                       | <b>2</b>  | <b>-</b>      |                | <b>Sub-Total</b>                             |  | <b>2</b>  |               | <b>4</b>    |  |
| NUC Courses  | CST111             | Computer Applications and Library Studies I | U                                     | 2         | -             | CST121         | Computer Applications and Library Studies II | C                                      | 2         | CST111        |             |  |
|              | GST111             | Communication in English I                  | U                                     | 2         | -             | GST121         | Communication in English II                  | C                                      | 2         | GST111        |             |  |
|              |                    |   |                                       |           |               | GST122         | Communication in French                      | C                                      | 2         | -             |             |  |
|              |                    | <b>Sub-Total</b>                            |                                       | <b>4</b>  |               |                | <b>Sub-Total</b>                             |  | <b>6</b>  |               | <b>10</b>   |  |
|              | <b>TOTAL</b>       |   | <b>24</b>                             |           |               | <b>TOTAL</b>   |  | <b>25</b>                              |           | <b>49</b>     |             |  |

**Table 11: 200 Level Computer Engineering Courses by Semesters**

|                    |              | ALPHA SEMESTER                           |        |           |               |              | OMEGA SEMESTER  |           |           |               |             |  |
|--------------------|--------------|--|--------|-----------|---------------|--------------|---|-----------|-----------|---------------|-------------|--|
|                    | Course Code  | Course Title                             | Status | Units     | Pre-Requisite | Course Code  | Course Title  | Status    | Units     | Pre-Requisite | Total Units |  |
| Core Courses       | GEC210       | Engineering Mathematics I                | C      | 3         | MAT 112       | GEC220       | Engineering Mathematics II  | C         | 3         | MAT122        |             |  |
|                    | GEC211       | Fundamentals of Electrical Engineering I | C      | 2         | -             | GEC221       | Thermodynamics  | C         | 3         | -             |             |  |
|                    | GEC212       | Engineering Graphics                     | C      | 2         | GEC117        | GEC222       | Computer Aided Design & Manufacture                               | C         | 2         | -             |             |  |
|                    | GEC213       | Material Science & Engineering           | C      | 2         | -             | GEC223       | Fluid Mechanics   | C         | 3         | -             |             |  |
|                    | GEC214       | Applied Mechanics                        | C      | 3         | -             | GEC224       | Strength of Materials   | C         | 3         | -             |             |  |
|                    | GEC215       | Applied Computer Programming I           | C      | 2         | CST121        | GEC225       | Applied Computer Programming II                                   | C         | 1         | GEC215        |             |  |
|                    | GEC216       | General Engineering Laboratory I         | C      | 1         | -             | GEC226       | General Engineering Laboratory II                                 | C         | 1         | GEC216        |             |  |
|                    | GEC217       | Engineer-In-Society                      | C      | 2         | -             | GEC228       | Introduction to Electrical Engineering II                         | C         | 2         | GEC211        |             |  |
|                    | GEC218       | Workshop Technology                      | C      | 2         | -             | *GEC229      | Student Workshop Experience Program (SWEP)<br>*See 400level Omega | R         | -         | -             |             |  |
|                    | GEC219       | Applied Mechanics: Practical             | C      | 1         | -             |              |   |           |           |               |             |  |
|                    |              | <b>Sub-Total</b>                         |        |           | <b>20</b>     |              | <b>Sub-Total</b>  |           | <b>18</b> |               | <b>38</b>   |  |
| University Courses | EDS211       | Entrepreneurial Development Studies III  | V      | 1         | EDS121        | EDS221       | Entrepreneurial Development Studies IV                            | V         | 1         | EDS211        |             |  |
|                    | TMC211       | Total Man Concept III                    | V      | 1         | TMC121        | TMC221       | Total Man Concept IV  | V         | 1         | TMC211        |             |  |
|                    | TMC212       | Total Man Concept – Sports III           | V      | 0         | TMC122        | TMC222       | Total Man Concept – Sports IV                                     | V         | 0         | TMC212        |             |  |
|                    |              | <b>Sub-Total</b>                         |        |           | <b>2</b>      |              | <b>Sub-Total</b>  |           | <b>2</b>  |               | <b>4</b>    |  |
| NUC Courses        | GST211       | Logic, Philosophy and Human Existence    | U      | 2         | -             | GST221       | Nigerian People and Culture                                       | U         | 2         | -             |             |  |
|                    |              |  |        |           |               | GST222       | Peace Studies and Conflict Resolution                             | U         | 2         | -             |             |  |
|                    |              | <b>Sub-Total</b>                         |        |           | <b>2</b>      |              | <b>Sub-Total</b>  |           | <b>4</b>  |               | <b>6</b>    |  |
|                    | <b>TOTAL</b> |  |        | <b>24</b> |               | <b>TOTAL</b> |   | <b>24</b> |           | <b>48</b>     |             |  |

*\*NOTE: GEC229 (SWEP/SIWES I) – This is done during the long vacation of 200 level but registered as a 6-Unit course in 400 Omega Semester and used in CGPA computation.*

**Table 12: 300 Level Computer Engineering Courses by Semesters**

|                    |             | ALPHA SEMESTER                               |        |           |               |             | OMEGA SEMESTER                                      |        |           |                  |             |  |
|--------------------|-------------|--|--------|-----------|---------------|-------------|---|--------|-----------|------------------|-------------|--|
| Core Courses       | Course Code | Course Title                                 | Status | Units     | Pre-Requisite | Course Code | Course Title  | Status | Units     | Pre-Requisite    | Total Units |  |
|                    | GEC310      | Engineering Mathematics III                  | C      | 3         | GEC210        | GEC340      | Engineering Mathematics IV (Numerical Methods)      | C      | 3         | GEC310           |             |  |
|                    | EIE311      | Electromagnetic Field and Waves              | C      | 3         | MAT121        | GEC321      | Engineering Economics                               | C      | 3         | -                |             |  |
|                    | EIE312      | Communication Principles                     | C      | 3         | GEC228        | GEC324      | Technical/Engineering Communication                 | C      | 2         | -                |             |  |
|                    | EIE314      | Electric Circuit Theory I                    | C      | 3         | GEC228        | GEC349      | Student Industrial Work Experience Scheme (SIWES I) | R      | -         | GEC249           |             |  |
|                    | EIE315      | Electrical Machines I                        | C      | 2         | GEC228        | EIE322      | Signals and Systems                                 | C      | 2         | -                |             |  |
|                    | EIE338      | Laboratory Practical I                       | C      | 1         | GEC226        | EIE323      | Analogue Electronics                                | C      | 3         | -                |             |  |
|                    | EIE333*     | Physical Electronics & Semiconductor Devices | C      | 3         | GEC228        | EIE326      | Software Development Techniques-                    | C      | 3         | GEC215<br>GEC225 |             |  |
|                    | GEN317      | Prototyping Techniques                       | C      | 2         | -             | EIE327      | Digital Electronics                                 | C      | 3         | -                |             |  |
|                    |             |  |        |           |               | EIE328      | Laboratory Practical II                             | C      | 2         | EIE338           |             |  |
|                    |             | <b>Sub-Total</b>                             |        | <b>20</b> |               |             | <b>Sub-Total</b>                                    |        | <b>21</b> |                  | <b>41</b>   |  |
| University Courses | EDS311      | Entrepreneurial Development Studies V        | V      | 1         | EDS221        | EDS321      | Entrepreneurial Development Studies VI              | V      | 1         | EDS311           |             |  |
|                    | TMC311      | Total Man Concept V                          | V      | 1         | TMC221        | TMC321      | Total Man Concept VI                                | V      | 1         | TMC311           |             |  |
|                    | TMC312      | Total Man Concept – Sports V                 | V      | 0         | TMC222        | TMC322      | Total Man Concept – Sports VI                       | V      | 0         | TMC312           |             |  |
|                    |             | <b>Sub-Total</b>                             |        | <b>2</b>  |               |             | <b>Sub-Total</b>                                    |        | <b>2</b>  |                  | <b>4</b>    |  |
| NUC Courses        | GST311      | History and Philosophy of Science            | U      | 2         | -             |             |   |        |           |                  |             |  |
|                    |             | <b>Sub-Total</b>                             |        | <b>2</b>  |               |             |   |        |           |                  | <b>2</b>    |  |
|                    |             | <b>TOTAL</b>                                 |        | <b>24</b> |               |             | <b>TOTAL</b>  |        | <b>23</b> |                  | <b>47</b>   |  |

**\*NOTE: GEC349 (SIWES – II) – This is done during the long vacation of 300 level but registered as a 6-Unit course in 400 Omega Semester. It is carried out in various organizations outside the university.**

**Table 13: 400 Level Computer Engineering Courses by Semesters**

|                    |                  | ALPHA SEMESTER                                  |           |          |               |                  | OMEGA SEMESTER  |           |       |               |             |  |
|--------------------|------------------|---|-----------|----------|---------------|------------------|---|-----------|-------|---------------|-------------|--|
|                    | Course Code      | Course Title                                    | Status    | Units    | Pre-Requisite | Course Code      | Course Title  | Status    | Units | Pre-Requisite | Total Units |  |
| Core Courses       | GEC410           | Engineering Statistics                          | C         | 3        | -             | GEC249           | Student Workshop Experience Program (SWEPE)             | R         | 6     | -             |             |  |
|                    |                  |   |           |          |               | GEC349           | Student Industrial Work Experience Scheme (SIWES I)     | R         | 6     | GEC249        |             |  |
|                    |                  |   |           |          |               | GEC429           | Student Industrial Work Experience Scheme SIWES II (IT) | R         | 6     | GEC349        |             |  |
|                    | EIE411           | Computer Organization and Architecture          | C         | 3        | EIE327        |                  |   |           |       |               |             |  |
|                    | EIE412           | Control Engineering and Linear Systems          | C         | 3        | -             |                  |   |           |       |               |             |  |
|                    | CEN413           | Computing Laboratory Practical and Mini-project | C         | 2        | EIE328        |                  |   |           |       |               |             |  |
|                    | EIE416           | Measurements and Instrumentation                | C         | 3        | -             |                  |   |           |       |               |             |  |
|                    | EIE418           | Data Communication and Computer Networks        | C         | 3        | EIE312        |                  |   |           |       |               |             |  |
|                    | CEN414           | Computer Software Engineering I                 | C         | 2        | EIE326        |                  |   |           |       |               |             |  |
|                    | CEN416           | Assembly Language Programming                   | C         | 3        | EIE327        |                  |   |           |       |               |             |  |
|                    | <b>Sub-Total</b> |   | <b>22</b> |          |               | <b>Sub-Total</b> |   | <b>18</b> |       | <b>40</b>     |             |  |
| University Courses | EDS411           | Entrepreneurial Development Studies VII         | V         | 1        | EDS321        |                  |   |           |       |               |             |  |
|                    | TMC41 1          | Total Man Concept VII                           | V         | 1        | TMC321        |                  |   |           |       |               |             |  |
|                    | TMC41 2          | Total Man Concept – Sports VII                  | V         | 0        | TMC322        |                  |   |           |       |               |             |  |
|                    |                  |   |           | <b>2</b> |               |                  |   |           |       |               |             |  |
|                    | <b>TOTAL</b>     |   | <b>24</b> |          |               | <b>Total</b>     |   | <b>18</b> |       | <b>42</b>     |             |  |



**Table 14: 500 Level Computer Engineering Courses by Semesters**

|                    |                  | ALPHA SEMESTER                          |           |           |               |  | OMEGA SEMESTER                                     |           |           |               |             |  |
|--------------------|------------------|---|-----------|-----------|---------------|--|--|-----------|-----------|---------------|-------------|--|
| Core Courses       | Course Code      | Course Title                            | Status    | Units     | Pre-Requisite | Course Code  | Course Title                                       | Status    | Units     | Pre-Requisite | Total Units |  |
|                    | GEC517           | Engineering Law                         | C         | 2         | -             | GEC527   | Engineering Management                             | C         | 3         | -             |             |  |
|                    | EIE510           | Research Methodology                    | C         | 1         | -             | EIE540   | Artificial Intelligence and Application            | C         | 3         | -             |             |  |
|                    | EIE532           | Reliability and Maintainability         | C         | 3         | -             | EIE527   | Digital Signal Processing                          | C         | 3         | -             |             |  |
|                    | EIE519           | Project I                               | C         | 0         | -             | CEN523   | Computer Networks and Security                     | C         | 3         | -             |             |  |
|                    | CEN510           | Digital Systems Design with VHDL        | C         | 3         | EIE411        | EIE529   | Project II   | C         | 6         | -             |             |  |
|                    | CEN511           | Embedded Systems Design and Programming | C         | 3         | CEN416        |  |  |           |           |               |             |  |
|                    | CEN512           | Computer Software Engineering II        | C         | 2         | CEN414        |  |  |           |           |               |             |  |
|                    | CEN513           | Microprocessor Systems and Interfacing  | C         | 3         | EIE411        |  |  |           |           |               |             |  |
|                    | CEN515           | Computer Graphics and Animation         | C         | 3         | EIE326        |  |  |           |           |               |             |  |
|                    | <b>Sub-Total</b> |   | <b>20</b> |           |               | <b>Sub-Total</b>   |  | <b>18</b> |           | <b>38</b>     |             |  |
|                    |                  |   |           |           |               | <b>Note: Select at least 6 credit units from these electives</b> |  |           |           |               |             |  |
|                    |                  |   |           |           |               | EIE542   | Robotics and Automation                            | E         | 2         | -             |             |  |
|                    |                  |   |           |           |               | EIE523   | Design & Installation of Electrical & ICT services | E         | 2         | -             |             |  |
|                    |                  |   |           |           |               | EIE544   | Cryptography Principles and Applications           | E         | 2         | EIE416        |             |  |
|                    |                  |   |           |           |               | EIE525   | Fuzzy Logic and Programming                        | E         | 2         | -             |             |  |
|                    |                  |   |           |           |               | EIE546   | Digital Image Processing                           | E         | 2         | -             |             |  |
|                    |                  |   |           |           |               | CEN527   | Computer Security Techniques II                    | E         | 2         | -             |             |  |
|                    |                  | <b>Sub-Total</b>                        |           |           |               |  | <b>Sub-Total</b>                                   |           | <b>4</b>  |               | <b>4</b>    |  |
| University Courses | EDS511           | Cost Engineering                        | V         | 2         | -             | EDS521   | Engineering Valuation                              | V         | 2         | -             |             |  |
|                    | TMC511           | Total Man Concept IX                    | V         | 1         | TMC411        | TMC521   | Total Man Concept X                                | V         | 1         | TMC511        |             |  |
|                    | TMC512           | Total Man Concept – Sports IX           | V         | 0         | TMC412        | TMC522   | Total Man Concept – Sports X                       | V         | 0         | TMC512        |             |  |
|                    |                  | <b>Sub-Total</b>                        |           | <b>3</b>  |               |  | <b>Sub-Total</b>                                   |           | <b>3</b>  |               | <b>6</b>    |  |
|                    |                  | <b>TOTAL</b>                            |           | <b>23</b> |               |  | <b>TOTAL</b>                                       |           | <b>25</b> |               | <b>48</b>   |  |

## 4.5.2 Course Description

### 4.5.2.1 100 Level Alpha Semester

#### **GEC117 - Technical Drawing**

**(1 Unit: PH 45)**

Introduction to engineering drawing as a means of communication, use of drawing instruments, drawing paper format, types of lines and their uses in engineering drawing, plane geometry, circles and tangents, conic sections, Loci (cycloid, epicycloids, hypocycloid, involute, Archimedean spiral, Eclipse, hyperbola, parabola, including approximate method), theory of projection, parallel projection, orthographic projection, axonometric projection, perspective projection multiview representation, 1st and 3rd angle projection, isometric drawings, oblique drawings, Freehand sketching.

#### **MAT111 - Algebra**

**(3 Units: LH 45)**

Algebra of set theory: Definition of concepts, laws of algebra of sets, Venn diagram and application. Real Numbers: Rational numbers, theory of surds, sequences and series (including AGP), binomial theorem, theory of quadratic, cubic and quartic equations, indices and logarithms, mathematical induction, partial fractions, theory of equations, inequalities and polynomials (including factor and remainder theorems). Complex Numbers: Algebra of complex numbers, Argand diagram, multiplication and division of numbers in polar form, nth root of unity, and DeMoivre's theorem, expansion of  $\sin n\theta$ ,  $\cos n\theta$ ,  $\tan n\theta$ .

#### **MAT112 - Trigonometry and Geometry**

**(3 Units: LH 45)**

Trigonometry and analytic geometry in (2-D & 3-D): Elements of trigonometry, circular measure, elementary treatment of circles, coordinate geometry: straight lines in (2B-D); plans. Functions and relations: permutation and algebra of functions, Binary operations, Permutations and combinations, elementary treatment of logic.

#### **PHY111 - Mechanics and Properties of Matter**

**(3 Units: LH 45)**

Units and dimensions, scalars and vectors, particle kinematics, Newton's laws, friction, work, energy, centre of mass, simple harmonic motion, rigid body dynamics, kepler's laws, pressure in fluids, intermolecular forces, Hooke's law, Young's modulus, fluid flow streamline turbulence, stroke's law, surface tension.

#### **PHY112 - Heat, Sound and Optics**

**(3 Units: LH 45)**

Temperature, thermometers, heat transfer, PVT –surfaces, Kinetic theory, first and second laws of thermodynamic, transverse and longitudinal waves, standing waves, intensity, beats. Doppler Effect, Electromagnetic spectrum. Huygen's principle, images formed by a single surface thin lenses, aberrations, the eye, optical instruments, interface, single slit, diffraction grating, polarization, Malus' law.

#### **PHY119 - Physics Practical I**

**(1 Unit: PH 45)**

A selection from the following experiments use of measuring instruments, viscosity, surface tension oscillations about an equilibrium position, Hooke's law, moment of inertia, focal lengths

of lenses, refractive index, optical instruments, the sonometer heat capacity, volume expansion and latent heat.

**CHM111 - General Physical Chemistry**

**(3 Units: LH 45)**

Historical development of the atom: atoms, Dalton's atomic theory, atomic masses. Fundamental particles of the atom atomic structure. Modern electronic theory of atoms. Periodicity of the elements. Stoichiometry mole concept, chemical formulas, equations and calculations. State of matter; gas, liquid and solid. Chemical energetics and thermo chemistry. Chemical kinetics, equilibria and electrochemistry.

**CHM119 - General Chemistry Practical I**

**(1 Unit: PH 45)**

Quantitative inorganic and organic analysis for elements in Groups I, II, IIIA, IIIB, IV. Chemical analysis for functional groups: acidic, ketonic carboxylic, etc.

**EDS111 - Entrepreneurial Development Studies I**

**(1 Unit: LH 15)**

Approach: Resource persons will be drawn from the academics and industries as a way of bridging the gap between town and gown. Students are exposed to actual industrial environment. Objective: -This is a foundation course that is aimed at imparting entrepreneurial orientation and skill to the students.

Topics covered include the following: Some basic concepts and definitions of Entrepreneurship. Entrepreneurial equation, historical background of Entrepreneurship. Definition of Entrepreneurship and Entrepreneur. Characteristics of Entrepreneurship. Qualities of successful entrepreneur, Entrepreneurship and Economic growth, Environment of Entrepreneur Development, What entrepreneurship involves, Elements of Entrepreneurship, Components of entrepreneurial ventures, Fundamental changes that stimulate entrepreneurship, The Entrepreneurial process, Benefits of being an Entrepreneur, Contributions of memorable early Entrepreneurs, Time Management. Students are also expected to submit a term paper on Entrepreneurship from some selected areas of SMEs (Small and Medium Scale Enterprise) operations.

**TMC111 - Principles and Parameters of life**

**(1 Unit: LH 15)**

This course provides explanatory constructs for TMC as a course of study in understanding life and development of a total man. It provides a basic introduction to the fundamental aspects of the Total Man Concept, exploring life from the biblical, philosophical and experiential perspectives. It also sets out to explore the purpose and pursuit of life with a view to identifying the foundational anchors of life, the place of visions, dreams, goals and the foundational principles for making the most of life.

**TMC112 - Total Man Concept – Sports I**

**(0 Unit)**

Jogging: This helps in many ways, our focus here on the benefit of jogging is for physical fitness that reduced risk of Osteoporosis. Osteoporosis is the condition when the bones become increasingly porous and brittle. It can result to bone fractures and deformities.

Aerobics exercise: This is said to be any activity that can get the heart rate going and keeps it at a sustained rate over a period of time e.g. twenty minutes. An aerobic activity helps to increase cardiorespiratory fitness, which is one of the fine essential components of physical fitness.

Being aerobically fit you can feel it as you go about.

Swimming (safety measures): the importance of swimming lessons for water safety cannot be overstated. Everyone and especially young people should be able to swim. Swimming has a lot of benefits which include health benefit, psychological benefit, most importantly safety benefit which involved discipline that is adhering to the rules governing swimming and learning of basic skills

**GST111 - Communication in English 1** (2 Units: LH 30)

At the end of the course, students should be able to: Organise their study time, Listen to lectures and effectively manage lecture notes, Develop effective reading habits and increased reading speed, Apply effective methods of summarizing reading materials, & Develop a wide range of vocabulary for a successful academic career..

**CST111 - Computer Applications and Library Studies I** (2 Units: LH 15, PH 30)

Identification of PC parts and peripheral devices: functions, applications, and how to use them. Safety precautions. Procedure for booting a PC. Filing system: directory, sub-directory, file, path, and how to locate them. Word processing: principle of operation, application, demonstration and practical hands-on exercises in word processing using a popular word processing package. Internet: services available, principle of operation, application, demonstration and hand-on practical exercises on e-mail and www using popular packages.

**4.5.2.2 100 Level Omega Semester**

**MAT121 - Calculus** (3 Units: LH 45)

Functions of Real Variables: Graph, Limits and Concepts of Continuity. Techniques of Differentiation of Algebraic and Trigonometric Functions, Higher Order Derivatives, Maxima and Minimal, Leibnitz Rule, Application of Differentiation. Integration as Inverse of Differentiation, Methods of Integration, Definite Integra. Application to Areas, Volumes, Moment of Inertial. Approximate Integration: Trapezoidal and Simpson's Rule. Taylor's and Mclaurin's Theorems, partial Differentiation and Implicit Differentiation.

**MAT122 - Vector Algebra** (3 Units: LH 45)

3-Dimensional Cartesian Coordinate Systems. Definition and Representation of Vectors, Algebra of Vectors, Multiplication of a Vector by a Scalar, Addition of Vectors, Scalar Products of two Vectors, Direction Cosines, Calculus of Vector Functions, Differentiation of Vector Function, Integration of Vector Function. Conic: Circles, Parabola, Ellipse and Hyperbola

**PHY121 - Electricity and Magnetism** (2 Units: LH 30)

Coulomb's law, ohm's law, Gauss' Law, capacitors, Ohm's law, Kirchoff's laws, Electrical energy, DC bridges, potentiometer, magnetic effect of current, electromagnetic induction, moving coil and ballistic galvanometers, multi-meters, DC and AC motors and generators, hysteresis, power in AC circuits, semiconductors, conductivity and mobility, rectification.

**PHY122 - Atomic and Nuclear Physics****(2 Units: LH 30)**

Theory of atomic structure., Thompson, Rutherford and Bohr's theories, the hydrogen atom, properties of the electron,  $e/m$ , CRO, Millikan's experiment, properties of the nucleus, natural radioactivity, wave particle duality of light, x-rays, photo electricity , thermionic emission, diode valve.

**PHY129 - Physics Practical II****(1 Unit: PH 45)**

A selection from the following experiments, potential difference and internal resistance of cells, uses of potentiometer circuit, the meter bridge, simple direct current measuring instruments, Planck's constant, radioactivity.

**CHM122 - General Inorganic Chemistry****(2 Units: LH 30)**

Periodic table and periodic properties, chemical bonding, structures of solids. The chemistry of selected representative elements. Quantitative analysis, hybridization.

**CHM123 - General Organic Chemistry****(3 Units: LH 45)**

Historical survey of the development and importance of organic chemistry. Nomenclature and classes of organic compounds. Homologous series, functional groups, isolation and purification of organic compounds. Qualitative and quantitative organic chemistry, stereochemistry, determination of structure of organic compounds. Electron theory in organic chemistry; saturated hydrocarbons, unsaturated hydrocarbons.

**CHM129 - General Chemistry Practical II****(1 Unit: PH 45)**

Qualitative inorganic and organic analysis for elements in Groups I, II, IIIA, IIIB, IV. Chemical analysis for functional groups: acidic, kenotic, carboxylic, etc.

**EDS121 - Entrepreneurial Development Studies II****(1 Unit: LH 15)**

Topics covered include the following: Generating Entrepreneurial ideas and translating same with action, The source and approaches to the study of Entrepreneurship, constraints of launching Business, Youths and Money Management, Investment, Introduction to Capital Market, Classification of Entrepreneurs, Economic Importance of Entrepreneurship, Entrepreneurial Windows. Factors that influence Entrepreneurship. The practice of Entrepreneurship Productivity, Salaried Employment vs Entrepreneurship, Introduction to Marketing Management, Forms of Business Organizations, their advantages and disadvantages. Introduction to International Trade. Students are also expected to submit a term paper on Entrepreneurship from some selected areas of SMEs (Small and Medium Scale Enterprise) operations.

**TMC121 - Self Discovery Strategies****(1 Unit: LH 15)**

This course focuses on the exploration of self as it relates to self-discovery and the context of the changing life course and stages. It attempts to help students have some understanding of who they are in relation to God and the context of human systems. The spiritual, physical,

psychological, cultural and ecological dimensions of self and the development of positive self-image, self-esteem and self-actualization parameters are also explored

**TMC122 - Total Man Concept – Sports II (0 Unit)**

Jogging: This helps in many ways, our focus here on the benefit of jogging is for physical fitness that reduced risk of Osteoporosis. Osteoporosis is the condition when the bones become increasingly porous and brittle. It can result to bone fractures and deformities.

Aerobics exercise: This is said to be any activity that can get the heart rate going and keeps it at a sustained rate over a period of time. Eg twenty minutes. An aerobic activity helps to increase cardiorespiratory fitness which is one of the fine essential components of physical fitness.

Being aerobically fit you can feel it as you go about.

Athletic (track & short quarter mile races): Institutional athletics programme represent a multi financial industry and are generally linked to school branding and reputation. Athletic programme drive enrolment and heightens institutional profile, and often resulting in financial windfall for those whom their students engaged in.

**CST121 - Computer Applications and Library Studies II (2 Units: LH 15, PH 45)**

Spreadsheet: principle of operation, application, demonstration and practical hand-on exercises in spreadsheet using a popular spreadsheet package. Database Management: principle of operation, application, demonstration and practical hand-on exercises in using a popular relational Database Management package. Report presentation software package: principle of operation, application, demonstration and practical hand-on exercises in using a popular report presentation package such as Power Point package. Mini-Project to test proficiency in use of the software packages.

**GST121- Communication in English II (2 Units: LH 30)**

This course focuses on introducing basic aspects of English grammar, developing effective reading and writing skills across disciplines. Style in communication. Revision and self-editing strategies.

**GST122 - Communication in French (2 Units: LH 30)**

Introduction to French, Alphabets and numeracy for effective communication (written and oral), Conjugation and simple sentence construction based on communication approach, Sentence construction, Comprehension and reading of simple texts.

**4.5.2.3 200 Level Alpha Semester**

**GEC210 - Engineering Mathematics I (3 Units: LH 45)**

Functions, inverse trigonometric functions and principal values, hyperbolic & its inverse, graphs. Concepts of continuity and differentiability. Mean-value theorem. Taylor's series expansion. Integration by parts. Sequences: real numbers, monotone, convergence, limits. Infinite series: convergence tests, addition, multiplication. Power series, radius of convergence, integration, differentiation. Real and imaginary parts, the complex plane, terminology and notation. Complex algebra, DeMoivre's theorem, powers and roots of complex numbers. Euler formula. Elementary functions of a complex variable, polynomials, rational, exponential,

trigonometric, hyperbolic, logarithmic, inverse trigonometric and inverse hyperbolic functions. Vectors in  $R_n$  space, addition and scalar multiplication, linear combination of vectors, idea of linear dependence and independence. Dot and cross products, triple products, lines and planes.

**GEC211 - Fundamentals of Electrical Engineering I** ..... (2 Units:  
**LH 30)**

Fundamentals of electric, electromagnetic and electrostatic circuits. Transients in RC and RL dc circuits. Steady-state dc circuit analysis: Source conversion, Kirchoff's laws, Mesh analysis, nodal analysis, Thevenin and Norton theorems, superposition principle, star-delta transformation, Maximum power transfer. Steady-state ac circuit analysis: Phasors and phasor diagrams, Power triangle, power factor and power factor improvement, frequency response of RLC circuits, resonance. Introduction to simple diode and transistor circuits and characteristics: Amplification & rectification. Introduction to digital systems.

**GEC212 - Engineering Graphics** (2 Units: LH 15, PH 45)

Introduction, Uses and types of Engineering drawing, Dimensioning, Principle of Tangency, Orthographic projection, Isometric projection, Oblique projection (with harder examples), Auxiliary Views, Sectioning, True length of Lines and shapes, Interpenetration of Solids, Development of Surfaces, Introduction to Electronic drafting and Architectural drawings. Freehand or Technical drawings (with harder examples), Machine Drawing, Graphical calculus, electrical and communication, and IT symbols and introduction to assembly drawing, working drawings.

**GEC213 - Materials Science & Engineering** (2 Units: LH 30)

Introduction, Atomic structure & interatomic bondings. The structure of crystalline solids. Imperfections in solids. Diffusion. Mechanical properties of metals. Dislocations and strengthening Mechanisms. Corrosion; effects and control. Failure phase diagrams. Phase transformations in metals. Development of microstructure and alteration of mechanical properties. Thermal processing of metal Alloys. Metal alloys. Structure, Properties, characteristics, applications and processing of polymers, ceramics and composites. Electrical properties.

**GEC214 - Applied Mechanics** (3 Units: LH 30, PH 45)

**Statics:** Principles of mechanics. Forces, Moment Couples, Laws of Mechanics. Coplanar forces and their resultants. First and Second Moments of area. Centroids. Distributed line loads and their resultants. Application of vectors to resolution of forces. Equilibrium of particles. Free body Diagrams.

**Dynamics:** Kinematics of particles and rigid body kinematics in plane motion. Application of Newton's laws of motion. Rigid body translation, rotation about fixed axis and the velocity and acceleration of general plane motion. Relative motion of two particles. Dependent motion of particles. Instantaneous centre of rotation. Kinetics of particles, kinetic energy; principles of work and energy impulse and momentum analysis.

**GEC215 - Applied Computer Programming I** (2 Units: LH 15, PH 45)

Software development life cycle (SDLC): Definitions, SDLC models: Waterfall model, V-shaped model, Incremental Model, Spiral Model. Program Design: Algorithms: Key features of algorithms and different ways of presenting algorithms. Flow charting of algorithms.

Linux System Architecture: Determine and configure hardware settings, boot the system and shutdown system using run levels. Linux installation and Software management: design hard disk layout and install software using the Debian, RPM and Yum package managers. GNU and UNIX commands: work on the command line for text streaming and file management. Device and Linux File Systems: Create and manage file systems and file permissions. Shell Programming: customise environment using shell scripts.

Introductory C Programming concepts: operators and expression, data input and output, control statements, functions, arrays, pointers, structures and unions, data files and low level programming, create and solve simple science and engineering problems using C programming

**GEC216 - Engineering Laboratory 1** ..... (1 Unit:  
**PH 45)**

Laboratory investigations and report submission on selected experiments and projects drawn from introduction to Electrical Engineering, Materials Science, Applied Mechanics, Applied Computer Programming I and Workshop Technology Courses.

**GEC217 - Engineer-In-Society** (2 Units: LH 30)

Science, Technology and Development: Ethical concepts of development. Indicators of development, and the role of science and technology. The contribution of the Government to the process of development and the Nigerian experience in the process of economic development (Nigerian Five Year Development Plans, successes and setbacks). Limits of growth, appropriate technology and a new world of science and technology. Science, Technology and Society: The inter-relationship of social ethics and values, and science and technology. Societal needs and resources in the genesis and development of science and technology. Social problems, impact assessment, and control of science and technology. Responsibilities of engineers. Science, Technology and Environment: Disruption or enhancement of environmental quality through harmful or sound science and technology in relation to air, space, water, land, populations, agriculture, industry, wild life, human settlements, culture, education, etc. Ethics and Professionalism: Theistic and secular concepts of personal, social and professional ethics. Codes of conduct of engineers. Motivation, control, responsibility, rewards and accountability of engineers and development of an ethical engineering professionalism. Council of Engineers and Engineering Societies.

**GEC218 - Workshop Technology** (2 Units: LH 15, PH 45)

Introduction to engineering workshop practice covering mechanical, electrical, information engineering, civil, chemical, and petroleum engineering. Machine operation practice. Use of hand tools, and safety measures in these fields.

**GEC219 - Applied Mechanics: Practical** (1 Unit: PH 45)

**Statics:** Principles of mechanics. Forces, Moment Couples, Laws of Mechanics. Coplanar forces and their resultants. First and Second Moments of area. Centroids. Distributed line loads



and their resultants. Application of vectors to resolution of forces. Equilibrium of particles. Free body Diagrams.

**Dynamics:** Kinematics of particles and rigid body kinematics in plane motion. Application of Newton's laws of motion. Rigid body translation, rotation about fixed axis and the velocity and acceleration of general plane motion. Relative motion of two particles. Dependent motion of particles. Instantaneous centre of rotation. Kinetics of particles, kinetic energy; principles of work and energy impulse and momentum analysis.

### **EDS211 - Entrepreneurial Development Studies III (1 Unit: LH 15)**

Objective: This course is the continuation of EDS 1. The course is aimed at exposing students to the opportunities in Entrepreneurship and the basic characteristics required for successful performance as entrepreneurs using some related biographical studies of entrepreneurs and management giants as case studies.

Topics covered include the following: Relevance of Entrepreneurial and SMEs to the Nations and Societies and Individuals, More on biographical studies of business thinkers, Entrepreneurs and Management Giants, Introduction to International Entrepreneurship, Entrepreneurship and globalization, accelerated industrialization through active promotion and development of SMEs, SMEs: Definitions, Advantages and Disadvantages, Management Challenges of SMEs. Managing the Business Growth. Students are also expected to submit a term paper on Entrepreneurship from some selected areas of SMEs (Small and Medium Scale Enterprise) activities, operations etc.

### **TMC211 -Total Man Concept III (1 Unit: LH 15)**

The focus of this course is on the identification of building blocks of self-development in the context of personal visions, mission and personal capacity building. Major self-motivational blocks, the power and place of focus, the place of the human thought process and how to enhance thinking and reasoning for creativity.

### **TMC212 - Total Man Concept – Sports III (0 Unit)**

Jogging: This helps in many ways, our focus here on the benefit of jogging is for physical fitness that reduced risk of Osteoporosis. Osteoporosis is the condition when the bones become increasingly porous and brittle. It can result to bone fractures and deformities.

Flexibility Exercise: Flexibility can be said to be the freedom and ease of motion performed within an individual normal anatomical range.

To improve one's flexibility range at a joint or muscles persons should engaged in exercises that involves; flexion, adduction, extension and circumduction at the various joints.

Athletics (Field Events): Institutional athletics programme represent a multi financial industry and are generally linked to school branding and reputation. Athletic programme drive enrolment and heightens institutional profile, and often resulting in financial windfall for those whom their students engaged in.

### **GST211 - Introduction to Philosophy and Logic (2 Units: LH 30)**

The aim of this course is to expose students to the meaning of philosophy and a brief survey of its branches. While discussing its major branches, emphasis will be on Logic. The topics to be taught in this respect will include Symbolic logic, Quantificational theory and Logical rules.

Other sub-topics will include arguments and evidence, fallacies, statements and sentences, laws of thought, rules of inference and deduction and analogical reasoning. The course will also provide valuable insights into the origin and content of traditional logic.

#### 4.5.2.4 200 Level Omega Semester

##### **GEC220 - Engineering Mathematics II**

**(3 Units: LH 45)**

Partial Differentiation: Functions of several variables, continuity and partial derivatives. Total differentials, approximate calculations using differentials. Chain rule. Implicit differentiation. Series representation of functions (Maclaurin & Taylor's), Taylor's Theorem. Extremum problems, (analytic method) without and with constraints, Lagrange multipliers, global extremum. Ordinary Differential Equations: Definition, degree, order, linear, non-linear, solution. First order equations, separable variables, equations reducible to separable form, exact equations, integrating factors, homogenous differential equations. Modeling of engineering systems leading to first order differential equations- electric circuit, mixing/dilution, radioactive decay, bacterial culture. 2<sup>nd</sup> order differential equations with constant coefficients, homogeneous, non-homogeneous, complementary functions, particular integrals, D-operator method. General linear second-order differential equations (without using matrices). Power series solution, Legendre's differential equation. Modeling of engineering systems leading to 2<sup>nd</sup> order differential equations- electric circuit, mechanical oscillations-free and forced, resonance. Matrices and Determinants: Solution of system of linear equations by determinants. Linear dependence and independence, rank of a matrix. General system of linear equations, existence and properties of solution, Gaussian elimination. Matrix inverse by elementary matrices, adjoint, and partitioning methods. Characteristic polynomial, characteristic equation, eigenvalues and eigenvectors.

##### **GEC221 - Thermodynamics I**

**(3 Units: LH 45)**

Basic concepts, energy and energy conversions and surroundings, temperature of scales, quantitative relations of zeroth, first, second and third laws of thermodynamics. Steady flow energy equations. Heat and work. Behaviour of pure substances and perfect gases. Applications of the first law. Use of steam tables and charts.

##### **GEC222 - Computer Aided Design & Manufacture**

**(2 Units: LH 15, PH 45)**

Introduction to CAD/CAM, Area of its applications and important. How CAD/CAM works. Extensive introduction to CAD package i.e. AutoCAD. Hand-on practical approach is used especially for CAD application.

##### **GEC223 - Fluid Mechanics 1**

**(3 Units: LH 45)**

Introduction: Properties of fluids: Density, Pressure, surface tension, viscosity, compressibility etc. Fluid statics. Buoyancy of floating bodies. Fluid dynamics. Basic conservation laws. Friction effects and losses in laminar and turbulent flows in ducts and pipes. Dimensional analysis and dynamic similitude.

##### **GEC224 - Strength of Materials**

**(3 Units: LH 45)**

Forces, moments. Equilibrium of simple structures and machine parts. Hooke's law stresses and strains due to loading and temperature change. Stress circle. Deflection of beams. Shear forces and bending moments. Analytical and graphical methods for structures.

**GEC225 - Applied Computer Programming II** (1 Unit: PH 45)

C Language Overview and Program Structure, Arduino C and Data types, PIC Microcontroller. Decision making in C. Program Loops in C. Functions in C. Storage Classes and Scope. Introduction to Pointers. Using Pointers Effectively. Structures, Unions and Data Storage. Arduino Libraries. Interfacing with the Outside World. Introduction to OOP C++.

The objectives of this course are to acquire hand-on skills of C Programming for Computer Aided Engineering in the industry and to construct simple C programs using microcontrollers such as Arduino and Microchip PIC

**GEC226 - Engineering Laboratory II** (1 Unit: PH 45)

Laboratory investigations and report submission on selected experiments and projects drawn from introduction to electrical Engineering, Materials science, Applied Mechanics, Applied computer Programming I, and Workshop Technology courses.

**GEC228 - Fundamentals of Electrical Engineering II** (2 Units: LH 30)

Analysis of Magnetic circuits, Hysteresis and eddy currents, three phase circuits, three-phase power measurement, Transformer theory; short-circuit and open-circuit tests, voltage regulation, efficiency. Electrical machines; constructional features and operation of dc generators and motors; single-phase and 3-phase motors and generators, electric energy utilization for lighting and heating. Tariffs.

**GEC249 - Student Work Experience Programme (SWEP)** (6 Unit: PH 270)

*\*\* Course registered in 400 Level Omega Semester but conducted during the long vacation*

Introduction to practices and skills through supervised hands-on workshop exercises in each engineering departments: Mechanical Engineering (Fabrication, welding, Machining, Foundry, Automotive operations, etc), Chemical Engineering (bar and liquid soap, creams, paints, etc), Civil Engineering, Computer Engineering (soldering and desoldering, building of different circuits, etc), Petroleum Engineering, Electrical Electronics (surface and conduit wiring, etc), Information and Communication Technology (DSTV and Dish installation).

Working in the construction site if available during the period. Introduction to Networking Operation Center (Satellite Broad casting), Bakery Operation (Bread Production), Water Table, sachet and Hebron Juice Production, Printing Technology, Firefighting Exercise and other available related general engineering practice on campus. These exercises include familiarisation with basic tools, troubleshooting. Safety precautions in handling devices in each workshop.

**EDS221- Entrepreneurial Development Studies IV** (1 Unit: LH 15)

Topics covered include the following: More on biographical studies of business thinkers, Entrepreneurs and Management Giants in Nigeria, Africa and Europe. Theoretical Framework of Entrepreneurship, Feasibility studies, Marketing Management in Entrepreneurship, Impact of Modern Technologies on Entrepreneurial Ventures in Developing Countries. The SMEs:

Challenges and Prospects, Financing of SMEs in Nigeria. Planning, SMEs and Capital Markets. Term paper on Entrepreneurship from some selected areas of SMEs (Small and Medium Scale Enterprise) operations.

#### **TMC221 - Total Man Concept IV**

**(1 Unit: LH 15)**

Understanding success, personal profile building and biographical analysis of some success giants forms the emphasis of this course. The role of wisdom in the context of success is explored along the lines of understanding, building and communicating wisdom. In addition, the place of self-identity building is explored alongside with a focus on identifying personal measures and inches of self-worth and self-appreciation in the context of success.

#### **TMC222 - Total Man Concept – Sports IV**

**(0 Unit)**

Jogging: This helps in many ways, our focus here on the benefit of jogging is for physical fitness that reduced risk of Osteoporosis. Osteoporosis is the condition when the bones become increasingly porous and brittle. It can result to bone fractures and deformities.

Games (Table – tennis): This centres on the mastery of basic skills, game situation as well as rules and regulation governing the various sports that will be attempted.

Focuses are also being on appreciation of various sports and the spirit of sportsmanship that is ‘win or loss’ taking it in good fate.

Athletic (Field Events): Institutional athletics programme represent a multi financial industry and are generally linked to school branding and reputation. Athletic programme drive enrolment and heightens institutional profile, and often resulting in financial windfall for those whom their students engaged in.

### **4.5.2.5 300 Level Alpha Semester**

#### **GEC310 - Engineering Mathematics-III**

**(3 Units: LH 45)**

Matrices and Determinants: Matrices, some special matrices, matrix operations. Determinants and some useful theorems. Laplace’s development. Solution of system of linear equations by determinants. Linear dependence and independence, rank of a matrix. General system of linear equations, existence and properties of solution, Gaussian elimination. Matrix inverse by elementary matrices, adjoint, and partitioning methods. Characteristic polynomial, characteristic equation, eigenvalues and eigenvectors. Diagonalization of matrices, application to system of first order linear differential equations. Multiple Integrals: Iterated integrals, multiple integrals over elementary regions. Change of variables, Jacobians. Differentiation of integrals involving a parameter, Leibniz’s rule.

Vector Algebra: Vector field, gradient and directional derivative, divergence, curl. Line and surface integrals, Stoke’s theorem. Volume integrals, divergence theorem. Orthogonal transformations, scale factors, basis vectors. Cylindrical and spherical polar coordinate systems, gradient, divergence and curl in these systems. Fourier Series: periodic functions, trigonometric series. Fourier coefficients, Parseval’s theorem, Functions of arbitrary period, even and odd functions. Half range expansion. Complex form of Fourier series. Integral Transform: Derivation of transforms and inverses (Fourier and Laplace). Applications of these transforms in boundary and initial value problems. Z transforms. Partial Differential Equations: Elementary properties of Gamma, Beta, Error, Bessel functions and Legendre polynomials. Basic concepts of partial

differential equations. Classification of 2nd order linear partial differential equation into basic types. The principle of superposition. The wave, diffusion and Poisson's equations. Boundary and initial-value problems. D'Alembert's solution for wave equation. Method of separation of variables. Bi-harmonic equation

### **EIE311- Electromagnetic Fields & Waves I**

**(3 Units: LH 30)**

Review of Vector Algebra & Calculus: Scalar product and vector product, coordinate systems, gradient, curl, divergence operations. Gauss's, Stokes, Helmholtz and Green's integral theorems, integral of scalar and vector fields. Electrostatics: Charge and charge density. Coulomb's Law. Concept of fields. Electric flux density and electric field intensity. Gauss's Theorem and applications. Voltage and electric potential. Conductor, dielectrics. Polarization, susceptibility, permittivity. Electrostatic boundary condition. Capacitance calculation and electric energy. Magnetostatics: Current and current density. Magnetic dipoles and current loops. Magnetic flux density and magnetic field intensity. Biot-Savart Law and Ampere's Law, Faraday's Law. Magnetostatic boundary condition. Self and mutual induction. Inductance calculation and magnetic energy. Maxwell's Equations: Time Varying fields : Faraday's Law of Induction, the conservation of charge and the incompleteness of Ampere's Law. Maxwell's equations and Lorentz force law. Uniform plane waves and wave equation. Time harmonic fields. Polarization of waves. Poynting's Theorem and the conservation of energy, the field definitions of impedance, admittance. Phase and group velocities. Waves in media: lossy media, dispersive media. Wave Propagation and Transmission Theory: Boundary conditions. Reflection and refraction at plane interface (normal and oblique angles), transmission line analogy. Transmission line theory: differential equations for a general transmission line, low loss and lossless lines, impedance characteristics of lines with various terminations, simple mismatch problems and the use of Smith Chart. Introduction to Waveguides and Cavity Resonators:

### **EIE312 - Communication Principles**

**(3 Units: LH 45)**

Principles of Communications: An elementary account of the types of transmission. Brief historical development on communications: telegraph, telephony, radio, satellite, data, optical and mobile communications, facsimile. Block diagram of a communication system. The frequency spectrum. Signals and vectors, orthogonal functions, Fourier series, Fourier integral, signal spectrum, convolution, power and energy, correlation. Reasons for modulation. Types of modulation. Amplitude modulation systems: Comparison of AM systems, Methods of generating, and detecting AM, DSB, SSB signals. Vestigial sideband. Frequency mixing and multiplying, frequency division multiplexing, applications of AM systems. Frequency modulation systems: Instantaneous frequency, frequency deviation, modulation index, Bessel coefficients, significant sideband criteria, bandwidth of a sinusoidally modulated FM signal, power of an FM signal, narrowband FM, direct and indirect FM generation, various methods of FM demodulation, discriminator, phase-lock loop; limiter, pre-emphasis and de-emphasis, stereophonic FM broadcasting. Noise waveforms and characteristics. Thermal noise, shot

noise, noise figure and noise temperature. Cascade network, experimental determination of noise figure. Effect of noise on AM and FM systems. Block diagram of a superheterodyne AM radio receiver, AM broadcast band and specification, signal sensitivity, aerial circuit, i.f. trap, RF amplifier design, frequency mixer, local oscillator design, inter modulation interference, adjacent channel interference, ganging, tracking error, intermediate frequency, automatic gain control, delay agc, diode detector, volume control. FM broadcast band specification, block diagram of a

FM radio receiver, limiter and ratio detector, automatic frequency control, squelch circuit, FM mono and FM stereo receivers. AM broadcast band and specification. FM broadcast band and specification. Image frequency. FM mono and FM stereo receivers. TV broadcast band and specification. Signal format, transmitter and receiver block diagrams of Black and White TV, and Color TV.

**EIE314 - Electric Circuit Theory I**

**(3 Units: LH 45)**

Electric fields: Fundamental concepts, energy storage. Magnetic fields: Fundamental laws, field calculations, and energy storage. Magnetic circuits: simple calculation of magnetic circuits, B – H curves and core losses. Inductance: Self and mutual inductance, coupled circuits. Transient and steady state response of circuits: RL, RC, RLC circuits, free and forced oscillation. Network analysis: network theorems; mesh and node analysis. One and two – port network: driving point functions, circuit parameters, interconnection and termination, transformation.

**EIE315 - Electrical Machines I**

**(2 Units: LH 45)**

Electromechanical energy conversion: Law of conservation of energy. General energy balance equation. Singly excited system (induced voltage, electrical energy and torque equations). Double excited system (electrical energy, induced voltage and torque equations) DC Machines: principles of operation construction simple armature windings-lap and wave. Emf equations. Commutation. Armature reaction DC Generators: methods of excitation (separate series, shunt and compound) conditions for self-excitation of shunt generators. Parallel operation of d.c. generators. Characteristics of d.c. generators. D.C. Motors: methods of excitation (separate series, shunt and compound characteristics of D.C motors. Derive expression for torque developed in D.C motors. D.C motor starters speed control (varying the armature voltage varying the field magnetic flux, ward Leonard method) variable and constant losses in D.C. machines. Determining efficiency of D.C machines by Direct loading method, swinburnes method, Hopkins test. Conditions for maximum efficiency of D.C machines. Transformers: construction of single-phase transformers. Principle of operation. Drawing phase diagrams for transformers on no-load and on load., — An Ideal transformer, deriving an expression for the turn ratio of a transformer. Emf equations of transformers, approximate equivalent circuit, efficiency voltage regulation. Three phase transformers: Construction grouping and connection of windings parallel operation. Conditions for parallel operation, testing of transformers, list different types of transformers – power, distribution autotransformers, current and voltage transformers. Methods of cooling tap changing. Tests on transformers.

**EIE338 - Laboratory Practical I**

**(2 Units: PH 45)**

Laboratory investigations and report submission on selected experiments and projects drawn from courses taught in this semester. Report on each experiment is to be submitted immediately after the laboratory period for grading.

**CEN317 - Prototyping Techniques**

**(2 Units: LH 30)**

Introduction: Grounding, ground plane, digital ground, analogue ground, power decoupling, inductance and capacitive effects, feedthrough capacitors. Soldering techniques for pass-through and surface mount components, desoldering. Breadboarding, veroboarding. Wire wrapping techniques. Radio Frequency design and implementation techniques. Printed Circuit

Board techniques, and production of PCB. Use of PCB CAD packages. Construction exercises using different prototyping techniques.

**EDS311 - Practical Side of Entrepreneurship I**

**(1 Unit: PH 45)**

Objective: To expose the students to a greater depth in the practical aspects of entrepreneurship, particularly the development of skills. The aim is to distinguish Covenant University graduates from graduates of other institutions of higher learning.

Practicum: All students are sent to the entrepreneurial village in-groups for skill acquisition in different specialization fields. Mini trade fairs will be organized where the students will display all their products. This program includes both theoretical and practical aspects of entrepreneurship. Production and Quality control of entrepreneurship material Management will be taught. These specialized fields include: tailoring, carpentry, millinery (hat making), mechanical, catering, shoe making, interior decoration, software development, candle and soap making, fishery, farming, snail rearing, poultry farming, piggery, textile development (tie & dye), cooking, paint manufacturing, photography, ice-cream making, saloon and barbing etc.

**TMC311 - Total Man Concept V**

**(1 Unit: LH 15)**

This course examines Man in different environmental contexts – the biblical, biological, cultural and ecological. The emphasis here is the civic and social responsibilities of man in society and the expectations of community living. The place of social relationships, diversity, issues of difference, conflict, family issues are explored looking at God’s mandate and current trends and challenges.

**TMC312 - Total Man Concept – Sports V**

**(0 Unit)**

Aerobics (Cardio respiratory) Aerobics exercise: This is said to be any activity that can get the heart rate going and keeps it at a sustained rate over a period of time. Eg twenty minutes. An aerobic activity helps to increase cardiorespiratory fitness which is one of the fine essential components of physical fitness. Being aerobically fit you can feel it as you go about.

Games (modified sports): Modified level of sports prepares student for the real activity itself and beyond. The philosophy of modified is to maximize participation and playing time for students. The level focuses on growth of basic skills and sportsmanship. During these events we make every attempt to include as many students on possible teams.

Athletics (Field Events): Institutional athletics programme represent a multi financial industry and are generally linked to school branding and reputation. Athletic programme drive enrolment and heightens institutional profile, and often resulting in financial windfall for those whom their students engaged in.

**4.5.2.6 300 Level Omega Semester**

**GEC340 – Engineering Mathematics IV – Numerical Methods**

**(3 Units: LH 45)**

Numerical Methods: Finite difference. Interpolation. Numerical differentiation and integration. Numerical solution of ordinary differential equations, Trapezoidal, Simpson, Runge Kutta methods. Newton Raphson method for roots of equations. System of simultaneous linear equations. Linear simultaneous equations, Gaussian elimination, Gauss-Seidel iterative method, Jacobi Method, evaluation of determinant and inverse matrix. Eigensystem analysis: system stability, eigenvalue sensitivity, stability of Gauss-Seidel solution, amplitude and time scaling for model studies. Use of numerical analysis software packages to solve simple engineering problems.

**GEC321 - Engineering Economics**

**(3 Units: LH 45)**

The nature and scope of economics. Basic concepts of engineering economy. Interest formulae, discounted cash flow, present worth, equivalent annual growth and rate of return comparisons. Replacement analysis. Breakdown analysis. Benefit-cost analysis. Minimum acceptable rate of return. Judging attractiveness of proposed investment.

**GEC324 - Technical/Engineering Communication**

**(2 Units: LH 30)**

Introduction to Communications: Principles of effective communication in interpersonal and mass communication process. Verbal, graphical and numerical communications. Written Communication: Principles of technical writing. Types of technical writing, referencing and citation. Styles of writing. Graphs; diagrams presentation. Statistical information presentation. Macro level, and micro-level. Oral Communication: Public speaking skills, multi-media presentation skills. Facilitator and participant skills in meetings. Negotiating skills. Idea-generating skills. Manuscript speaking and presentation involving media and telecommunications. Reading skills: Effective reading skills: extracting main ideas and speed-reading, chunk/cluster-reading and word-attack techniques of technical reading materials. Equipment Manual Writing and Presentation: Component diagrams, assembling, description, and multi-language presentation. Basic troubleshooting information, and technical support information. Marketing strategy.

**GEC349 – Student Industrial Work Experience Scheme I (SIWES I) (6 Units: PH 90)**

During the SIWES each student will undergo practical on the job training in an engineering industry approved for its relevance to the student's major for a minimum of 10 weeks starting immediately after the first semester examinations at 300 level. A programme of training will be drawn by the College and the Industry for each student, and a prescribed log book with daily recording of the student activities is to be kept by each student and appropriately signed. At the end of the programme, a written report is to be submitted to the college and each student to present a seminar on his/her industrial experience. Each student must pass a prescribed certification examination during the industrial training.

**EIE322: Signals and Systems**

**(2 Units: LH 30)**

System modeling, Analog signals, Convolution and correlation, Fourier and Laplace Transforms, Random processes, sampled signals and systems, Discrete Fourier transforms. Z transforms, Analog and Digital filters. Control strategies; Open-loop, feed forward and feedback control systems, Stability, performance and sensitivity analyses. Lag and Lead compensation, Frequency domain design, PID controllers. Elements of nonlinear control.



**EIE323 - Analogue Electronics****(3 Units: LH 45)**

Review of single stage transistor amplifiers using BJTs and FETs. Equivalent circuit and calculation of current gain, voltage gain, power gain, input and output impedance. Operational Amplifiers: Parameters and applications, Feedback, Broadband and narrow band amplifiers. Power amplifiers, voltage and current stabilizing circuits, voltage amplifiers, multi-stage amplifiers using BJT and FETs.

**EIE326 - Software Development Techniques****(3 Units: LH 45)**

Engineering practices for the development of non-trivial software-intensive systems including requirement specification, software architecture, implementation, verification and maintenance. Iterative development. Recognized standards, guidelines and models. Flowchart ANSI symbols and usage. Extensive examples, and exercises using pseudo-code/flowchart to solve practical problems in engineering. Debugging and documentation techniques. Programming using a structured language such as C: Symbols, keywords, identifiers, data types, operators, various statements, operator precedence, type conversion, conditional and control structures, function, recursive functions. Arrays: 1-D, and multi-dimensional arrays, passing elements or whole array to a function. Simple sorting and searching on arrays, pointers, strings, dynamic memory allocation. Structures and Unions: Structure declaration and definition, accessing structures, array of structures, pointers and structures, union declaration, enumerated variables. File Handling: Concept of a file, files and streams, standard file handling functions, binary files, random access files.

Advanced Topics: Command line parameters, pointers to functions, creation of header files, stacks, linked lists, bitwise manipulation. Software development in C in MS Windows, UNIX/LINUX environments, header file, preprocessor directives, make, Makefile. Static and dynamic linking libraries. Extensive examples, and exercises programming in C to solve practical problems in engineering. Exercises are to be done in the Computer Laboratory.

**EIE327 - Digital Electronics****(3 Units: LH 45)**

Number Systems and Code. Logic Gates. Simplification of Logic Expressions using Boolean algebra. Simplification of Logic expressions using Karnaugh Maps. Combinational Logic Circuit Design Analysis and Synthesis. Algorithms for deriving minimal SOP forms from K-maps. POS form using K-maps. Algorithms for deriving minimal POS forms from K-maps. Computer-aided minimization of switching functions. Digital vs. analog systems. Mixed signal design, analogue and digital grounding. Digital system design hierarchy. Logic devices: TTL and CMOS families, technology, applications, signal levels, mixing, and interfacing. Interference and noise. Memory devices. Latches, Flip-flops. Sequential Logic Design: Counters, Registers. Timing circuits. Modular Design. Decoders. Decoder Circuit Structures. Implementing Logic Functions Using Decoder. Encoder Circuit Structures. Multiplexers/Data. Selectors. Multiplexer Circuit Structures. Applications of Multiplexers. Demultiplexers/Data Distributors. Arithmetic Circuits: Half Adder/Subtractors Full Adders/Subtractors. Comparators. Arithmetic Overflow Detection. Design Example: A Computer Arithmetic Logic Unit. Computer-aided Design of Modular Systems.

**EIE328 - Laboratory Practical II****(2 Units PH: 30)**

Laboratory investigations and report submission on selected experiments and projects drawn from courses taught in this semester. Report on each experiment is to be submitted immediately after the laboratory period for grading.

### **EDS321- Practical Side of Entrepreneurship VI**

**(1 Unit: LH 45)**

Objective: To expose the students to a greater depth in the practical aspects of entrepreneurship, particularly the development of skills. The aim is to distinguish Covenant University graduated from graduates of other institutions of higher learning.

Practicum: All students are sent to the entrepreneurial village in-groups for skill acquisition in different specialization fields. Mini trade fairs will be organized where the students will display all their products. This program includes both theoretical and practical aspects of entrepreneurship. Production and Quality control of entrepreneurship material Management will be taught. These specialized fields include: tailoring, carpentry, millinery (hat making), mechanical, catering, shoe making, interior decoration, software development, candle and soap making, fishery, farming, snail rearing, poultry farming, piggery, textile development (tie & dye), cooking, paint manufacturing, photography, ice-cream making, saloon and barbing etc.

### **TMC321 - Total Man Concept VI**

**(1 Unit: LH 15)**

This course follows directly from TMC 311 and provides a further exploration of man and his specific civic, social and ecological and family responsibilities. The place of global trends, community service and family responsibilities vis-à-vis preparation for life in society and family context are explored closely. Focus will also be given to the demands of preparing for the context of the work place, job interviews and demands of world of work.

### **TMC322 - Total Man Concept – Sports VI**

**(0 Unit)**

Jogging: This helps in many ways, our focus here on the benefit of jogging is for physical fitness that reduced risk of Osteoporosis. Osteoporosis is the condition when the bones become increasingly porous and brittle. It can result to bone fractures and deformities.

Modified Sports Advance: Modified level of sports prepares student for the real activity itself and beyond. The philosophy of modified is to maximize participation and playing time for students. The level focuses on growth of basic skills and sportsmanship. During these events we make every attempt to include as many students on possible teams.

Basic Skills in Swimming: The importance of swimming lessons for water safety cannot be overstated. Everyone and especially young people should be able to swim. Swimming has a lot of benefits which include health benefit, psychological benefit, most importantly safety benefit which involved discipline that is adhering to the rules governing swimming and learning of basic skills

## **4.5.2.7 400 Level Alpha Semester**

### **GEC410 - *Engineering Statistics***

**(3 Units: LH 45)**

Probability and Statistics: Probability space, theorems. Conditional probability and independence. random variables, discrete and continuous distributions, mean and variance. Bernouli, Binomial, Poisson, hypergeometric, exponential, normal distributions and their

characteristics. Examples of experimental measurement and reliability. Elementary sampling theory for normal population. Central limit theorem. Statistical inference (point and interval estimation and hypothesis testing) on means, proportions and variances. Power and operating characteristics of tests. Chi-squares test of goodness of fit. Simple linear regressions.

### **EIE411 - Computer Organization and Architecture**

**(3 Units: LH 45)**

Computer Fundamentals: Development history of computer hardware and software. Hardwired vs stored program concept. Von-Neuman architecture. Harvard architecture: principle of operation, advantages, disadvantages. Single address machine. Contemporary computers. Computer system: block diagram, functions, examples, dataflow, control line. Computer Arithmetic: integer arithmetic (addition, subtraction, multiplication, division), floating-point representation (IEEE), floating-point arithmetic. Arithmetic and logic unit (ALU). Introduction to CISC and RISC architecture: principle of operation, merits, demerits. Storage and Input/Output Systems: Computer function (fetch and execute cycles), interrupts, interconnection structures (Bus structure and bus types), Overview of memory system, memory chip organization and error correction, cache memory, memory storage devices. Overview of I/O, programmed and interrupt-driven I/Os, DMA, I/O channel and I/O processor. Control Unit: Micro-operations, control of the CPU, hardwired implementation, control unit operation, micro-instruction sequencing and execution, micro-programmed control. Use INTEL family, and MOTOROLA family as case study of a CISC computer system. Instruction Set and Register: Machine instruction characteristics, types of operands and operations, instruction functions, addressing modes, instruction formats, register organization, instruction pipelining. High performance computer systems: Techniques to achieve high performance, pipelining, storage hierarchy, units with function dedicated for I/O. RISC, introduction to superscalar processor, parallel processor. Use popular RISC processor (e.g., i960, Motorola PowerPC) as case study. Operating System: Overview of operating system, dimension and type of operating system, high level scheduling, short-term scheduling, I/O scheduling, memory management, virtual memory, UNIX/LINUX operating system: architecture, commands, programming; window based operating systems (MS windows, X-window).

### **EIE412 - Control Engineering and Linear Systems**

**(3 Units: LH 45)**

Introduction: definition, examples of control systems. Open-loop and closed-loop control systems. Review of Laplace and inverse Laplace transforms. System modelling: Signal flow graph, block diagram. Transfer function. Poles and zeros. Block diagram reduction using signal flow graph and block diagram reduction techniques. Mechanical, electrical and electromechanical systems. First and second order models, higher order models. Definitions of transient response parameters. Analysis of second-order system as prototype. Routh-Hurwitz stability criterion. Classification of systems based on steady-state characteristics, steady-state error coefficient. Definition of Root locus, Properties of root locus, sketching of root locus plots. Effect of open-loop zeros and poles. Root locus design concepts. Frequency response analysis and design: Bode diagram, Polar plot, Nichols plot. Nyquist stability criterion: non-mathematical description of Nyquist criterion, interpretation of stability. Relative stability - Gain and phase margins. Closed-loop frequency response analysis - M and N contours, Nichols chart. Compensation techniques: lag, lead and lag-lead compensation, PD, PI and PID controllers. Cascade compensation based on root-locus method. Introduction to Feedback compensation. Computer-aided design and analysis of control system.

**CEN413 – Computing Laboratory Practical and Mini Project (2 Units: PH 45)**

Laboratory investigations and group mini-projects in computer, Electrical & Electronics, and Information and Communication Engineering. The write-up report on the project is to be submitted for grading and defence by each group.

**EIE416 - Measurements and Instrumentation (3 Units: LH 45)**

Basic meter in A.C. and D.C measurements; rectifier voltmeter; dynamometer, wattmeter-instrument transformer;- current and voltage transformer; D.C bridge:- Resistance bridge, strain gauge bridge and their applications. A.C bridge:- capacitive bridge inductive bridge and their applications; digital instruments for measurement of voltage, current and impedance: R-L- C meter; the multimeter; oscilloscope; waveform generators; pulse generators; waveform analyzer; counter; time-base circuit; analogue and digital data acquisition system; A/D & D/A counters; sample and hold circuits; transducers:- speed, pressure and temperature.

Instrument systems including transducers, signal conditioners, and read out devices. Oscilloscope, recorders, bridges. Measurement of voltage, current, resistance, impedance, frequency, phase difference, electric power, energy, force, displacement, temperature, flow, pressure, and other engineering parameters.

**EIE418 - Data Communications and Computer Network (3 Units LH 45)**

Interfacing: Interfaces for simple computer system and terminal to terminal. MODEM, terminal interfaces, CCITT V.24/RS-232, CCITT V.28, V.35, GPIB, EIA, RS-232C standard, speed and distance limitations for V.24, RS-232C, RS-449/422/423 interfaces and standards. Channel Coding and Error Control: Forward Error Control; Error Detection Methods; Parity Checking; Linear Block Codes, Cyclic Redundancy Checking; Feedback Error Control. Digitalisation: Sampling theorem, Shannon theorem, PCM and Quantisation Error; Multiplexing, FDM, TDM; Higher order multiplexing; Frame formatting, time-slot. Digital Modulation Techniques: Line coding, intersymbol interference, Nyquist wave shaping, eye pattern, adaptive equalization. Transmission over bandpass channel. ASK, FSK, PSK, DPSK, M-ary modulation, continuous phase FSK, MSK, QAM, DSL Schemes. Spread Spectrum Communications: Pseudo noise sequences, direct sequence spread spectrum, frequency hopping spread spectrum, CDMA, application examples. Telephony: The telephone set and subscriber loop interface, basic function of the telephone set, cordless telephone, local loop, line characteristics and conditioning. Public switched telephone network, hybrids, echo suppression. Central office switching system. Digital Switching: Digital Switching Systems, Space Switching, Time Switching Module; Time-Space-Time Switch Structure, Circuit switching networks; Packet switching networks; X.25 packet switched networks. ISDN interfaces and functions: Transmission structure, user-network interface configurations, ISDN protocol architecture, connections, addressing. Physical layer. Data link layer, network layer. Frame Relay: Background. Protocols and service. Frame-mode protocol architecture, frame-mode call control, Frame relay congestion control: Traffic rate management, explicit congestion avoidance and implicit congestion control. ATM: Virtual channels and virtual path. ATM protocols, transmission of ATM cells, ATM adaptation layer. AAL services. Traffic and congestion control. Latency/speed effect, cell delay variation. Network resource management, connection admission control, usage parameter control, priority control. Cellular Mobile Network: Cellular network architectures; Frequency management; Channel

types and assignment; types of hand-offs and hand-off management; Switching and transport; Wireline and microwave facilities and link design considerations. Call Processing and Signalling; Roaming and mobility management; Traffic engineering and performance issues, call set up and hand-offs; Capacity planning; Factors affecting economical network designs.

#### **CEN414 - Computer Software Engineering I**

**(2 Units: LH 30)**

Introduction: Comparison of procedure-oriented, event-driven, and object-oriented programming paradigms, Fundamental of object-oriented design. Features of object-oriented programming. JAVA Runtime Environment, JVM, compilers, Interpreters, etc. numerical data, variable, constants, and arithmetic expressions. JAVA Basics: Standard input and output statements. Escape sequences, math class. JAVA API, the if statement, Boolean expression and variables, nested if, the switch statement, iteration statement-the while, and for statements. Array and Collection: Creating an array, accessing array elements passing arrays as parameters, two dimensional arrays, list and maps. Object oriented programming: Introduction, Object oriented concepts, attributes and methods, encapsulation, polymorphism, implementation of classes. Event-Drive Programming and Basic GUI objects: Creating a subclass of JFrame, placing Buttons on the Content pane of a frame. Handling button Events, JLabel, JTextField, and JTextArea Classes, Menu. Graphics, file, and Application Developments, Application developments. File input and output: file and JFileChooser Objects, Low-level file I/O, and Object I/O. web programming, Java Scripts, Applets.

#### **CEN416 - Assembly Language Programming**

**(3 Units: LH 45)**

Introduction: Language level of abstraction and effect on machine, characteristics of machine code, advantages, justifications of machine code programming, instruction set and dependency on underlying processor. Intel 8086 microprocessor assembly language programming: Programming model as resources available to programmer, addressing modes, instruction format, instruction set- arithmetic, logical, string, branching, program control, machine control, input/output, etc; assembler directives, hand-assembling, additional 80x86/Pentium instructions. Modular programming. Interrupt and service routine. Interfacing of assembly language to C. Intel 80x87 floating point programming. Introduction to MMX and SSE programming. Motorola 680x0 assembly language programming. Extensive practical engineering problems solving in assembly language using MASM for Intel, and cross-assembler for Motorola.

#### **EDS411 - *Entrepreneurial* Development Studies VII**

**(1 Unit: LH 15)**

Objective: To expose the students to more issues in entrepreneurship.

Topics covered include the following: Various functions of Entrepreneurship – such as financing, production, marketing and personnel management. Entrepreneurial succession, issues in succession: challenges and prospects. Taking Entrepreneur to the stock market. International Entrepreneurship. Funding of Entrepreneurial activities. Term paper on Entrepreneurship from some selected areas of SMEs (Small and Medium Scale Enterprise) operations.

#### **TMC411 - Total Man Concept VII**

**(1 Unit: LH 15)**

This course examines the building blocks for leadership development in the context of providing an overview of the broad dimensions of leadership. The course also explores the enhancement of leadership traits and how power and influence qualifies the dynamics of leadership.

#### **TMC412 - Total Man Concept – Sports VII**

**(0 Unit)**

Game (Soccer & Volleyball): This centres on the mastery of basic skills, game situation as well as rules and regulation governing the various sports that will be attempted.

Focuses are also being on appreciation of various sports and the spirit of sportsmanship that is 'win or loss' taking it in good fate.

Aerobics exercise: This is said to be any activity that can get the heart rate going and keeps it at a sustained rate over a period of time e.g. twenty minutes. An aerobic activity helps to increase cardiorespiratory fitness, which is one of the fine essential components of physical fitness.

Being aerobically fit you can feel it as you go about. Muscle tone improves as you work on the proper running techniques.

#### **4.5.2.8 400 Level Omega Semester**

##### **GEC229 - SIWES - Industrial Training I (SWEP)**

**(6 Units: PH 90)**

During the SIWES each student will undergo practical on the job training in an engineering industry approved for its relevance to the student's major for a minimum of 10 weeks starting immediately after the first semester examinations at 200 level. A programme of training will be drawn by the College and the Industry for each student, and a prescribed log book with daily recording of the student activities is to be kept by each student and appropriately signed. At the end of the programme, a written report is to be submitted to the college and each student to present a seminar on his/her industrial experience. Each student must pass a prescribed certification examination during the industrial training.

##### **GEC329 - SIWES - Industrial Training II**

**(6 Units: PH 90)**

During the SIWES each student will undergo practical on the job training in an engineering industry approved for its relevance to the student's major for a minimum of 10 weeks starting immediately after the first semester examinations at 300 level. A programme of training will be drawn by the College and the Industry for each student, and a prescribed log book with daily recording of the student activities is to be kept by each student and appropriately signed. At the end of the programme, a written report is to be submitted to the college and each student to present a seminar on his/her industrial experience. Each student must pass a prescribed certification examination during the industrial training.

##### **GEC429 - SIWES II**

**(6 Units: PH 270)**

During the SIWES each student will undergo practical on the job training in an engineering industry approved for its relevance to the student's major for a minimum of 28 weeks starting immediately after the first semester examinations at 400 level. A programme of training will be

drawn by the College and the Industry for each student, and a prescribed log book with daily recording of the student activities is to be kept by each student and appropriately signed. At the end of the programme, a written report is to be submitted to the college and each student to present a seminar on his/her industrial experience. Each student must pass a prescribed certification examination during the industrial training.

#### **4.5.2.9            500 Level Alpha Semester**

##### **GEC517 - Engineering Law**

**(2 Units: LH 30)**

Introduction and Overview of the Nigerian Legal System: Civil and criminal. Basic concepts of law, and sources of law. Formation of contracts. Contract Law. Liabilities in torts: assaults, negligence and strict liability. Professional role and liabilities of Engineers. Contract of Employment: independent contractors, workmen compensation. Property law. Partnership. Intellectual property and moral rights, copyright, trademarks and patent. Music royalties, synchronization rights, performance rights. Role of music publishers. Broadcast rights, merchandising. Registration and incorporation of companies and effects. Public and private licensing. Case studies relating to professionals. Arbitration. Current issues: digital signatures. Speech Law: Defamation, Sedition, Printing Press Act. Speech on the Internet. Advertising Code: Made in Nigeria rules and guidelines, Advertising standards. Media and Licensing law in Nigerian: Developing an in-depth understanding of the nature and function of Nigerian cyber law. Detailed analysis of Communications and Multimedia Act. Ethic and Etiquette: New codes of social behaviour: the right to privacy.

##### **EIE510 - Research Methodology**

**(1 Unit: LH 15)**

Definition of Research, Characteristics of Research, Types of Research, The Research Process, Formulating the Research Problem, Considerations in Selecting a Research Problem, Reviewing the Literature, Procedure for reviewing the Literature, The Formulation of Objectives, Preparing the Research Design, Consideration for the Research Design, Guidelines to construct a Research tool, Constructing a Questionnaire, Piloting the Questionnaire, Collecting Data, Ethical Issues concerning research participants, Ethical Issues relating to the researcher, Processing and Analyzing Data, The Data Processing Operations, Data Analyzing methods, Generalization and interpretation of the Results, Reporting the Findings, Written Research Project Report Format, General Attributes of a Research Proposal, What distinguishes an Engineering Research Proposal, Components of a Research Proposal, Costing an Engineering Research Proposal.

##### **EIE512 - Reliability and Maintainability**

**(3 Units: LH 45)**

Introduction to reliability, maintainability, reliability specification and metrics. Application to computer hardware system, communication equipment, power systems, electronic components. Basic maintenance types, and procedures for computers and digital communication systems. Fault troubleshooting techniques. QoS and time of availability of data communications. Quality control techniques. Design for higher Metrics, fault avoidance, fault tolerance, programming for reliability, software safety and hazard analysis. Comparison of hardware and

software reliability. Software Quality and Assurance: definition of software quality, software quality factors, quality control, cost of quality, quality assurance. SQA activities, formal technical reviews, software quality metrics, statistical quality assurance. ISO 9000 Requirements and certification, ISO 9000-3 for software quality process, process documentation, quality audit. Capability Maturity Model: Software Engineering Institute, levels of maturity, key process areas, Comparison between ISO 9000 Standards and CMM. Ensuring Quality and Reliability: verification and validation, measurement tracking and feedback mechanism, total quality management, risk management.

### **CEN510 - Digital System Design with VHDL**

**(3 Units: LH 45)**

Finite State Machine: definition, Mealy and Moore models, state diagram, state table, transition table. Sequential circuits design using flip-flops, asynchronous, and synchronous circuit design. Algorithm State Machine. Design examples and exercises. Structured Design: Design constructs, Design Levels, Geometry-based interchange formats, Computer aided electronic system design tools, Schematic circuit capture, Hardware description languages, Design process (simulation, synthesis), Structural design decomposition. Introduction to VHDL: VHDL language abstractions, Design hierarchies, VHDL component, Lexical description, VHDL source file, Data types, Data objects, Language statements, Concurrent VHDL, Sequential VHDL, Advanced features of VHDL (library, package and subprograms). Structural level modeling, Register-Transfer level modeling, FSM with datapath level modeling, Algorithmic level modeling. Introduction of ASIC, Types of ASIC, ASIC design process, Standard cell ASIC synthesis, FPGA Design Paradigm, FPGA synthesis, FPGA/CPLD Architectures. VHDL Design: Top-down design flow, Verification, simulation alternatives, simulation speed, Formal verification, Recommendations for verification, Writing RTL VHDL code for synthesis, top-down design with FPGA. VHDL synthesis, optimization and mapping, constraints, technology library, delay calculation, synthesis tool, synthesis directives. Computer-aided design of logic circuits.

### **CEN511 - Embedded System Design and Programming**

**(3 Units: LH 45)**

Introduction to embedded system, components, characteristics, applications. Intel 8051/8031 Micro-controller: Features of the 8051/8031 family, block diagram and definitions of the pin of the 8051, I/O port structure, memory organization: general purpose RAM, bit addressable RAM, register bank, special function registers, external memory, memory space mapping and decoding, bus control signals timing, a typical 8051 micro-controller based system. Instruction Set and Assembly Language Programming: Addressing modes, the 8051 instruction set and typical examples, assembler operation, assembly language format, assembler directives, operation of assemblers and linkers, programming examples. On-chip Peripheral Devices: I/O ports, operations and uses of port 0, port 1, port 2, port 3, timers: their operations, programming, and applications, serial port: operations and programming, typical applications, serial port interrupt. Interfacing to external memory, keypad, seven-segment LED display, ADC and DAC chips, and input / output port expansion, description and uses of hardware development tools. MOTOROLA M6811 Micro-controller: Features of the M6811 family, block diagram and definitions of the pin of the M6811, I/O port structure, memory organization: general purpose RAM, bit addressable RAM, register bank, special function registers, external memory, memory space mapping and decoding, bus control signals timing. Instruction Set and Assembly Language Programming. On-chip peripheral devices and I/O interfacing. Introduction to PIC



microcontroller: general architecture, applications and selection of microcontroller, advantages, low-end, and high-performance PIC. Specific PIC microcontrollers: Features, architecture, block diagram, pin configuration, on-chip memory, and peripheral. Instruction set and Assembly language programming. Serial I/O interfacing: I2C, and SPI interfacing and programming. Memory interfacing: external memory interfacing, EEPROM and Flash memory interfacing. Design exercises using development system.

### **CEN512 - Computer Software Engineering II**

**(2 Units: LH 30)**

Introduction: Principles of software engineering. Software life cycle. Project management. Computer based system engineering. Requirements and Specification: Analysis, definition, specification, software prototyping, formal specification, algebraic specification and model-based specification. Software Design: Architectural design. Object-oriented design. Function-oriented design. Real-time system design. User interface design. Dependable Systems. Reliability and reusability. Safety-critical consideration. Good programming practice. Computer-aided Software Engineering (CASE). Verification and Validation: Validation and testing. Problems of assessing and quantifying the system reliability. Test case and test data design. Management: People and organization issues. Cost estimation. Quality management. Process improvement. Maintenance, configuration and re-engineering of software.

### **CEN513 - Microprocessor Systems and Interfacing**

**(3 Units: LH 45)**

A basic microprocessor system: the CPU, memory, I/O, and buses subsystems, basic operation of a microprocessor system: fetch and execute cycle, the architecture of some typical 8-bit, 16-bit microprocessors (INTEL, MOTOROLA) and their features. Programming model in real mode: registers, memory, addressing modes. Organization of the interrupt system, interrupt vectors, and external interrupts, implementation of single and multiple interrupts in real mode. Programming model in protected mode: registers, memory management and address translation, descriptor and page tables, system control instructions, multitasking and memory protection, addressing modes, and interrupt system.

Memory interfacing and address decoding. I/O interfacing: memory mapped I/O, isolated I/O, bus timing, I/O instructions. Peripheral devices interfacing: 8255 PPI/6821 PIA, 8251 USART/6821 UART, DMA, Timer/Counter chips, etc. Instruction set. Assembly language Programming of INTEL and MOTOROLA microprocessors. Discussion of a typical system e.g. IBM PC, Apple Macintosh.

### **CEN515 - Computer Graphics and Animation**

**(3 Units: LH 45)**

Overview of 3D animation and its application and types,, Coordinate system, vertex, faces and object. Concept of wireframe, surface and solid modeling. Construction planes and differences between object space and world space. Principles of making characters alive. Polygonal modelling techniques: the Box, using Edit Mesh, Smoothing techniques, subdivision Surfaces. NURBS Modelling techniques: Utilizing NURBS toolbox, surface points and CVs. Importing and attaching nurbs surfaces, rebuilding surfaces, curve and surface approximation. Graphic animation process: Camera and Animation camera, Set and Background (Image Plane), Light Linking. Animation Techniques: Walk cycle and Facial Expression using Blend Shape. Dynamics animation: Rigid bodies, Soft Bodies, constraint, particles. Tips and tricks on rendering. Concept of rendering in 3D modelling. Render options and file output.

**EIE529 – Project I****(0 Units: PH 270)**

Each student is required to undertake a project that gives productivity value to the academic knowledge gained in his\her field of study. The project shall involve problem solving using engineering theories and techniques, and the implementation of the project design. The student is expected to design a possible solution to the problem, taking into account various aspects such as professionalism, economy, costing, and engineering viability. The project is presented and defended at a seminar. Students may choose to work on individual design projects or team design projects. These projects consist of largely industry-sponsored projects as part programming, CAD/CAM application (turning problem, surface milling, machining of curved surfaces). Each student is to submit a proper written report (binded 3 hardcopies, and a CD-ROM of electronic copy).

**EDS511 - Cost Engineering****(2 Units: LH 30)**

Cost and schedule management- an engineering function. Supporting skills and knowledge. Role of cost engineer during evaluation phase. Role of cost engineer during the basic design phase. Role of cost engineer in contractor selection. Role of cost engineer during detailed engineering design phase. Role of cost engineer during construction. Cost engineering function as distinct from Design engineering function. Canon of ethics for cost engineers. Basic capital cost estimating. Basic operating cost estimating. Basic project planning and scheduling. Cost engineering terminology. Cost engineering standards.

**TMC511 - Total Man Concept IX****(1 Unit: LH 15)**

Profile Building (Part 1). The emphasis of this course is on experimental learning and it involves pulling together the main stands of TMC from 1st year to 4th year. It will introduce a personeal dimension by exploring the idea of service from a student centred learning perspective. There will be practical exercises, workshops, projects, and journal keeping and detailed character study.

**TMC512 - Total Man Concept – Sports IX****(0 Unit)**

**Game (Soccer & Volleyball):** This centres on the mastery of basic skills, game situation as well as rules and regulation governing the various sports that will be attempted.

Focuses are also being on appreciation of various sports and the spirit of sportsmanship that is ‘win or loss’ taking it in good fate.

**Aerobics exercise:** This is said to be any activity that can get the heart rate going and keeps it at a sustained rate over a period of time. Eg twenty minutes. An aerobic activity helps to increase cardiorespiratory fitness which is one of the fine essential components of physical fitness.

Being aerobically fit you can feel it as you go about. Muscle tone improves as you work on the proper running techniques.

**4.5.2.10 500 Level Omega Semester**

### **GEC527 - Engineering Management**

**(3 Units: LH 45)**

Organizational structure, formal and informal, definition of the term organization, development of organization from one-man business. Scientific organization. Why engineering management. Engineering-to-Engineering management. Assuming management responsibilities:- management knowledge requirement. The engineering manager job:- engineering management process, the management functions, engineering project manager, hierarchy structure and flow of information.

Hierarchy (scalar principle), scalar chain, gang plan, unity of command business organization, logic of organizing, the classical organizer, the behavioral organization, bureaucratic organization, centralization and decentralization. Network analysis, CPN, PERT, forecasting, controlling, budgeting, nature decision-making, employer attitude to managerial leadership. Production, stages in production, factory location and design, factory layout and site selection, production method, mass production, unit, small and large batches.

Personnel management, safety consideration, training and apprenticeship and recruitment, trade unions and their functions, joint consultations, and collective bargaining, setting variable cost control, tendering and estimating, estimated costs for operational control, basic account, balance sheet development, marketing, market research-prediction by time series analysis, limitation of statistical analysis, questionnaires, advertising and sales promotions, export and import operations. Work-study method. Research, characteristics of research design. What is a variable in research, operationalizing variables and types of variables? Financial management

### **EIE520 - Artificial Intelligence and Applications**

**(3 Units: LH 45)**

Introduction to Artificial Intelligence, Engineering applications of artificial intelligence (AI): Problem-solving techniques, knowledge acquisition, knowledge representation, production systems, expert systems, AI languages, Machine Learning, Introduction to ANN.

**ANN Terminologies and Concepts**-Activation Functions, Artificial neuron model, Classifications of ANN, Learning with ANN. Gradient Descent and Back propagation algorithm. **Architecture, Design and Programming of Shallow Neural Networks** –ANN Matrix Operations, Data Collection and Preprocessing, Datasets/Databases, Shallow Neural Networks. **Architecture, Design and Programming of Deep Neural Networks** - Deep Learning(CNN,RNN), Regularization Techniques, Pre-trained Deep Learning Models/Transfer Learning, Hardware Platforms for Training Acceleration (Single GPU, Multiple GPU and Cloud).

**Deployment Platforms for Neural Network Models** - TinyANN on Embedded Platforms/On-Device ML (e.g. Raspberry Pi, NVIDIA Jetson)/ and Mobile Devices, ANN Models on the Web

**ANN Today and Tomorrow** - Present Day ANNs: Graph Neural Network(GNN),, Federated Learning, Generative Adversarial Networks, Privacy Preserving Techniques  
Future of ANNs:, Quantum Computing in ANN etc. Design projects required.

### **EIE527 - Digital Signal Processing**

**(3 Units: LH 45)**

Introduction: Advantages of digital over analogue signal processing, problems of digitization, overview of application of DSP, basic elements of DSP system. Digital Processing of analogue signals: Sampling of analogue signals, sampling theorem, aliasing, quantization, noise, and coding, types and selection of ADC/DAC, Sigma-delta ADC. Analytical tools: z-transform, properties, transfer function, inverse z-transform, z-plane poles and zeros, analysis of linear time-invariant in z-domain, system stability. Discrete Fourier Analysis: Discrete Fourier Transform

and properties, inverse DFT, truncated Fourier transform, windowing, FFT algorithms. Discrete Time Signals & systems: Discrete time sequences (signals), classification and determination of discrete time system, discrete time i/o description (difference equation), solution of difference equations, convolution, correlation, impulse response. Digital Filters: Definition and types. FIR filters: Transfer function, characteristics, applications, design methods, Gibb's effect and elimination, fir filter realization. IIR filter: Transfer function, characteristics, applications, overview of analogue filter design techniques, design methods-conversion from analogue to digital filter design techniques, IIR filter realization. Structure of Discrete Time System: Block diagram representation of constant coefficient difference equations, IIR and FIR systems and their basic structures, stability of discrete time systems. Software implementation of DSP algorithms. DSP Microprocessors: Architecture, fixed point vs. floating point DSP, Finite word length effects. DSP chips: interfacing and programming. Practical application of DSP in audio, image and video.

### **EIE529 – Project II**

**(6 Units: PH 270)**

Each student is required to undertake a project that gives productivity value to the academic knowledge gained in his/her field of study. The project shall involve problem solving using engineering theories and techniques, and the implementation of the project design. The student is expected to design a possible solution to the problem, taking into account various aspects such as professionalism, economy, costing, and engineering viability. The project is presented and defended at a seminar. Students may choose to work on individual design projects or team design projects. These projects consist of largely industry-sponsored projects as part programming, CAD/CAM application (turning problem, surface milling, machining of curved surfaces). Each student is to submit a proper written report (binded 3 hardcopies, and a CD-ROM of electronic copy).

### **CEN523 - Computer Networking and Security Techniques I**

**(3 Units: LH 45)**

Advanced treatment of fundamental problems in computer networking and packet switching. Internet routing and gateway protocols, traffic engineering and multi – protocol label switching techniques, quality of service mechanisms, network and applications level signaling, real – time multimedia communications. Safety problems in computer security, information flow and access control models, security in distributed systems, design of secure systems.

### **EIE522 - Robotics and Automation**

**(2 Units: LH 30)**

Robot classification and manipulation. Technology and history of development of robots. Applications. Direct and inverse kinematics: arm equation. Workspace analysis and trajectory planning. Differential motion and static. Manipulator dynamics. End-of arm tooling. Automation sensors. Robot vision. Work-cell support systems. Robot and system integration. Safety. Human interface. Robot control system. Circuit and system configuration. Task oriented control. Robot control programming. Fuzzy logic and AI based robot control. Fundamentals of automation. Strategies and economic consideration. Integration of systems. Impact to the production factory. Evaluation of conventional processes. Analysis of automated flow lines. Assembly systems and line balancing. Automated assembly systems. Numerical control and adaptive control. Robot applications. Automated materials handling and storage systems. Automation in inspection and testing. Linear feedback control system. Optimal control. Computer process control. Computer integrated manufacturing systems. Future automated factory.

**EIE523 - Design & Installation of Electrical & ICT services** (3 Units: LH 45)

Electrical Installation: Induction to Health and safety at work act in Nigeria. Electrical safety. First aid. Electricity supply regulations. Lighting and Illumination: Luminous intensity and flux. Maintenance factor. Coefficient of utilization. Types of light sources. Calculation of lighting requirements. Glare. Stroboscopic effect. Installation Materials, cables, junction box, terminations, joints. Conduits and conduiting. Truck and trucking. Electrical Installation design in domestic, commercial and industry. Alarm and emergency systems. Earthing and Protection. Purposes of earthing. Faraday cage. Rod electrodes. Earth electrode resistance. Earthing system. Earth fault loop impedance. ICT services: NCC and FCC codes of practice and standards. Telecommunication design and installation: Satellite, VSAT, etc. Telephone design and installation. Computer networking design and installation. Wireless LAN design and installation. Preparation of Bill of Engineering Measurement Evaluation. Contract bidding. Consultancy.

**EIE544 - Cryptography Principles and Applications** (3 Units: LH 45)

History of cryptographic System, Public Key Systems, Digital Signatures. Information Theory: Entropy, Perfect Secrecy, Unicity Distance, Complexity Theory, NP Completeness, Number Theory. Data Encryption Methods: Transposition Ciphers, Substitution Ciphers, Product Ciphers, Exponentiation Ciphers, Knapsack Ciphers, Breakable NP-Complete Knapsack, Encryption Standards DES, RSA, Elliptic Curves. Cryptographic Techniques: Block and Stream Ciphers, Autokey, Endpoints of Encryption, One-way Ciphers, Password and Authentication, Secret Keys and Public Keys, Threshold Scheme. Video scrambling techniques. Digital video encryption techniques: principle, IRDETO, Viaaccess, Videoguard, etc. Security and Legality Issues: Copyrights, Patents, Trade Secret, Ownership of Products, Computer Crimes, Ethical Issue in Computer Security.

**EIE545 - Fuzzy Logic and Programming** (3 Units: LH 45)

Introduction: fuzzy set theory, knowledge base problem, objective and subjective knowledge, crisp sets, fuzzy sets, linguistic variables, membership functions. Set theoretic operations, comparison between crisp sets and fuzzy sets. Law of Contradiction and Law of Excluded Middle, fuzzy intersection, union and complement, and other fuzzy operators. Fuzzy relations and compositions on the same and different product spaces. Max-Min composition, Max-Product composition, fuzzy relational matrix, sup-star composition. Hedges or modifiers of linguistic variables, fuzzy logic vs. probability. Fuzzy reasoning and implication, the fuzzy truth tables, traditional propositional logic and the rule of inference, the Modus Ponens and Modus Tollens, fuzzy modeling with causal IF-THEN statements. Fuzzy Models, fuzzy logic systems, combination of fuzzy basis functions, universal approximator, fuzzy neural network, fuzzy associate memory matrix, self-learning fuzzy systems. Fuzzy logic system applications. Fuzzy programming.

**EIE546 - Digital Image Processing** (3 Units: LH 45)

Introduction: definition, problems, and applications of digital image processing. Digital image acquisition devices. Digital image formats. Edge detection techniques, segmentation methods. Image Morphology. Image enhancement. Image restoration techniques. Morphology. Fourier transform and Wavelet transform in image processing. Image registration techniques. Shape analysis. Image understanding. Artificial neural network and image understanding. Colour

representation standards, equations, processing, quantization, and dithering. Case study: practical application of image processing to face recognition, fingerprint, iris, etc. Introduction to image compression techniques.

**CEN547 - Computer Security Techniques II**

**(3 Units: LH 45)**

History of cryptographic System, Public Key Systems, Digital Signature. Information Theory: Entropy, Perfect Secrecy, Unicity Distance, Complexity Theory, NP Completeness, Number Theory. Data Encryption Method Ciphers, Knapsack Ciphers, Breakable NP-Complete Knapsack, Encryption Standards DES, RSA, Elliptic Curves. Cryptographic Techniques: Block and Stream Ciphers, Autokey, Endpoints of Encryption, One-Way Ciphers, Password and Authentication, Secret Keys and Public Keys, Threshold Scheme. Video Scrambling techniques. Digital video encryption techniques: principle, IRDETO, Viaaccess, Videoguard, etc. Security and Legality Issues: Copyrights, Patents, Trade Secret, Ownership of Products, Computer Crimes, Ethical Issue in Computer Security.

**EDS521- Engineering Valuation/Appraisal**

**(2 Units: LH 30)**

Objectives of valuation work/ valuer's primary duty and responsibility. Valuer's obligation to his or her client, to other valuers, and to the society. Valuation methods and practices. Valuation reports. Expert witnessing. Ethics in valuation. Valuation/Appraisal standards. Price, cost and value. Depreciation and obsolescence. Valuation terminology. Appraisal reporting and review. Real property valuation . Personal property valuation. Machinery and equipment valuation. Oil and gas valuation. Mines and quarries valuation.

**TMC521 - Total Man Concept X**

**(1 Unit: LH 15)**

Profile Building (Part 2). This course follows directly from TMC511 and continues to explore the personal connection students have made with TMC as a course of study via practical exercises on the specific themes that are addressed in the course of the lecture. The question and discourse emanating from this exercise will enable students to develop their own perspective to the issues of life.

**TMC522 - Total Man Concept – Sports X**

**(0 Unit)**

Jogging: This helps in many ways, our focus here on the benefit of jogging is for physical fitness that reduced risk of Osteoporosis. Osteoporosis is the condition when the bones become increasingly porous and brittle. It can result to bone fractures and deformities.

Game (Basketball & Handball): This centres on the mastery of basic skills, game situation as well as rules and regulation governing the various sports that will be attempted.

Focuses are also being on appreciation of various sports and the spirit of sportsmanship that is 'win or loss' taking it in good fate.

## 4.6 LABORATORIES AND WORKSHOP

The Department has cutting-edge laboratory equipment to corroborate the classroom teaching and to further the frontiers of research results. The laboratories and workshops are adequate in size, well equipped with suitable machinery, tools and equipment. The environment is safe, well maintained and suitably laid out. For the purpose of drawing, the Department uses the well-equipped drawing studio in the Department of Mechanical Engineering for students to carry out their drawing assignments. There are eight laboratories for the programme namely:

- a) Microprocessor Laboratory
- b) Digital System and Prototyping (Printed Circuit Board) Laboratory
- c) Computer Networking and Telecommunication Laboratory
- d) Computation (Software Engineering) Laboratory
- e) Control, Instrumentation and Embedded Systems Laboratory
- f) Electronics Laboratory
- g) Applied Electricity Laboratory
- h) Electrical Machines Laboratory
- i) Central Workshop
- j) Other General Engineering Laboratories

### 4.6.1 Microprocessor Laboratory

Table 15: Details of Equipment, Instruments and Tools available in Microprocessor Laboratory

| S/N | EQUIPMENT DESCRIPTION  | Model  | QUANTITY                     |
|-----|--|--|------------------------------|
| 1   | HP PRO ONE 440 GS 238 ALL –IN ONE  |  | 38                           |
| 2   | SERVER   |  | 1                            |
| 1   | PURE SINE WAVE COMBINED INVERTER &CHARGER  |  | 1                            |
| 2   | PC COMPUTER TRAINER  | EO-865   | 1                            |
| 3   | WAVETEK FUNCTION GEN.  | FG2C   | 3                            |
| 4   | FEEDBACK FUNCTION GEN.   | PFG605   | 1                            |
| 5   | GWINSTEK FUNCTION GEN.   | GFG-8217A  | 1                            |
| 6   | ANALOG DIGITAL SCOPE   | HM507  | 1                            |
| 7   | BENCH MULTIMETER   | MX553  | 1                            |
| 8   | SYSTEM STORAGE RACK<br>Inside the storage rack we have;<br>(a) Digital System & Computing Module<br>(b) Digital System & Computing Module<br>(c) Digital System & Computing Module | SSR1000<br><br>CK342B<br><br>CK342A<br><br>CK341 | 1<br><br>3<br><br>1<br><br>6 |
| 9   | 16F877 TARGET BOARD  | 877-TB   | 3                            |
| 10  | (PL-DATS) PLD TRAINER  | PL-DATS  | 1                            |

|    |   |             |    |
|----|---|-------------|----|
| 11 | 8086-DATS TRAINER SYSTEM                  | 8086-DATS   | 3  |
| 12 | APPLICATIONS BOARD                        | 8086-DATS   | 5  |
| 13 | 68HCII TRAINER SYSTEM                     | MC11-DATS   | 2  |
| 14 | 80C51 TRAINER SYSTEM                      | 8051-DATS   | 2  |
| 15 | 68000 TRAINER SYSTEM                      | KAYCOMP II  | 1  |
| 16 | CROSS-ASSEMBLER                           | A68000NT    | 2  |
| 17 | CROSS-ASSEMBLER                           | A8086NT     | 1  |
| 18 | CROSS-ASSEMBLER                           | A8051NT     | 2  |
| 19 | PC APPLICATIONS TRAINING SYSTEM (PCI)     |             | 2  |
| 20 | 8051 MICRO TRAINER SYSTEM                 | 8051        | 2  |
| 21 | 68000 MICRO TRAINER SYSTEM                | 68000       | 2  |
| 22 | MICRO TRAINING SYSTEM                     | 877-DATS    | 2  |
| 23 | ELECTRIC HAND DRILLING<br>MACHINE (BOSCH) | PSB500RE    | 4  |
| 24 | D.C. POWER SUPPLY                         | FEEDBACK    | 4  |
| 25 | CHIPRASE EPROM ERASER                     | AT-701      | 2  |
| 26 | DEVELOPMENT & EDUCATION BOARD MODULE      | ALTERA DE2  | 1  |
| 27 | MICRO ENGINEERING LABS MODULE             | LAB-X1A     |    |
| 28 | MICRO ENGINEERING LABS MODULE             | LAB-X1K     |    |
| 29 | BENCHMARK                                 | LAN TRAINER | 2  |
|    | <b>COMPUTER ACCESSOIRES</b>               |             |    |
| 30 | RAM 4 GIG                                 |             | 6  |
| 31 | CARDL READER                              |             | 6  |
| 32 | HARD DRIVE                                |             | 6  |
| 33 | DVD DRIVE                                 |             | 6  |
| 34 | MOTOR BORAD                               |             | 6  |
| 35 | CPU MAT                                   |             | 6  |
| 36 | LCD FLAT MONITOR                          |             | 6  |
| 37 | TOOL KIT                                  |             | 5  |
| 38 | SPEAKER SET                               |             | 5  |
| 39 | KEYBOARD                                  |             | 80 |
| 40 | COMPUTER CASING                           |             | 5  |
| 41 | COMPUTER REPAIR TRAINER                   |             | 3  |
| 42 | STOOLS                                    |             | 70 |
| 43 | LOGIC GATE                                |             | 4  |
| 44 | ARDURNO BROAD                             | UNOR 3      | 60 |
| 45 | COLLECTOR'S (USB)                         |             | 60 |





**Figure 2: Computers in the Microprocessor Laboratory**



**Figure 3: Microprocessor Experiments in the Microprocessor Laboratory**



**Figure 4: Microcontroller Experiments in the Microprocessor Laboratory**



**Figure 5: View of the Microprocessor Laboratory**

#### 4.6.2 Digital System and Prototyping (Printed Circuit Board) Laboratory

Table 16: Details of Equipment, Instruments and Tools available in Digital System and Prototyping (Printed Circuit Board) Laboratory

| S/N | Description of Equipment        | Model        | Quantity |
|-----|---------------------------------|--------------|----------|
| 1   | Digital Oscilloscope            |              | 2        |
| 2   | Project Board                   |              |          |
| 3   | Logic Circuit 12 – 220A         |              | 3        |
| 4   | Logic Circuit 12 – 220 B        |              | 3        |
| 5   | Logic Tutor Ex. Board LT345 MK2 |              | 6        |
| 6   | PCB Plotter Machine             | 1017390148   | 1        |
| 7   | Exposure Unit                   | 300-247      | 1        |
| 8   | LPKF PROTOFLOW Machine          | SN0Z1947L332 | 1        |
| 9   | LPKF PROTOPLACE Machine         | SN1116000079 | 1        |
| 10  | LPKF MINI CONTACT RS Machine    | 0Z1740N18    | 1        |
| 11  | Laminating Machine              |              | 1        |
| 12  | Paper Cutter                    |              | 1        |
| 13  | WorxPlex Drilling Machine       | WF-ZJ4113    | 1        |



Figure 6: Printed Circuit Board Machine in the Digital System and Prototyping (Printed Circuit Board) Laboratory



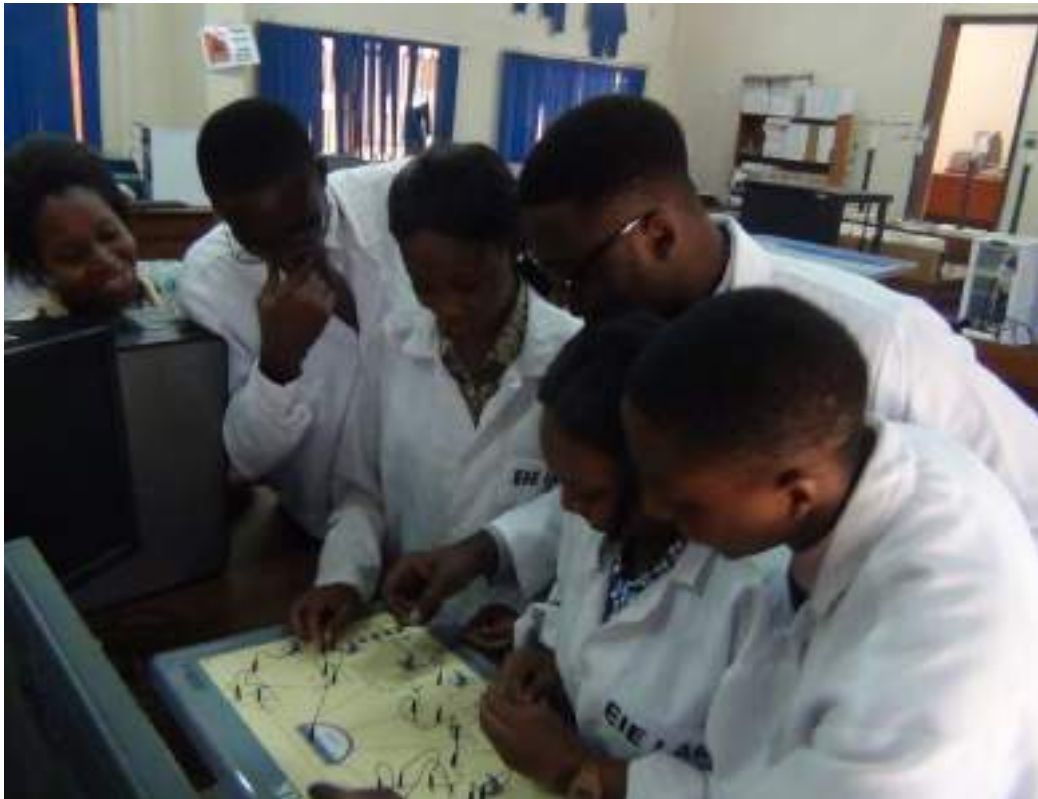
**Figure 7: View of the Digital System and Prototyping (Printed Circuit Board) Laboratory**

#### **4.6.3 Computer Networking (Telecommunication) Laboratory**

**Table 17: Details of Equipment, Instruments and Tools available in Computer Networking (Telecommunication) Laboratory**

| <b>S/N</b> | <b>Description of Equipment</b> | <b>Model</b>       | <b>Quantity</b> |
|------------|---------------------------------|--------------------|-----------------|
| 1          | CISCO Switch                    | Catalyst 2960 Plus | 2               |
| 2          | CISCO Router                    | 2900 Series        | 2               |
| 3          | Desktop PCs                     | Dell               | 10              |
| 4          | Patch Panel                     | Commscope          | 2               |
| 5          | Jack/Socket/Faceplate           | Commscope          | 24              |
| 6          | Fibre Optic Educator            | Ellmarck           | 2               |
| 7          | CAT 5 Cables                    | Commscope          | 1 Carton        |

|    |                        |                  |          |
|----|------------------------|------------------|----------|
| 8  | Crimper                | Germany/ China   | 15       |
| 9  | Tester                 | Paladin Tools    | 14       |
| 10 | RJ45 Connector         | Commscope        | 1 Carton |
| 11 | Antenna System Trainer | Dutrux D2261 AST | 1        |
| 12 | Oscilloscope           | GDS – 1052U      | 4        |
| 13 | Spectrum Analyzer      | SPA-932TG        | 1        |
| 14 | Intermediate Network   | 52-230           | 5        |
| 15 | Microwaveguide Bench   | Tesca 10401      | 1        |
| 16 | Microscript            | MST532           | 1        |
| 17 | Transmission Line      | TDL 511          | 3        |



**Figure 8: Students undertaking various experiments in the Computer Networking Laboratory**



**Figure 9: View of the Computer Networking Laboratory**

#### 4.6.4 Computation (Software Engineering) Laboratory

Table 18: Details of Equipment, Instruments and Tools available in Computation (Software Engineering) Laboratory

| S/N | Description of Software/Equipment | Model                  | Quantity         |
|-----|-----------------------------------|------------------------|------------------|
| 1   | MATLAB                            | 2011A                  | 20 Network Users |
| 2   | Visual Studio                     | 2015 community edition | Multiple Users   |
| 3   | MultiSim                          | 2001 Textbook edition  | Multiple Users   |
| 4   | Proteus                           | V8.1                   | Multiple Users   |
| 5   | Arduino IDE                       | V1.6                   | Multiple Users   |
| 6   | Packet Tracer                     | V7.2.1                 | Multiple Users   |
| 7   | Intel/Altera Quartus II           | V15.0 service pack1    | Multiple Users   |
| 8   | Java                              | V7                     | Multiple Users   |
| 9   | Laptop Units                      | HP                     | 20               |



**Figure 10: View of Computation (Software Engineering) Laboratory**



**Figure 11: View of the Computation (Software Engineering) Laboratory (A)**



**Figure 12: View of Computation (Software Engineering) Laboratory (B)**



**Figure 13: View of Control and Instrumentation (+ Embedded System) Laboratory**



#### 4.6.5 Control and Instrumentation (+ Embedded System) Laboratory

Table 20: Details of Equipment, Instruments and Tools available in Control and Instrumentation (+ Embedded System) Laboratory

| S/N | Description of Equipment            | Model     | Quantity |
|-----|-------------------------------------|-----------|----------|
| 1   | Sensor and Transducer Training Kits | TK2942    | 3        |
| 2   | Servo Fundamental Trainer           | MS150 MK3 | 4        |
| 3   | Analogue Servo fundamentals trainer | 33 – 100  | 3        |
| 4   | Target board with accessories       |           | 1        |
| 5   | Function generator                  |           | 2        |
| 6   | Oscilloscope                        |           | 2        |
| 7   | Instrumentation Module              | TK2941A   | 3        |
| 8   | Industrial Process Trainer          | 34-250    | 1        |
| 9   | Twin Rotor MIMO System              | 33 – 220  | 1        |
| 10  | Magnetic Levitation System          | 33 – 210  | 1        |
| 11  | Digital Pendulum System             | 33 – 200  | 1        |
| 12  | Complete Transducer Accessories     |           | 3        |
| 13  | Mechatronics System                 |           | 16       |
| 14  | Computer System                     |           | 4        |
| 15  | Traffic Signal Control Module       | 34-402    | 2        |
| 16  | Automatic Washing Machine Module    | 43-401    | 2        |
| 17  | Mentor Desktop Robot                | 35-100    | 2        |
| 18  | 30KVA UPS System                    |           | 1        |

#### 4.6.6 Electronics Laboratory

Table 21: Details of Equipment, Instruments and Tools available in Electronics Laboratory

| S/N | Description of Equipment          | Model   | Quantity |
|-----|-----------------------------------|---------|----------|
| 1   | Oscilloscope                      | P-3502C | 3        |
| 2   | Combiscope (Analog Digital Scope) | HM507   | 2        |

|    |  |                |    |
|----|--|----------------|----|
| 3  | Digital storage Oscilloscope                     | GDS-1052-U     | 10 |
| 4  | Function Generator                               | FG2C           | 3  |
| 5  | Function-Pulse Generator with Frequency counter  | 4063A          | 3  |
| 6  | DC Power Supply                                  | HY3005D        | 2  |
| 7  | DC Power Supply                                  | Scientech 4073 | 3  |
| 8  | Feedback Power Supply                            | 92-445         | 4  |
| 9  | Feedback Teknikit Console Power Supply           | 92-300         | 7  |
| 10 | Voltage Slide Regulator                          | SRV-21         | 1  |
| 11 | Project Board                                    | PP277          | 1  |
| 12 | Project Board                                    | UC-03          | 2  |
| 13 | Benchtop Digital Multi-meter                     | MX533          | 1  |
| 14 | Dual Display Digital Multimeter                  | GDM-8245       | 10 |
| 15 | Amplifier & Electronics Cct. App. Ex. Board A    | 12 - 210       | 5  |
| 16 | Amplifier & Electronics Cct. App. Ex. Board B    | 12 - 210       | 5  |
| 17 | Amplifier & Electronics Cct. App. Ex. Board C    | 12 - 210       | 6  |
| 18 | Amplifier & Electronics Cct. App. Ex. Board D    | 12 - 210       | 6  |
| 19 | Amplifier & Electronics Cct. App. Ex. Board E    | 12 - 210       | 6  |
| 20 | Logic Circuit Ex. Board A                        | 12 - 220       | 5  |
| 21 | Logic Circuit Ex. Board B                        | 12 - 220       | 6  |
| 22 | Electromagnetism Trainer                         | 12 - 100       | 4  |
| 23 | Logic Tutor Ex. Board                            | LT345 Mk2      | 7  |
| 24 | Basic Elect. & Elect. application Ex. Board B    | 12 - 200       | 4  |
| 25 | Operational Amplifier Tutor                      | OAT343         | 2  |
| 26 | Basic Electrical & Electronics Board(components) | EEC417-2       | 6  |
| 27 | Electrical & Electronics Constructor             | EEC470         | 6  |
| 28 | Amp. & Elect. Cct Application Board(components)  | EEC473-4       | 6  |
| 29 | NI myDAQ Student Instrumentation Device          | 195509F-01L    | 5  |

|    |                                  |           |   |
|----|----------------------------------|-----------|---|
| 30 | Digital System                   | CK342A    | 1 |
| 31 | Power Devices & DC Motor Control | EEC476-2  | 4 |
| 32 | Opto-electronics                 | EEC477    | 2 |
| 33 | Feedback System Storage Rack     | SSR1000   | 3 |
| 34 | Fluke Multimeter                 | 117       | 2 |
| 35 | Function Generator               | GFG-8217A | 4 |
| 36 | Function Generator               | FG601     | 9 |
| 37 | Power Function Generator         | PFG605    | 4 |
| 38 | Variable Phase L.F Generator     | VPG608    | 1 |



**Figure 14: Students undertaking various experiments in the Electronics Laboratory**



**Figure 15: Students undertaking Electronics practicals**



**Figure 16: View of the Electronics Laboratory**

## 4.6.7 Applied Electricity Laboratory

Table 22: Details of Equipment, Instruments and Tools available in Applied Electricity Laboratory

| S/N | Description of Equipment                         | Model    | Quantity |
|-----|--|----------|----------|
| 1   | Oscilloscope Protex                              | P-3502C  | 8        |
| 2   | Oscilloscope Texio                               | CS-4125A | 7        |
| 3   | Function Generator                               | FG2C     | 15       |
| 4   | DC Power Supply                                  | HY3005D  | 5        |
| 6   | Benchtop Digital Multi-meter                     | MX533    | 3        |
| 7   | Rapid Digital Multimeter                         | 328 DMM  | 3        |
| 7   | Digital Multimeter                               | DT830L   | 3        |
| 8   | Basic Elect. & Electronics Cct. App. Ex. Board A | 12-200-A | 1        |
| 9   | Basic Elect. & Elect. application Ex. Board B    | 12-200-B | 1        |
| 10  | Teknikit Console                                 | 92-300   | 7        |
| 11  | Electronic System Lab                            |          | 10       |



**Figure 17: Students undertaking various experiments in the Applied Electricity Laboratory**



**Figure 18: View of the Applied Electricity Laboratory**

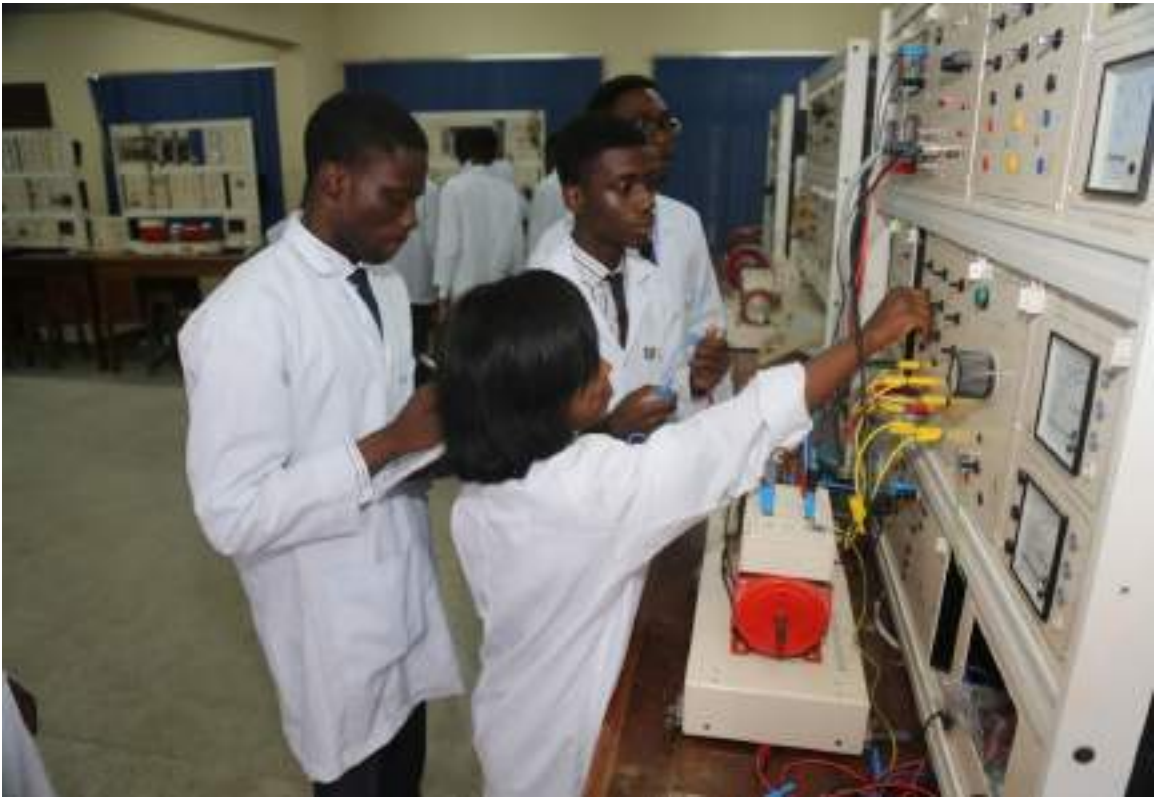
#### 4.6.8 Electrical Machines Laboratory

Table 23: Details of Equipment, Instruments and Tools available in Electrical Machines Laboratory

| S/N | Description of Equipment          | Model  | Quantity |
|-----|-----------------------------------|--------|----------|
| 1   | Motor control circuit board       | 70-310 | 3        |
| 2   | Firing and Bridge circuit board   | 70-220 | 3        |
| 3   | SCR and Diode board               | 70-100 | 3        |
| 4   | Three phase power supply          | 60-132 | 2        |
| 5   | Inductive Load                    | 67-300 | 3        |
| 6   | Switched capacitive Load          | 67-201 | 2        |
| 7   | Moving iron voltmeter and Ammeter | 68-114 | 2        |
| 8   | Universal lead bin                | 91-240 | 7        |
| 9   | Oscilloscope 20Mhz                | HAMMEG | 2        |

|    |   |        |   |
|----|---|--------|---|
| 10 | Three phase Resistive load                        | 67-142 | 4 |
| 11 | Three phase transformers                          | 61-107 | 1 |
| 12 | Variable Resistance 200 Ohms                      | 67-113 | 3 |
| 13 | Resistor/Capacitor unit                           | 67-190 | 1 |
| 14 | Single phase transformer                          | 61-106 | 3 |
| 15 | D.C voltmeter and Ammeter                         | 68-110 | 4 |
| 16 | D.C mill-ammeter center zero                      | 68-113 | 1 |
| 17 | Three phase power supply                          | 60=132 | 2 |
| 18 | Single and Three phase measurement                | 68-100 | 2 |
| 19 | Variable ac/dc supply                             | 60-121 | 2 |
| 20 | Synchronizing lamp                                | 68-120 | 3 |
| 21 | Control Switches                                  | 65-130 | 2 |
| 22 | Magnetic and Electromagnetic principle            | 61-400 | 1 |
| 23 | Variable frequency Drive                          | 66-110 | 1 |
| 24 | AC voltmeter and Ammeter                          | 68-111 | 1 |
| 25 | DC motor controller                               | 66-120 |   |
| 26 | Rectifier Voltmeter and Ammeter                   | 68-117 | 2 |
| 27 | AC voltmeter and frequency meter                  | 68-121 | 1 |
| 28 | Contacto panel                                    | 65-123 | 2 |
| 29 | Three phase capacitive Load                       | 67-212 | 2 |
| 30 | Three phase Inductive Load                        | 67-312 | 2 |
| 31 | Torque and Speed control panel                    | 68-441 | 3 |
| 32 | Multichannel i/o                                  | 68-500 | 3 |
| 33 | Control push button                               | 65-132 | 3 |
| 34 | Motor switches                                    | 65-133 | 2 |
| 35 | DC compound motor                                 | 63-120 | 2 |
| 36 | Series Universal motor                            | 67-100 | 2 |
| 37 | Three phase synchronous motor                     | 64-510 | 3 |
| 39 | Three phase induction motor                       | 64-510 | 3 |
| 40 | Single phase induction motor (capacitor start and | 64-110 | 2 |

|    |   |              |   |
|----|---|--------------|---|
|    | induction run)                            |              |   |
| 41 | Three phase induction motor squirrel cage | 64-501       | 2 |
| 42 | DC shunt machines                         | 63-110       | 4 |
| 43 | DC variable speed drive                   | 63-501       | 2 |
| 44 | Swinging field Dynamometer                | 67-503       | 3 |
| 45 | Digital Tachometer                        | DT-2236B     | 2 |
| 46 | Digital multimeter                        | 68-116       | 4 |
| 47 | AC/DC Voltmeter/Ammeter                   | 68-111       | 2 |
| 48 | Desk top computer systems                 | Intel core 2 | 3 |
| 49 | Electronics wattmeter                     | EW1604       | 4 |
| 50 | 6kw, 3phase wattmeter (5/10A)             | DPW 3        | 1 |
| 51 | Digital clamp meter                       | MS2001C      | 2 |
| 52 | DISSECTABLE MACHINES                      | 62-100       | 2 |



**Figure 19: Students undertaking various experiments in the Electrical Machines**



## Laboratory



**Figure 20: View of the Electrical Machines Laboratory**

## 4.7 FACULTY PROFILES

Engr. Dr. Isaac Adekunle Samuel



### 1. Education

| Degree | Discipline                                | Institution             | Year    |
|--------|---|-------------------------|---------|
| PhD    | Electrical & Electronic Engineering       | Covenant University     | 2017    |
| M.Eng  | Electrical Engineering                    | Covenant University     | 2006    |
| PGD    | Electrical Engineering (Power / Machines) | Bayero University,      | 03/2003 |
| PGD    | Management                                | Bayero University,      | 10/2003 |
| HND    | Electrical Power and Machines             | Kwara State Polytechnic | 1990    |
| ND     | Electrical Power and Machines             | Kwara State Polytechnic | 1987    |

### 2. Academic experience

| Date- from – to | Institution         | Rank                | Title                      | FT/P<br>T |
|-----------------|---------------------|---------------------|----------------------------|-----------|
| 2023 to date    | Covenant University | HoD                 |                            | FT        |
| 2021 to date    | Covenant University | Associate Professor |                            | FT        |
| 2020 -2021      | Covenant University | Senior Lecturer     | Industry Board Coordinator |           |
| 2019 - 2020     | Covenant University | Senior Lecturer     | College PG Coordinator     | FT        |
| 2018- date      | Covenant            | Senior Lecturer     | Coordinator for            | FT        |

|                                     |                     |                 |  |    |
|-------------------------------------|---------------------|-----------------|--|----|
|                                     | University          |                 | courses EEE521 (High Voltage Engineering) & EEE522 (Electric Drives).<br>EIE315 and EEE415 |    |
| 2017-2019                           | Covenant University | Senior Lecturer | Departmental Examination Officer.  | FT |
| 2011-2013                           | Covenant University | Lecturer 1      | Departmental Examination Officer   | FT |
| 2008-2009<br>2009-2011<br>2013-2018 | Covenant University | Lecturer 11     | Academic Adviser   | FT |

### 3. Non-academic experience

| Organisation                                | Title  | Duties  | Date      | FT/P<br>T |
|---|--|---|-----------|-----------|
| Integrated Fibres Ltd, Kano State, Nigeria. | Assistant Head of Department of Elect & Electr | Electrical maintenance and repairs.   | 2002-2007 | FT        |
| Integrated Fibres Ltd, Kano State, Nigeria. | Asst. Group Elect/Elect Engr.                  | Operations, maintenance and repair of industrial machinery  | 1997-2002 | FT        |
| Integrated Fibres Ltd, Kano State, Nigeria. | Factory Coordinator                            | Production Process and staff coordination   | 1995-1997 | FT        |
| Integrated Fibres Ltd, Kano State, Nigeria. | Shift Engineer                                 | Rectifies any electrical fault in the factory during the shift and manage the electrical and mechanical staff on duty | 1992-1995 | FT        |

### **CERTIFICATION OR PROFESSIONAL REGISTRATION**

- Certificate in Leadership Development through the African Leadership Development Centre, Covenant University, Ota.

- A registered Electrical Engineer by the Council for the Regulation of Engineering in Nigeria (R.Eng., COREN, No.: R.12,459).

#### **CURRENT MEMBERSHIP IN PROFESSIONAL ORGANIZATION**

- Corporate Member of the Nigerian Society of Engineers (MNSE, No.: 15946).

#### **HONOURS AND AWARDS**

- **COVENANT UNIVERSITY**

- Leadership Award for exemplary leadership and direction offered to the management of the association as the COUNSELOR of the Association of Electrical and Information Engineering Students (AEIES).
- Certificate of Excellence award for excellent stewardship and mentorship by Electrical and Electronics Engineering (class of 2018).
- Award of Recognition by College of Engineering at Hooding Event 2018/2019.

- **CALVARY LIFE ASSEMBLY INT’1**

- Diligence Service Award for faithfulness, steadfastness and commitment to the service of God in the Church on Sunday 30<sup>th</sup> 2011.

#### **SERVICE ACTIVITIES**

- Appointed as Supervisor for 2013 Unified Tertiary Matriculation Examination (UTME) - 27<sup>th</sup> April 2013. By the Registrar, JAMB.

#### **List of Selected Publications**

1. Design and Implementation of a 5 kVA Solar Photovoltaic System for the Electronics Laboratory in Covenant University  
Emmanuel Mbaya, Koto Omiloli, Kingsley Anagor, Kennedy Ekong, Emuesiri Esisio, Oghorchukwuyem Obiazi, Olisaemeka Isife, Joachim Notcker, Ayokunle Awelewa, **Isaac Samuel**  
2022 IEEE Nigeria 4th International Conference on Disruptive Technologies for Sustainable Development (NIGERCON)
2. Nutrients Digestibility and Cost Analysis of Broiler Chickens Fed Diets Containing Graded Levels of Brewer’s Dried Grains with Enzyme and Yeast  
Akintunde Afolabi Rotimi, Daniel Bala, Oguntoye Mutiu Ayogbe, Akintunde Monisola Olukemi, Akinsola Oludayo Michael, Adeoye Samson Olubode Babalola, **Isaac Samuel**, Istifanus Emmanuel Filian, Ardo Bashir Aisha  
Science and Technology, 2022

3. Growth Performance and Carcass Characteristics of Broiler Chickens Fed Diets Containing Graded Levels of Brewer's Dried Grains with Enzyme and Yeast Supplementation  
Akintunde Afolabi Rotimi, Daniel Bala, Oguntoye Mutiu Ayogbe, Akinsola Oludayo Michael, Adeoye Samson Olubode Babalola, **Isaac Samuel**, Ardo Bashir Aisha, Istifanus Emmanuel Filian  
Technology, 2022
4. Design and Optimization of an Intelligent Fuzzy Logic Controller for a Nonlinear Dynamic System  
A Awelewa, K Omiloli, A Olajube, **I Samuel**  
2021 International Conference on Decision Aid Sciences and Application (DASA)
5. Review of Energy Utilization Efficiency: Consumer Behaviour  
**IA Samuel**, DI Faith, AA Awelewa, AA Olajube, J Katende  
2021 International Conference on Decision Aid Sciences and Application (DASA)
6. Artificial Neural Network Based Load Flow Analysis for Power System Networks.  
I Samuel, A Soyemi, A Awelewa, A Adekitan  
IAENG International Journal of Computer Science, 2021
7. Effects of processing methods on phytochemical compositions of selected plant materials with animal nutrition potentials  
Oluwatobi Oyedeji, Oluseyi Oluwatosin, Adebayo Jegede, Adeboye Fafiolu, Isaac Samuel, Olusegun Folorunso, Vasil Pirgozliev  
Biology and Life Sciences, 2021
8. Voltage collapse prediction using artificial neural network  
**CA Samuel Isaac**, Soyemi Adebola, Awelewa Ayokunle, Katende James  
International Journal of Electrical and Computer Engineering (IJECE) 11 (1 ... 2021
9. Effect of distributed generation placement on power system: A case study of Eko electricity distribution company, LAGOS  
PB Owolabi, AF Agbetuyi, **IA Samuel**, A Abdulkareem, AU Adoghe  
Journal of Physics: Conference Series 1734 (1), 012034 2021
10. A robust energy policy review of selected African countries: An impetus for energy sustainability in Nigeria

- AO Soyemi, **IA Samuel**, A Adesanya, A Akinmeji, F Adenugba  
Journal of Physics: Conference Series 1734 (1), 012028 2021
11. Design and implementation of electronic biomedical device for monitoring heartbeat rate and blood oxygen  
IA Gabriella, T Somefun, A Olajube, **I Samuel**  
Journal of Physics: Conference Series 1734 (1), 012035 2021
12. Development of a Voice Chatbot for Payment Using Amazon Lex Service with Eyowo as the Payment Platform  
**I Samuel**, FA Ogunkeye, A Olajube, A Awelewa  
2020 International Conference on Decision Aid Sciences and Application (DASA ...  
2020
13. Evaluation of energy-efficiency in lighting systems for public buildings  
DE Oluseyi P.O, Somefun T.E, Babatunde O., Akinbulire, T.O, Babayomi O.O ...  
International Journal of Energy Economics and Policy 10 (6), 435-439 2020
14. Artificial Neural Network and Particle Swarm Optimization for Medium Term Electrical Load Forecasting in a Smart Campus  
**AAI Samuel I.A**, Adeyemi-Kayode T..M, Olajube A. .A, Oluwasijibomi S.T  
International Journal of Engineering Research and Technology 13 (6), 1273-128 2020
15. Comparison of nonlinear excitation controllers for power system stabilization  
AA Awelewa, A.A., Popoola, O., **Samuel, I.A.**, Olajube  
International Journal of Engineering Research and Technology ISSN:0974-3154 ...  
2020
16. Artificial Neural Network Base Short-term Electricity Load Forecasting: A Case Study of a 132/33 kv Transmission Sub-station  
**AA Isaac Adekunle Samuel**, Segun Ekundayo, Ayokunle Awelewa, Tobiloba.  
International Journal of Energy Economics and Policy 10 (2), 200-205. 2020
17. Power system voltage collapse prediction using a new line stability index (NLSI-1): A case study of the 330-kV Nigerian national grid  
FAA **I. A. Samuel**, J. Katende, C. O. A. Awosope, A. A. Awelewa, A. I. Adekitan  
International Journal of Electrical and Computer Engineering (IJECE) 9 (6 ... 2019
18. Data-based Analysis of Power Generation and Transmission Losses in Nigeria

AI Adekitan, AA Olajube, **IA Samuel**

2019 IEEE PES/IAS PowerAfrica, 1-6 2019

19. The Prospects of Virtual Laboratories in Engineering Education across Africa–A Case Study in Electrical Engineering

**I Samuel**, F Adenugba, A Adesanya, A Daudu, B Owolabi, D Ogbe

Journal of Physics: Conference Series 1299 (1), 012055 2019

20. Dataset on the performance of a three phase induction motor under balanced and unbalanced supply voltage conditions AI Adekitan, **I Samuel**, E Amuta Data in brief 24 2019

**Engr. Prof. Emmanuel Adetiba**



1. **Education** – degree, discipline, institution, year

| <b>Degree</b> | <b>Discipline</b>                                 | <b>Institution</b>   | <b>Year</b> |
|---------------|---|----------------------|-------------|
| Ph.D          | Information and Communication Engineering         | Covenant University  | 2014        |
| M.Eng         | Electrical & Information Engineering (ICT option) | Covenant University  | 2007        |
| B.Eng         | Electrical Engineering                            | University of Ilorin | 2002        |

2. **Academic experience** – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

| <b>Institution</b>  | <b>Rank</b>                       | <b>Title</b>  | <b>Dates Held</b>  | <b>FT/PT</b> |
|---|-----------------------------------|---|--|--------------|
| Covenant University   | Professor                         | Professor<br><br>Deputy Director/Co-PI,<br>Covenant Applied<br>Informatics and<br>Communication Africa<br>Center of Excellence<br><br>HoD, Electrical &<br>Information Engineering, | 01/2018–<br>Till Date<br><br>11/2018 –<br>Till Date<br><br>01/2021–<br>05/2023 | FT           |
| Durban University of<br>Technology (DUT),<br>Durban, South Africa | Honorary<br>Research<br>Associate | HRA   | 07/2017 -<br>07/2020   | PT           |
| DUT, Durban, South<br>Africa                                      | Post-Doctoral<br>Fellow           | PDF<br>Chair, PDF Forum   | 07/2014 -<br>07/2016   | PT           |
| Covenant University   | Senior Lecturer                   | Chair, College Seminar<br>Committee   | 08/2014 –<br>12/2017   | FT           |
| Covenant University   | Lecturer I                        | Departmental Time-Table<br>Officer;<br>Academic Adviser   | 01/2011 –<br>01/2014   | FT           |
| Covenant University   | Lecturer II                       | Academic Adviser  | 01/2008 –<br>09/2011   | FT           |
| Covenant University   | Assistant<br>Lecturer             | Academic Adviser  | 08/2007 –<br>01/2008   | FT           |
| Covenant University   | Graduate<br>Assistant             | Academic Adviser  | 05/2004 –<br>08/2007   | FT           |

3. **Non-academic experience** – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

| <b>Organisation</b>              | <b>Title</b>   | <b>Duties</b>   | <b>Dates</b>         | <b>FT/P<br/>T</b> |
|----------------------------------|--|---|----------------------|-------------------|
| Covenant<br>University           | Director, Center for Systems<br>and Information Services (ICT) | Chief ICT Officer<br>of Covenant<br>University  | 2017 – 2019          | FT                |
| Rollar Cecillee<br>Communication | Software Development Trainee                                   | Design,<br>Implementation,<br>Deployment and<br>Maintenance of<br>Software Solutions. | 05/2001-<br>07/2001  | FT                |
| Telnet Nigeria Ltd.              | Network Support Engineering<br>Trainee                         | LAN/WAN<br>Support Services.  | 02/2000 –<br>08/2000 | FT                |

4. **Certifications or professional registrations**



- Registered Engineer by the Council for the Regulation of Engineering in Nigeria (R.Engr. COREN) - R.16,875.

#### 5. Current membership in professional organizations

- Member, Nigerian Society of Engineers (MNSE).
- Member, Institute of Electrical and Electronics Engineering (MIEEE), USA.
- A registered member of the Institute of Information Technology Professionals, South Africa (MIITPSA).

#### 6. Honors and awards

- Honorary Research Associate, Institute for Systems Science, DUT, South Africa.
- Postdoctoral Fellow, ICT and Society Research Group, DUT, Durban, South Africa.
- World Bank Research Grant for CApIC-ACE Projects.
- Agence Francaise de Development (AFD) funding for SEC-FEDGEN Project.
- Google TensorFlow Historically Black College and University (HBCU) Outreach Award.
- Nigeria Communications Commission (NCC), Nigeria: Research Grant for NomadicBTS Project.

#### 7. Service activities (within and outside of the institution)

- Head of Department, Electrical and Information Engineering, College of Engineering, Covenant University, Nigeria - January 2021 till date.
- Deputy Director/Principal Investigator, Covenant Applied Informatics and Communication Africa Center of Excellence (CApIC-ACE), Covenant University, Ota, Nigeria – November 2018 till date.
- Director, Center for Systems and Information Services (aka ICT Center), Covenant University, Ota, Ogun State, Nigeria, July 2017 to July 2019.
- External Examiner, Department of Computer Engineering, Achievers University, Nig.
- External Examiner for Dissertations, Federal University of Technology, Minna, Nig.

#### 8. List of selected Publications

1. DeepCOVID-19: A model for identification of COVID-19 virus sequences with genomic signal processing and deep learning  
**Emmanuel Adetiba**, Joshua A Abolarinwa, Anthony A Adegoke, Tunmike B Taiwo, Oluwaseun T Ajayi, Abdultaofeek Abayomi, Joy N Adetiba, Joke A Badejo  
Cogent Engineering, 2022.
2. Compact automatic modulation recognition using over-the-air signals and FOS features  
**Emmanuel Adetiba**, Folarin Joseph Olaloye, Abdultaofeek Abayomi, Nasir Faruk, Sibusiso Moyo, Obiseye Obiyemi, Surendra Thakur  
Bulletin of Electrical Engineering and Informatics 2022
3. Contactless Palmprint Recognition System: A Survey

- Dele WS Alausa, **Emmanuel Adetiba**, Joke A Badejo, Innocent E Davidson, Obiseye Obiyemi, Elutunji Buraimoh, Abdultaofeek Abayomi, Oluwadamilola Oshin  
IEEE Access, 2022
4. An Active Speaker Detection Method in Videos using Standard Deviations of Color Histogram  
Adekunle Akinrinmade, **Emmanuel Adetiba**, Joke A Badejo  
Research Square, 2022
  5. Radio as a Complementary Tool for enhancing Equitable Education for all: A Case Study of the UNIOSUN FM  
O Obiyemi, S Thakur, **E Adetiba**  
Adeleke University Journal of Engineering and Technology, 2022
  6. Monitoring and resource management taxonomy in interconnected cloud infrastructures: a survey  
Vingi Patrick Nzanzu, **Emmanuel Adetiba**, Joke Atinuke Badejo, Mbaso Joaquim Molo, Claude Takenga, Etinosa Noma-Osaghae, Victoria Oguntosin, Sadeeq Suraju  
TELKOMNIKA (Telecommunication Computing Electronics and Control), 2022.
  7. Exploring Links between Online Activism and Real-World Events: A Case Study of the #FeesMustFall  
Yaseen Khan, Surendra Thakur, Obiseye Obiyemi, **Emmanuel Adetiba**  
Scientific Programming, 2022.
  8. Identification of Bots and Cyborgs in the #FeesMustFall Campaign  
Yaseen Khan, Surendra Thakur, Obiseye Obiyemi, **Emmanuel Adetiba**  
Informatics 2022.
  9. Automatic Modulation Recognition Using Minimum-Phase Reconstruction Coefficients and Feed-Forward Neural Network  
Sunday Ajala, **Emmanuel Adetiba**, Oluwaseun T Ajayi, Abdultaofeek Abayomi, Anabi Hilary Kelechi, Joke A Badejo, Sibusiso Moyo, Murimo Bethel Mutanga  
Journal of Computing Science and Engineering
  10. Automatic Modulation Recognition Models Based on Transfer Learning and Simulated Radio Signals in AWGN Channels

- Jamiu R. Olasina, **Emmanuel Adetiba**, Abdultaofeek Abayomi, Obiseye O. Obiyemi, Surendra Thakur, Moyo Sibusiso  
International Conference on Innovations in Bio-Inspired Computing and Applications, Lecture Note in Network and Systems Book Series, 2022.
11. Development of an IoT Based Data Acquisition and Automatic Irrigation System for Precision Agriculture  
**Emmanuel Adetiba**, Ayodele Hephzibah Ifijeh, Victoria Oguntosin, Toluwani Odunuga, David Iweala, Ayoola Akindele, Abdultaofeek Abayomi, Obiseye Obiyemi, Surrendra Thakur  
IEEE NIGERCON 2022
12. Effect of membership functions and data size on the performance of ANFIS-based model for predicting path losses in the VHF and UHF bands  
Nazmat Surajudeen-Bakinde, Nasir Faruk, Abdulkarim Oloyede, Abubakar Abdulkarim, Lukman Olawoyin, Segun Popoola, **Emmanuel Adetiba**  
Journal of Engineering Research, 2021.
13. Implementation of cloud-based biometric attendance system for educators in a developing country  
HO Lasisi, BR Ajibade, OC Ajayi, OO Obiyemi, SC Thakur, **E Adetiba**  
Journal of Physics: Conference Series, 2021
14. A Review of Evolutionary Trends in Cloud Computing and Applications to the Healthcare Ecosystem  
Mbasa Joaquim Molo, Joke A Badejo, **Emmanuel Adetiba**, Vingi Patrick Nzanzu, Etinosa Noma-Osaghae, Victoria Oguntosin, Mushage Olivier Baraka, Claude Takenga, Sadeeq Suraju, Ezekiel F Adebisi  
Applied Computational Intelligence and Soft Computing, 2021
15. Digital Innovations for Post-CoViD-19 Pandemic Recovery  
Feziwe L Khomo, Abdultaofeek Abayomi, **Emmanuel Adetiba**, Israel E Agbehadji, Bethel M Mutanga, Vikash Jugoo  
2021 International Conference on Artificial Intelligence, Big Data, Computing and Data Communication Systems (icABCD)

16. Large-scale radio propagation path loss measurements and predictions in the VHF and UHF bands  
 Nasir Faruk, IY Abdulrasheed, NT Surajudeen-Bakinde, **Emmanuel Adetiba**, AA Oloyede, Abubakar Abdulkarim, Olugbenga Sowande, Ayodele H Ifijeh, Aderemi A Atayero  
 Heliyon, 2021
17. Correction to: Thermal decomposition of rice husk: a comprehensive artificial intelligence predictive model (Journal of Thermal Analysis and Calorimetry, (2020), 140, 4, (1811-1823), 10.1007/s10973-019-08915-0)  
 Alaba, P.A., Popoola, S.I., Abnisa, F., ...Atayero, A.A.A., Daud, W.M.A.W.  
 Journal of Thermal Analysis and Calorimetry, 2021,
18. Experimentations on the Transmit Power of a Universal Software Radio Peripheral Using GNU Radio Framework and a Handheld RF Explorer  
 Ajala, S., **Adetiba, E.**, Akanle, M.B., ...Thakur, S., Abolarinwa, J.  
 IOP Conference Series: Earth and Environmental Science, 2021,
19. DeepFacematch: A Convolutional Neural Network Model for Contactless Attendance on e-SIWES Portal  
**Adetiba, E.**, Opara, A.E., Ajayi, O.T., Owolabi, F.O.  
 Communications in Computer and Information Science, 2021
20. Experimentations with openStack system logs and support vector machine for an anomaly detection model in a private cloud infrastructure  
 Akanle, M., **Adetiba, E.**, Akande, V., ...Badejo, J., Adebisi, E.  
 2020 International Conference on Artificial Intelligence, Big Data, Computing and Data Communication Systems, icABCD 2020 - Proceedings, 2020

#### 10. **Professional Development**

- **Outcome Based Engineering Education Workshop** – 2018.
- **Co-Host/Organizer, 1st HPC Workshop**, at the Covenant Applied Informatics and Communication Africa Center of Excellence (CApIC-ACE), 17<sup>th</sup> - 28<sup>th</sup>, May 2021.
- **Host/Organizer, FEDGEN Bootcamp 1.0** at the Covenant Applied Informatics and Communication Africa Center of Excellence (CApIC-ACE), 11<sup>th</sup> - 13<sup>th</sup> August 2021.



**ENGR. PROF. ANTHONY U. ADOGHE**

1. **Education** – degree, discipline, institution, year

| Degree | Discipline                                      | Institution         | Year |
|--------|---|---------------------|------|
| PhD    | Electrical Power System Reliability Engineering | Covenant University | 2010 |
| M.Sc   | Power Systems / Machines                        | University of Benin | 2005 |
| B.Eng  | Electrical / Electronics Engineering            | University of Benin | 1985 |

2. **Academic experience** – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

| Institution         | Rank                | Title   | Dates Held        | FT/PT |
|---------------------|---------------------|---|-------------------|-------|
| Covenant University | Professor           | HOD, EIE  | 08/2018 - 05/2021 | FT    |
| Covenant University | Professor           | College PG Coordinator/EEE Program Coordinator                      | 12/2017           | FT    |
| Covenant University | Associate Professor | Departmental PG Coordinator   | 08/2015 - 12/2017 | FT    |
| Covenant University | Senior Lecturer     | Coordinator; Departmental Student Industrial Work Experience Scheme | 2013 -2015        | FT    |

|                     |             |   |                      |    |
|---------------------|-------------|---|----------------------|----|
| Covenant University | Lecturer 1  | Research Scholar;<br>University of Portsmouth | 04/2012 -<br>10/2012 | FT |
| Covenant University | Lecturer 11 | Academic Adviser                              | 2005 – 2009          | FT |

### 3. Non-academic experience –

| Organization   | Title                                | Duties                                 | Dates     | FT/PT |
|--|--------------------------------------|--|-----------|-------|
| Bendel Cement Company Okpilla,<br>Edo State, Nigeria.                                    | Chief Electrical<br>Engineer         | Electrical<br>maintenance.             | 2000-2005 | FT    |
| Bendel feeds and flour mill Ewu,<br>Edo State, Nigeria                                   | Principal Electrical<br>Engineer PPE | Design and<br>maintenance<br>operation | 1994-1999 | FT    |
| Industrial Training Fund (ITF), a<br>parastatal of the Federal<br>Government of Nigeria; | (TD0 1                               | Training<br>Development<br>Activities  | 1987-1994 | FT    |

### 4. Certifications or professional registrations

- Member, Nigerian Society of Engineers (M.N.S.E).
- Member, IEEE USA
- COREN, Registered Engineer (R.15, 649)

### 5. Current membership in professional organizations

- Member, Nigerian Society of Engineers (M.N.S.E).
- Member, IEEE USA
- COREN, Registered Engineer (R.15, 649)

### 5. Honors and awards

- 2012, Research Scholar, University of Portsmouth;
- 2015, Gold Medals; World Invention and Innovation Forum Yancheng, China;
- 2015, Silver Medals; 67<sup>th</sup> IENA International Trade Fair or “Ideas, Inventions and New Products” in Nuremberg, Germany;

### 6. Service activities (within and outside of the institution)

- Head of Department; Electrical and Information Engineering; College of Engineering; Covenant University; Nigeria; 31<sup>st</sup> July 2018 to April, 2021
- Coordinator; Electrical/Electronic Engineering Program; Electrical and Information Engineering; Covenant University; Nigeria; 11/2014 to 31/07 2018
- College of Engineering Postgraduate Coordinator, 2017 to July 2018
- Departmental Postgraduate Coordinator; Electrical and Information Engineering; College of Engineering; Covenant University; Nigeria; 01/2011 – 2017
- Chairman; Exhibition Sub-Committee for 2013 Convocation Ceremony; Covenant University; Nigeria; 2013.
- Coordinator; Departmental Student Industrial Work Experience Scheme (SIWES); Electrical and Information Engineering; college of Engineering; Covenant University; Nigeria; 08/ 2013 – 01/ 2015.
- Member; Covenant University Research & Development Committee; Covenant University; Nigeria; 11/ 2012 – 09/ 2014.
- Member; Covenant University Students’ Appellate Committee; Covenant University; Nigeria; 12/2012 – 09/2013.
- Appointed as External Examiner for master program, Bells University, Ota, Ogun State
- Appointed as Professorial Assessor, Kaduna State, University, Kaduna. (July, 2019)
- Appointed as Professorial Assessor, Edo University, Iyamho, Edo State. (Nov., 2019)
- Appointed as Professorial Assessor, Ambrose Alli University, Ekpoma, Edo State. (January, 2020).
- Appointed as External examiner for PhD thesis, Michael Okpara University of Agriculture, Umudike., 21<sup>st</sup> November, 2022
- Appointed as External for Master Dissertation, Bells University of Technology, 15<sup>th</sup> May, 2023
- **Member, NUC** Accreditation Panel for evaluation of Academic Programs in Nigerian Universities, November, 2019
- **Resource Person, COREN** Accreditation Visitation Panel for Evaluation of Engineering Programs in Nigerian Universities, September, 2019

## 6. Selected publication

- Adoghe, A.U., Adeyemi-Kayode, T.M., Oguntosin, V., Amahia, I.I. “Performance evaluation of the prospects and challenges of effective power generation and distribution in Nigeria” *Heliyon*, 2023, 9(3), e14416
- Afolabi, R.; Adebisi, B., Adoghe, A.U., “Prediction of Power Consumption Utilization in a Cloud Computing Data Centre using Kalman Filter parameters with Genetic Algorithm” *Indonesian Journal of Electrical Engineering and Informatics*, 2023, 11(1), pp. 1–13

- Adeyemi-Kayode T., Misra, S., Orovwode, H., Adoghe, A. “Modeling the Next Decade of Energy Sustainability: A Case of a Developing Country” [Energies](#) this link is disabled, 2022, 15(14), 5083
- Adoghe, A.U., Owuama, E.C., Oguntosin, V., Morawa, B., “Design and Implementation of a Low-Cost Cloud-Powered Home Automation System”, *Journal of Engineering Science and Technology Review* this link is disabled, 2022, 15(3), pp. 177–192
- Oguntosin, V., Oluwadurotimi, M., **Adoghe, A.**, Abdulkareem, A., Adeyemi, G. “Development of a Web-Based Complaint Management Platform for a University Community” *Journal of Engineering Science and Technology Review*, 2021, 14(1), pp. 150–159
- Olowoleni, J.O., Awosope, C.O.A., **Adoghe, A.U.**, Obinna, O., Ebubechukwu Udo, U., “Design and simulation of a novel 3-point star rectifying antenna for RF energy harvesting at 2.4 GHz”, *Cogent Engineering*, 2021, 8(1), 1943153
- Olowoleni, J.O., Awosope, C.O.A., **Adoghe, A.U.**, Oguntosin, V., Okupevi, E.S., “Design and implementation of a single phase to three phase rotary converter”, *Journal of Physics: Conference Series*, 2021, 1734(1), 012029
- **Anthony U. Adoghe**, Etinosa Noma-Osaghae, Yabkwa Rimamchika Israel. “Photonic Crystal and its Application as a Biosensor for the Early Detection of Cancerous Cells” (2020), *International Journal of Online and Biomedical Engineering (iJOE)* – eISSN: vol16, 03, pp 86-94, EISSN:2626-8493, <https://online-journals.org/index.php/i-joe/article/view/12523>
- Afolabi Gbenga, Orovwode Hope, Abdulkareem Ademola, **Adoghe Anthony**, Matthew Simeon, “The Influence of Meteorological Features on the Performance Characteristics of Solar Photovoltaic Storage System”, *Journal of Physics: Conference Series*, (2019), Vol.1378, Iss 3, pp. 032088, IOP Publishing
- Adeyemi A Alabi, **Anthony U Adoghe**, Oluwasikemi G Ogunleye, Claudius OA Awosope, “Development and sizing of a grid-connected solar PV power plant for Cnaanland community” 2019/4, *International Journal of Applied Engineering*, vol8, iss01, pp69-77.
- **Anthony U. Adoghe**; Owuama Chinemere Eberechukwu and Timilehin F. Sanni “The Effect of low power factor Led Lamp Invasion on the Utility Grid: A Case Study of Nigerian Market”, *Proceedings of 2017 IEEE PES-IAS Power Africa conference*, 27 – 30 June, 2017, IEEE Catalog Number: CFP17PES – ART, ISBN: 978 – 1 – 5090 – 4746 – 8
- **Adoghe, A.U**; Airoboman, A.E.; Owuama C. E.; Awosope COA “Implementation of Solar Water Heating System for a Sustainable Environment in Sub-Sahara Africa”. *Proceedings of 2017 IEEE PES-IAS Power Africa conference*, 27 – 30 June, 2017, IEEE Catalog Number: CFP17PES – ART, ISBN: 978 – 1 – 5090 – 4746 – 8
- **Anthony U. Adoghe**; Ifeoluwa O. Oyinlola; Segun I. Popoola and Aderemi A. Atayero. “Free Energy Generation using Neodymium Magnets: An Off-Grid Sustainable Energy Solution for Sub-Saharan Africa” *Lectures notes in Engineering and Computer Science*, World Congress on Engineering 2017, Vol. 1, London, U.K, 5 – 7 July, 2017, International Association of Engineers, ISBN: 978-988-14047-4-9, ISSN: 2078-0958. Pg 277 –282., <http://www.iaeng.org/publication/WCE2017/>

## 7. Professional Development



- **COREN** - “Outcome Based Engineering Workshop and Review of Benchmark Minimum Academic Standard (BMAS) and Accreditation Scoring Criteria for Undergraduate Engineering Programmes in Nigerian Universities” (4-6 April, 2017).
- Obe Training Workshop For Evaluators Of Engineering Programmes, Organised By Council For The Regulation Of Engineering In Nigeria (Coren) On 01st December, 2021

Dr. Ayokun



1. **Education** – degree, discipline, institution, year

| Degree | Discipline                           | Institution         | Year |
|--------|--------------------------------------|---------------------|------|
| PhD    | Electrical/Electronics Engineering   | Covenant University | 2016 |
| M.Sc   | Electrical/Electronics Engineering   | Covenant University | 2007 |
| B.Eng  | Electrical / Electronics Engineering | University of Benin | 2001 |

2. **Academic experience** – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

| Institution         | Rank                | Title              | Dates Held       | FT/PT |
|---------------------|---------------------|--------------------|------------------|-------|
| Covenant University | Associate Professor |                    | 2021 – till date | FT    |
| Covenant University | Senior Lecturer     | Course Coordinator | 2016 – 2021      | FT    |
| Covenant University |                     | Course Coordinator | 2014 -2016       | FT    |
| Covenant University |                     | Course Coordinator | 2009 - 2014      | FT    |
| Covenant University |                     | Instructor         | 2007 - 2009      | FT    |
| Covenant University | Graduate Assistance | Teaching Assistant | 2004 – 2007      | FT    |
| Comprehensive       | Teacher             | Class Teacher      | 2002 - 2003      | FT    |

|                  |  |  |  |  |
|------------------|--|--|--|--|
| Secondary School |  |  |  |  |
|------------------|--|--|--|--|

3. **Non-academic experience** – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

| Organisation               | Title              | Duties   | Dates     | FT/PT |
|----------------------------|--------------------|--|-----------|-------|
| Doltotemic Computer Center | Trainee Engineer   | Desktop and Laptop Computer Repair, Maintenance, and Installation  | 2003-2004 | FT    |
| FENIKOH Nigeria Limited    | Industrial Trainee | Manufacture and installation of industrial motor control centers, switchgears, feeder pillars, automatic mains failure, and automatic street light kiosk | 1999      | FT    |

4. **Certifications or professional registrations**

- Nigerian Society of Engineers (NSE); Registration No. 20168
- Council for Regulation of Engineering in Nigeria (COREN); Registration No.19001

5. **Current membership in professional organizations**

- Member, Institute of Electrical & Electronics Engineers (IEEE); Member No. 80675402
- Member, IEEE Power & Energy Society
- Member, IEEE Control Systems Society

6. **Honors and awards**

- a) Best 2016 Ph.D Student, Covenant University

7. **Service activities (within and outside of the institution)**

- Postgraduate Coordinator, Electrical and Information Engineering; 2017/2018-2018/2019 and 2020/2021 to date
- Member, Covenant University Tutorial Committee; 2016 to 2017
- Member, College of Engineering Undergraduate Curriculum Committee; 2016
- Postgraduate Coordinator, Electrical & Information Engineering; 2017 to date
- Member, Electrical & Information Engineering Undergraduate Curriculum Committee; 2012 to date

- Member, Electrical & Information Engineering Postgraduate Curriculum Committee; 2013, and 2016 to date
- Member, Electrical & Information Engineering Project Coordination Committee; 2016-2017
- Member, Electrical & Information Engineering Quality Assurance Committee; 2016 to date
- Facilitator, Nigerian Society of Engineers (NSE) Graduateship Examination Refresher Course; 2010

### **List of Selected Publications**

1. Design and Implementation of a 5 kVA Solar Photovoltaic System for the Electronics Laboratory in Covenant University  
Emmanuel Mbaya, Koto Omiloli, Kingsley Anagor, Kennedy Ekong, Emuesiri Esisio, Oghorchukwuyem Obiazi, Olisaemeka Isife, Joachim Notcker, Ayokunle Awelewa, **Isaac Samuel**  
2022 IEEE Nigeria 4th International Conference on Disruptive Technologies for Sustainable Development (NIGERCON)

### Review of Different Methods for Siting and Sizing Distributed Generator

T Somefun, O Popoola, A Abdulkareem, A Awelewa  
International Journal of Energy Economics and Policy

1. Design and Optimization of an Intelligent Fuzzy Logic Controller for a Nonlinear Dynamic System **A Awelewa**, K Omiloli, A Olajube, I Samuel  
2021 International Conference on Decision Aid Sciences and Application (DASA)
2. Review of Energy Utilization Efficiency: Consumer Behaviour **IA Samuel**, **DI Faith**, **AA Awelewa**, **AA Olajube**, **J Katende** 2021 International Conference on Decision Aid Sciences and Application (DASA)
3. Experimental data on power quality assessment at point of common coupling of a steel mill to an electric power grid  
E Ugwuagbo, A Balogun, A Olajube, O Omeje, **A Awelewa**, S Abba-Aliyu  
Data in brief, 2021
4. Artificial Neural Network Based Load Flow Analysis for Power System Networks.

- I Samuel, A Soyemi, **A Awelewa**, A Adekitan  
IAENG International Journal of Computer Science, 2021
5. Recent Development of Intelligent Shunt Fault Classifier for Nigeria 33-kV Power Lines  
**AA Awelewa**, PO Mbamaluikem  
Newest Updates in Physical Science Research, 2021
  6. A review on behavioural propensity for building load and energy profile development–Model inadequacy and improved approach  
A Ramokone, O Popoola, **A Awelewa**, A Temitope  
Sustainable Energy Technologies and Assessments, 2021
  7. Rural Household Space Cooling and Lighting through a Solar Power-based Electric Supply System  
**AA Awelewa**, C Okoma, OM Popoola, AA Olajube, IA Samuel  
IOP Conference Series: Materials Science and Engineering, 2021
  8. Voltage collapse prediction using artificial neural network  
S Isaac, S Adebola, **A Ayokunle**, J Katende, A Claudius International Journal of Electrical and Computer Engineering 11 (1), 124 2021
  9. Predicting extrusion process parameters in Nigeria cable industry for polyethylene cable insulation using artificial neural network  
Abdulkareem, A., Adesanya, A., Mutalub, A.L., **Awelewa, A.**  
Journal of Theoretical and Applied Information Technology, 2020
  10. Development of a Voice Chatbot for Payment Using Amazon Lex Service with Eyowo as the Payment Platform I Samuel, FA Ogunkeye, A Olajube, **A Awelewa**. 2020 International Conference on Decision Aid Sciences and Application (DASA)
  11. Application of occupancy-interlinked inhabitant behavior variables for improved energy and load profiles modeling.  
A Ramokone, O Popoola, **A Awelewa**. 2020  
IEEE PES/IAS PowerAfrica, 1-5
  12. An intelligent approach for assessing occupancy and occupant-related activities impact on residential electric load profiles  
A Ramokone, O Popoola, **A Awelewa**  
2020 International Conference on Artificial Intelligence, Big Data ...

13. Low-income load profile development using occupancy and occupants' activities in residential households  
A Ramokone, O Popoola, **A Awelewa**  
2020 International Conference on Electrical, Communication, and Computer
14. Comparison of Nonlinear Excitation Controllers for Power System Stabilization  
**AA Awelewa**, O Popoola, IA Samuel, AA Olajube  
International Research Publication House, 2020
15. Artificial neural network base short-term electricity load forecasting: a case study of a 132/33 kv transmission sub-station  
IA Samuel, S Ekundayo, **AA Awelewa**, TE Somefun, AA Adewale  
International Journal of Energy Economics and Policy 10 (2), 200-205 2020
16. Intelligent Shunt Fault Classifier for Nigeria 33-kV Power Lines  
**AA Awelewa**, PO Mbamaluikem, OS Aderemi  
Journal of Physics: Conference Series 1378 (3), 032098 2019
17. Power system voltage collapse prediction using a new line stability index (NLSI-1): A case study of the 330-kV Nigerian National Grid  
IA Samuel, J Katende, COA Awosope, **AA Awelewa**, AI Adekitan, ...  
International Journal of Electrical and Computer Engineering 9 (6), 5125 2019
18. Arduino Microcontroller Based Underground Cable Fault Distance Locator  
S A Isaac, O Ayobami, **A Ayokunle**, U Bassey  
International Journal of Mechanical Engineering and Technology 10 (3) 2019
19. Power distribution system fault monitoring device for supply networks in Nigeria.  
OK Kareem, AI Adekitan, **A Awelewa**  
International Journal of Electrical & Computer Engineering (2088-8708) 9 (4) 2019
20. Reliability assessments of an islanded hybrid PV-diesel-battery system for a typical rural community in Nigeria  
AB Esan, AF Agbetuyi, O Oghorada, K Ogbeide, **AA Awelewa**, AE Afolabi  
Heliyon 5 (5), e01632 2019

8. Professional Development

- Visiting Scholar at the University of Strathclyde, Glasgow, UK (4th June-4th September, 2015)
- Postdoctoral Fellowship at the Tshwane University of Technology, Pretoria, South Africa (September 2019- August 2020)

**Dr. Osemwegie Omoruyi**



9. **Education** – degree, discipline, institution, year

| Degree            | Discipline                             | Institution                | Year |
|-------------------|--|----------------------------|------|
| Ph.D<br>(in view) | Computer Engineering                   | Covenant University        | -    |
| M.Sc.             | Electronics and Electrical Engineering | Obafemi Awolowo University | 2014 |
| B.Eng             | Computer Engineering                   | Covenant University        | 2008 |

10. **Academic experience** – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

| Institution         | Rank        | Title            | Dates Held  | FT/PT |
|---------------------|-------------|------------------|-------------|-------|
| Covenant University | Lecturer 1  |                  | 05/2020 -   | FT    |
| Covenant University | Lecturer 11 | Academic Adviser | 2015 – 2020 | FT    |

11. **Non-academic experience** – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

| Organisation          | Title              | Duties  | Dates     | FT/PT |
|-----------------------|--------------------|---|-----------|-------|
| One Dream PRO Limited | Research/Developer | Software Development/Research of Tools and Packages | 2012-2015 | FT    |

## 12. Certifications or professional registrations

- Member, Nigerian Society of Engineers (M.N.S.E).
- COREN, Registered Engineer (R.45, 501)

## 13. Current membership in professional organizations

- Member, Nigerian Society of Engineers (M.N.S.E).
- COREN, Registered Engineer (R.45, 501)

## 14. Honors and awards

- Covenant University Postgraduate Ph.D. Grant

## 15. Service activities (within and outside of the institution)

- Head of Website Committee; Electrical and Information Engineering; College of Engineering; Covenant University; Nigeria; January 2020 till date.
- Acting Coordinator; Computer Engineering Program; Electrical and Information Engineering; Covenant University; Nigeria; May 2021
- Academic level adviser Computer Engineering; Electrical and Information Engineering; College of Engineering; Covenant University; August 2015 – November 2020
- Member, Interview Panel for Covenant University Scholastic Aptitude Test 2018
- Member, 2017 COREN Accreditation committee

## **List of Selected Publications**

1. Comparative analysis of routing techniques in chord overlay network  
**O Osemwegie**, J Samuel, A Adeyinka, E Noma-Osaghae, K Okokpujie  
International Journal of Electrical and Computer Engineering, 2021
2. Mitigating Threats in a Corporate Network with a Taintcheck-Enabled Honeypot  
SN John, OA Albert, K Okokpujie, E Noma-Osaghae, **O Osemwegie**, ...  
Information Science and Applications, 73-83 2020
3. Vehicle Collision Avoidance System Using Localization Algorithm and Predictive Analysis

- Samuel Ndueso John, Etinosa Noma-Osaghae, Kennedy Okokpuije, Chinonso Okereke, Joshua Ananaba, **Osemwegie Omoruyi**  
2019 International Conference on Computational Science and Computational
4. Subscribers' Traffic Internet Bandwidth Usage Capture and Classification Using Android Platform  
Adeyinka A Adewale, A Ben-Obaje, EE Ekong, Abidemi Orimogunje, Hilary Kelechi Anabi, **Osemwegie Omoruyi**  
Journal of Physics: Conference Series 1378 (4), 042096 2019
  5. Arduino Based Traffic Light System With Integrated LED Advertising Display  
R Olomo, **O Osemwegie**  
Journal of Physics: Conference Series 1378 (4), 042079 2019
  6. Design of a drowning rescue alert system  
SN John, IG Ukpabio, **O Omoruyi**, G Onyiagha, E Noma-Osaghae, ...  
International Journal of Mechanical Engineering and Technology (IJMET) 10 (1 ...  
2019
  7. Evaluation of the quality of an image encryption scheme  
**Omoruyi**, C Okereke, KO Okokpuije, E Noma-Osaghae, O Okoyeigbo, ...  
Telkomnika 17, 2968-2974 2019
  8. Performance Benchmarking of Key-Value Store NoSQL Databases  
**Osemwegie**, K Okokpuije, N Nkordeh, C Ndujiuba, J Samuel, U Stanley  
International Journal of Electrical and Computer Engineering 8 (6), 5333 2018
  9. Fingerprint biometric authentication based point of sale terminal  
K Okokpuije, E Noma-Osaghae, O Okesola, **O Omoruyi**, C Okereke, ...  
International conference on information science and applications, 229-237 2018
  10. Integration of iris biometrics in automated teller machines for enhanced user authentication  
K Okokpuije, E Noma-Osaghae, O Okesola, **O Omoruyi**, C Okereke, ...  
International conference on information science and applications, 219-228 2018
  11. Electronic Fare Collection Systems in Public Transits: Issues, Challenges and Way-Forward  
ON Omoruyi, MG **Omoruyi**, KO Okokpuije, IP Okokpuije



- Covenant Journal of Engineering Technology 2 (1) 2018
12. Stock keeping accuracy: A data based investigation of storage tank calibration challenges.  
AI Adekitan, **O Omoruyi**  
Data in brief 19, 2155-2162 2018
  13. Development of an Encrypting System for an Image Viewer based on Hill Cipher Algorithm  
Chinonso, **O Omoruyi**, K Okokpujie, S John  
Covenant Journal of Engineering Technology 1 (2) 2017
  14. Wireless Sensor Network for Rainfall Measurement using a Tipping Bucket Rain Gauge Mechanism  
**Omoruyi**, SN John, O Chinonso, O Robert, AA Adewale, KO Okokpujie  
2017 International Conference on Computational Science and Computational ...
  15. An improved bank credit scoring model: a naïve Bayesian approach  
OJ Okesola, KO Okokpujie, AA Adewale, SN John, **O Omoruyi**  
2017 International Conference on Computational Science and Computational
  16. Comparative Analysis of Channel Estimation Techniques in SISO, MISO and MIMO Systems  
**Osemwegie**, O Obinna, O Kennedy, N Nsikan  
International Journal of Electronics and Telecommunications 63 (3), 299-304 2017
  17. On issues, strategies and solutions for computer security and disaster recovery in online start-ups  
**Omoruyi**, KO Okokpujie, N Nsikan, SN John, AA Adewale  
International Journal of Applied Engineering 12 (19), 8009-8015 2017
  18. Development of an electronic fare collection system using stationary tap-out devices  
**Osemwegie**, S John, K Okokpujie, I Shorinwa  
2016 International Conference on Computational Science and Computational
  19. A plan for igniting Nigeria's industrial revolution  
J Azeta, KO Okokpujie, IP Okokpujie, **O Osemwegie**, A Chibuzor  
International Journal of Scientific & Engineering Research 7 (11), 489 2016
  20. Performance Analysis and Modeling of MIMO Systems  
KO Okokpujie, O Okoyeigbo, JE Okhaifoh, **O Osemwegie**, N Nkordeh

16. Professional Development

**COREN** - “Outcome Based Engineering Workshop and Review of Benchmark Minimum Academic Standard (BMAS) and Accreditation Scoring Criteria for Undergraduate Engineering Programmes in Nigerian Universities” (4April,2017)



**Dr. Adeyinka A. Adewale**

**1. Education** – degree, discipline, institution, year

| Degree | Discipline                                | Institution         | Year |
|--------|---|---------------------|------|
| PhD    | Information and Communication Engineering | Covenant University | 2017 |
| M.Sc   | Information Technology                    | University of Lagos | 2004 |
| B.Eng  | Electrical Engineering                    | University of Lagos | 1998 |

**2. Academic experience** – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

| Institution         | Rank            | Title                            | Dates Held | FT/PT |
|---------------------|-----------------|----------------------------------|------------|-------|
| Covenant University | Senior Lecturer | Departmental Examination Officer | 2019– 2020 | FT    |
| Covenant University | Senior Lecturer | Departmental Project Coordinator | 2016 -2019 | FT    |
| Covenant University | Lecturer I      | Academic Adviser                 | 2012 -2017 | FT    |

|                     |                |                  |             |    |
|---------------------|----------------|------------------|-------------|----|
| Covenant University | Lecturer II    | Academic Adviser | 2007 – 2011 | FT |
| Covenant University | Asst. Lecturer | Academic Adviser | 2006 – 2007 | FT |

3. **Non-academic experience** – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

| Organization   | Title                                  | Duties  | Dates       | FT/PT |
|--|--|---|-------------|-------|
| United Geophysical UGNL/IDSL Joint Venture (JV), Oil Mining License (OML) 61, Nigerian Agip Oil Company (NAOC) TOFMAN PROSPECT, Mbiama, Rivers State, Nigeria. | Technical Assistant to the Party Chief | Maintenance and repairs of blasters, geophones and hydrophones, source and receiver line cables | 2001-2006   | FT    |
| Kudirat Initiative for Democracy (KIND), Gbagada Phase II, Gbagada, Lagos (2000-2001)  | System Engineer                        | Design and maintenance operation  | 2000 - 2001 | FT    |
| Talafon Payphone Limited, 68 Airport Road, Nasarrawa, Kano State, Nigeria.   | Hub Engineer (Kano & Jigawa States)    | Installation and maintenance of Telkom Payphone box across Kano and Jigawa metropolis.          | 1999 - 2000 | FT    |

4. **Certifications or professional registrations**

- Huawei Certified ICT Associate (HCIA) Routing and Switching (2019)
- Member Information System Audit and Control Association (ISACA), (2006)
- Microsoft Certified Database Administrator (MCDBA), (2001)
- Microsoft Certified Systems Engineer (MCSE), (2000)
- Microsoft Certified Professional (MCP), (2000)

5. **Current membership in professional organizations**

- COREN Registered Engineer (R. 16,877)
- Member, Nigerian Society of Engineers (M.N.S.E) V/I Branch
- International Association of Engineers (IAENG)
- Member, Institute of Electrical and Electronics Engineer IEEE,

6. **Honors and awards**

- Recipient: Best Graduating Student Award (Ph.D Category), School of Postgraduate Studies (SPS) Covenant University 2016/2017 Convocation Ceremony (**CGPA 5.0**)
- Recipient: Best Graduating Student (Ph.D Category) College of Engineering of Covenant University 2016/2017 Convocation Ceremony (**CGPA 5.0**)

- Outstanding Faculty in Lecture Delivery Award Electrical & Information Engineering (EIE) Department, Covenant University 2009/2010 Academic Session.

#### 7. **Service activities (within and outside of the institution)**

- Director of SIWES/SWEP/CUIT; Covenant University, 2020/2021 – 2021/2022 Academic Session.
- African Higher Education Centers of Excellence Project (ACE) Senegal, Research Grant Application Submission Peer Reviewer 2020 & 2021
- Peer reviewer International Journal of Human Capital and Information Technology Professional (IJHCITP) 2018 till date
- Peer reviewer International Conference on Sustainable Infrastructure Development (ICSID) peer reviewer 2019 & 2020
- Peer Reviewer International Conference on Engineering for a Sustainable World (ICESW) peer reviewer 2019 & 2020
- 1<sup>st</sup> Secretary of EIE department Conference Committee (organized 1<sup>st</sup> and 2<sup>nd</sup> international conference of the department of Electrical and Information Engineering in 2012 and 2013 respectively)
- 1<sup>st</sup> Secretary, Covenant University, ICT Committee, (2007 to 2010)
- Member, Departmental National University Commission (NUC) Accreditation Committee for Information and Communication Engineering, (2007 to 2013)
- Member, Departmental National University Commission (NUC) Accreditation Committee for Computer Engineering, (2007 to 2013)
- Member, Departmental National University Commission (NUC) Accreditation Committee for Electrical/Electronic Engineering, (2007 to 2013)
- Member, Covenant University Resumption Committee (2010-20012)
- College of Engineering Academic Quality Standard (2016)
- College Seminar Committee (2017-2018)

#### 8. **Selected publication**

- Osemwegie O., John S., **Adewale A.**, Noma-Osaghae E., Okokpujie K. (2021). Comparative analysis of routing techniques in chord overlay network. International Journal of Electrical and Computer Engineering 11(5) pp 4361-4372. [**Scopus-indexed**]
- Okesola O., Adebisi M., Osi-Okeke T., **Adewale A.**, Adebisi A. (2020). Internet service providers responsibilities in botnet mitigation: A Nigerian perspective. International Journal of Electrical and Computer Engineering 10(4), pp. 4168-4175. [**Scopus-indexed**]
- Samuel, I. A., Ekundayo S., Awelewa A., Somefun T. E., **Adewale A. A.** (2020). Artificial neural network base short-term electricity load forecasting: A case study of a 132/33 KV transmission sub-station. International Journal of Energy Economics and Policy 10(2), pp. 200-205. [**Scopus-indexed**]

- **Adewale A. A.**, Ibidunni A. S., Atayero A. A., John S. N., Okesola O., Ominiabohs R. R. (2019). Nigeria's preparedness for internet of everything: A survey dataset from the work-force population. *Data in Brief*, Elsevier, 23. **[Scopus-indexed]**
- Adekitan I. A., **Adewale A. A.**, Alashiri O. (2019). Determining the operational status of a three phase induction motor using a predictive data mining model, *International Journal of Electronics and Drive System* 10(1) pp. 93-103. **[Scopus-indexed]**
- John S.N., **Adewale A.A.**, Ndujiuba C.N., Idoko D.O., Anoprienko A.Y. (2019). A Neuro-fuzzy Model for Intelligent Last Mile routing, *International Journal of Civil Engineering and Technology*, 10(1), pp. 2341-2356. **[Scopus-indexed]**
- **Adewale A. A.**, Adekitan A. I., Idoko O. J., Agbetuyi F. A., Samuel I. A. (2018). Energy Audit and Optimal Power Supply for a Commercial Building in Nigeria, *Cogent Engineering*, 6(1). **[Scopus-indexed]**
- Omoruyi O., Okokpuije K., Nkordeh N., John S. N., **Adewale A. A.** (2017). On Issues, Strategies and Solution for Computer Security and Disaster Recovery in Online Startups. *International Journal of Applied Engineering Research (IJAER)*, 12(19), pp. 8009-8015. **[Scopus-indexed]**
- **Adewale A. A.**, Matthews V. O., Adalakun A. A., Amase W., Alashiri O. A. (2017). Packet Sniffer for Users End Network Performance Monitoring using Python Programming". *International Journal of Current Trends in Engineering and Research*, 3(8). **[Google Scholar-indexed]**
- **Adewale A. A.**, Matthews V. O., Ndujiuba C. N., Adenrele A. M, (2017). Reduction of Routing Delay in an Enterprise Network using Dynamic Multipoint Private Network. *International Journal of Computer Applications (IJCA)*, 179(9). **[Google Scholar-indexed]**



Engr. Dr. OKOKPUJIE Kennedy

1. **Education** – degree, discipline, institution, year

| Degree | Discipline   | Institution                         | Year |
|--------|--|-------------------------------------|------|
| PhD    | Information and Communication<br>Engineering                     | Covenant University, Ota            | 2020 |
| M.Eng. | Electronic and Telecommunication<br>Engineering                  | University of Benin, Benin-<br>City | 2016 |
| MBA    | Master in Business Administration                                | Lagos State University, Ojo         | 2015 |
| M.Sc.  | Electrical and Electronic<br>Engineering-Communication<br>Option | University of Lagos, Akoka          | 2014 |
| B.Eng. | Electrical and Electronic<br>Engineering                         | Ambrose Ali University, Ekpoma      | 2006 |

2. **Academic experience** – institution, rank, title (chair, coordinator, etc. if appropriate), when(ex. 1990-1995), full time or part time

| Institution         | Rank            | Title  | Dates Held     | FT/PT |
|---------------------|-----------------|--|----------------|-------|
| Covenant University | Senior Lecturer | EIE Departmental Post-Graduate Coordinator                           | 2022 till date | FT    |
| Covenant University | Senior Lecturer | Chair, ICE-NUC accreditation committee / ICE Programme Coordinator   | 2021- 2022     | FT    |
| Covenant University | Senior Lecturer | Chair, ICE-COREN accreditation committee / ICE Programme Coordinator | 2021 - 2022    | FT    |
| Covenant University | Senior Lecturer | Member, College CODET Committee                                      | 2018 till date | FT    |
| Covenant University | Lecturer 1      | Member, Computer Engineering Accreditation committee                 | 2020 -2021     | FT    |
| Covenant University | Lecturer 1      | Assist Departmental PG Coordinator                                   | 2020-2022      | FT    |
| Covenant University | Lecturer 11     | Member, College Equipment Committee                                  | 2018           | FT    |
| Covenant University | Lecturer 11     | Member, EIE Departmental Publication Committee                       | 2018           | FT    |
| Covenant University | Lecturer 11     | Assist Final year project Departmental Student Coordinator           | 2016 -2017     | FT    |
| Covenant University | Lecturer 11     | Academic Adviser   | 2016 – 2021    | FT    |

3. **Non-academic experience** – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

| Organization           | Title                                 | Duties   | Dates       | FT/PT |
|------------------------|---------------------------------------|--|-------------|-------|
| Okpojie Global Ltd     | Technical Director                    | Oversees all technical/operational matters                                       | 2013 – 2015 | FT    |
| Finbank Plc (now FCMB) | Customer Service Officer/ Cash Manage | Officer in charge of Centre vault head office VI/ Coordinate local/ foreign cash | 2007-2012   | FT    |

|   |   |  |           |    |
|---|---|--|-----------|----|
|   | ment<br>Officer /<br>ATM<br>Custodia<br>n | shipment/sorting<br><br>of ATMs cash/<br>Bank<br>Representative<br>to CBNfor<br>cash/Forex<br>deposit/<br>withdrawal |           |    |
| Toptech Engineering Limited, Gbagada  | Customer Service Engineer                 | Engineering equipment installation, maintenance and services   | 2006-2007 | FT |
| Toptech Engineering Limited, Ikeja, Lagos   | Trainee                                   | Engineering equipment installation, maintenance and services   | 2005      | FT |
| National Electric Power Authority (NEPA) now Power Holding Company of Nigeria (PHCN), Ikpoba Hill/ Etete GRA<br><br>Commercial Centres Benin City | Trainee                                   | Power distribution equipment installation, maintenance and services  | 2002/2003 | FT |

#### 4. Certifications or professional registrations

- Artificial Intelligence Analyst (2019) Mastery Award by Global University Programmes IBM, USA
- Blockchain Developer Mastery Award (2018) by Global University Programmes IBM USA
- Cisco Certify Network Associate (CCNA) (2007)
- Security Intelligence Analyst Mastery Award
- Security Intelligence Engineer Mastery Award for Students
- Application Security Specialist with IBM Security AppScan v8.7
- Application Security Engineer Mastery Award for Students (2016)
- Big Data Developer Mastery Award (2016)
- Cloud Application Developer Mastery Award (2017)

#### 5. Current membership in professional organizations



- International Association of Engineers (IAENG) 2017  
(Membership No.: 201815)
- Council for the Regulation of Engineering in Nigeria (COREN:R29230) 2014
- Nigeria Society of Engineers (Membership No.: 320333) 2014
- Nigerian Institute of Management (Membership No.: 96199) 2008
- Cisco Certify Network Associate (CCNA) 2007  
(Certification Verification No.: 3936941750591QCH)
- Institute of Electrical and Electronic Engineers (IEEE), USA 2003

## 6. **Honors and awards**

Student Choice of the year Lecturer Awards  
(2020/2021);

Association of Electrical Electronics Engineering Students Covenant University, Ota, Ogun State.

Certificate of Excellence: Best Postgraduate Researcher award (2020); College of Engineering, Covenant University. Students' Choice Lecturer Awards (2019); Association of Electrical Electronics Engineering Students Covenant University, Ota, Ogun State.

Certificate of Excellence: Third Position, Best Postgraduate Researcher award (2018); College of Engineering, Covenant University.

## 7. **Service activities (within and outside of the institution)**

Chair; Information and Communication Engineering  
COREN  
Accreditation Committee; College of Engineering;  
Covenant  
University; Nigeria; 1<sup>st</sup> July 2021 till date

## 8. **Selected publication**

1. Okokpujie, K., Kennedy, C.G., Nnodu, K., Noma-Osaghae, E. (2023). Cybersecurity awareness: Investigating students' susceptibility to phishing attacks for sustainable safe email usage in academic environment (a case study of a Nigerian leading university). *International Journal of Sustainable Development and Planning*, Vol. 18, No. 1, pp. 255-263. <https://doi.org/10.18280/ijmdp.180127> [Scopus-indexed]
2. Okokpujie, Kennedy, Imhade P. Okokpujie, Odumuyiwa I. Ayomikun, Abidemi M. Orimogunje, Adebayo T. Ogundipe (2023) Development of a Web and Mobile Applications-Based Cassava Disease Classification Interface Using Convolutional Neural Network. *Mathematical Modelling of Engineering Problems*, 2023, 10(1), pp. 119–128. <https://doi.org/10.18280/mmep.100113> [Scopus-indexed]

3. Okokpujie, K., Kennedy, G.C., Oluwaleye, S., John, S.N., Okokpujie, I.P. (2023). An Overview of Self-Organizing Network (SON) as Network Management System in Mobile Telecommunication System. In: So-In, C., Londhe, N.D., Bhatt, N., Kitsing, M. (eds) Information Systems for Intelligent Systems . Smart Innovation, Systems and Technologies, vol 324. Springer, Singapore. [https://doi.org/10.1007/978-981-19-7447-2\\_28](https://doi.org/10.1007/978-981-19-7447-2_28)
4. Okokpujie, K., Mughole, D., Badejo, J.A., Adetiba, E. (2022) Congestion Intrusion Detection-Based Method for Controller Area Network Bus: A Case for KIA SOUL Vehicle. *Mathematical Modelling of Engineering Problems*, 2022, 9(5), pp. 1298–1304. <https://doi.org/10.18280/mmep.090518> [Scopus-indexed]
5. Okokpujie, K., Kennedy, C.G., Ayankoya, D., Bhandari, K.S., Kalibbala, J.M. Development of a Real-Time Home Security and Safety Management System. *Lecture Notes in Networks and Systems*, 2022, 395, pp. 100–106. [Scopus-indexed]
6. Kennedy, C.G., Okokpujie, K., Noma-Osaghae, E., Bhandari, K.S., Kalibbala, J.M. On Information Technology Disaster Recovery and Its Relevance to Business Continuity. *Lecture Notes in Networks and Systems*, 2022, 395, pp. 90–99. [Scopus-indexed]
7. Noma-Osaghae, E., John, S.N., Aragha, A.I., Okokpujie, K. Optimizing Stochastic Small Base Station Deployment with Particle Swarm Technique. *Lecture Notes in Networks and Systems*, 2022, 438 LNNS, pp. 918–936. [Scopus-indexed]
8. Okokpujie, I.P., Odigilia, I.M., Okokpujie, K., Subair, R.E., Ogundipe, A.T., Tartibu, L.K. and Ikumapayi, O.M., 2022. Influence of Corporate Social Responsibility on Business Evaluation of Mobile Communication Network MTN in Nigeria. *Planning*, 17(7), pp.2199-2207. [Scopus-indexed]
9. Okokpujie, I. P., Okokpujie, K., Omidiora, O., Oyewole, H. O., Ikumapayi, O. M., & Emuowhochere, T. O. (2022). Benchmarking and Multi-Criteria Decision Analysis towards Developing a Sustainable Policy of Just in Time Production of Biogas in Nigeria. *Planning*, 17(2), 433-440. [Scopus-indexed]
10. Noma-Osaghae, E., Okokpujie, K., Famoroti, D., & John, S. (2022). The Validity of a Decentralized Simulation based System for the Resolution of Road Traffic Congestion. *Journal of Applied Engineering Science*, 1-11. [Scopus-indexed]
11. Okokpujie, K., Noma-Osaghae, E., John, S. N., Ndujiuba, C., & Okokpujie, I. P. (2021). Comparative analysis of augmented datasets performances of age invariant face recognition models. *Bulletin of Electrical Engineering and Informatics*, 10(3). [Scopus-indexed]
12. Okokpujie K., Reuben A., Ofoche J. C., Biobelemoye B. J., & Okokpujie I. P. (2021). A Comparative Analysis Performance of Data Augmentation On Age-Invariant Face Recognition Using Pretrained Residual Neural Network. *Journal of Theoretical and Applied Information Technology*, 99(6). [Scopus-indexed]

13. Okokpuije K., Abubakar J., John S., Noma-Osaghae E., Ndujiuba C., & Okokpuije (2021) I. P. A Secured Automated Biomodal Biometric Electronic Voting System. IAES International Journal of Artificial Intelligence, Vol. 10, Iss. 1, 1-8. DOI: 10.11591/ijai.v10.i1.pp1-8. [Scopus-indexed]

**9. Professional Development**

- Editor of the TELKOMNIKA (Telecommunication, Computing, Electronics and Control) a Journal indexed in Scopus. 2020 till date, index in Scopus
- Reviewer: Review for IEEE Access, USA. Reviewer; 2018 till date.
- Review for TELKOMNIKA Telecommunication Computing Electronics and Control. Reviewer; 2018 till date, index in Scopus
- Review for International Journal of Electrical and Computer Engineering. Reviewer; 2018 till date, index in Scopus
- Review for Bulletin of Electrical Engineering and Informatics. Reviewer; 2018 till date, index in Scopus

**Engr. Tiwalade Odu**



**1. EDUCATION**

| Degree | Discipline           | Institution         | Year |
|--------|----------------------|---------------------|------|
| M.Eng  | Computer Engineering | Covenant University | 2012 |
| B.Eng  | Computer Engineering | Covenant University | 2007 |

**2. ACADEMIC EXPERIENCE**

| From – To | Institution | Rank/Title | Full Time/Part |
|-----------|-------------|------------|----------------|
|           |             |            |                |

|                |                     |                    |           |
|----------------|---------------------|--------------------|-----------|
|                |                     |                    | Time      |
| 2015 - present | Covenant University | Lecturer II        | Full Time |
| 2012 - 2015    | Covenant University | Assistant Lecturer | Full Time |
| 2009 - 2012    | Covenant University | Graduate Assistant | Full Time |

### 3. NON-ACADEMIC EXPERIENCE

| Company                        | Title            | Description of Position   | Year – Year | Full Time/Part Time |
|--------------------------------|------------------|---|-------------|---------------------|
| Zenith Bank Plc.               | IT Support Staff | Support and implementation of PayDirect, XPATH, Phoenix applications.   | 2008        | Full Time           |
| Zenith Bank Plc.               | Teller           | <ul style="list-style-type: none"> <li>▪ Posting of transactions on XPATH and Phoenix applications.</li> <li>▪ Management of cash centres.</li> </ul>   | 2007 – 2008 | Full Time           |
| 21st Century Technologies Ltd. | Intern           | <ul style="list-style-type: none"> <li>▪ Configuration of systems for dial – up internet connection.</li> <li>▪ Network Monitoring using WhatsUp Gold, HP OpenView, Huawei Quidview, The Dude softwares.</li> <li>▪ Cross – connection at the Main Distribution Frame (M.D.F).</li> <li>▪ Configuration of Digital Subscriber Line (D.S.L) modems.</li> </ul> | 2006        | Full Time           |

### 4. CURRENT MEMBERSHIP OF PROFESSIONAL ORGANISATIONS

1. Corporate Member, Nigerian Society of Engineers (N.S.E.) – Registration Number - 44367
2. Registered Engineer with the Council for Regulation of Engineering in Nigeria (COREN) - R. 39,273

### 5. HONORS AND AWARDS

2012, Recipient of IEEE (Biometrics Council) Travel Grant for the 9th International Summer School on Biometrics, Alghero, Italy.

### 6. SERVICE ACTIVITIES

1. Chair, Covenant University Scholastic Aptitude Screening (CUSAS) 2019 Welfare Subcommittee.

2. Member, Covenant University Scholastic Aptitude Screening (CUSAS) 2019 Committee.
3. Member, Covenant University Students' Support Programme Committee; 2012 - 2018
4. Member, Souvenir Sub-Committee for 2011 Covenant University Convocation Ceremony.

## 7. SELECTED PUBLICATIONS AND PRESENTATIONS IN THE PAST 5 YEARS

1. **Tiwalade Odu** and Joke Badejo "Development of a Recognition Algorithm for Newborn and Infant Fingerprints", Proceedings of the 2017 International Conference on Computational Science and Computational Intelligence (CSCI), Las Vegas, U.S.A, 14 – 16 September, 2017.
2. Joke A. Badejo, **Tiwalade Odu** and Aderemi Atayero "Integrating Automated Fingerprint-based Attendance into a University Portal System", Proceedings of the 2017 International Conference on Computational Science and Computational Intelligence (CSCI), Las Vegas, U.S.A, 14 – 16 September, 2017.
3. Integrating Automated Fingerprint-Based Attendance into a University Portal System  
Badejo, J.A. Eke, C.C. Popoola, S.I. **Odu**, **T.O.** Atayero, A.A.  
Proceedings - 2017 International Conference on Computational Science and Computational Intelligence, CSCI 2017, 2018
4. Development of a recognition algorithm for newborn and infant fingerprints  
**Odu Tiwalade Olubukola**, Badejo Joke Atinuke  
2017 International Conference on Computational Science and Computational Intelligence (CSCI)
5. Effective Face Feature for Human Identification  
SA Daramola, **T Odu**, O Ajayi  
Proceedings of World Congress on Engineering
6. From Challenges to Creativity: A Final Year Project Case Study  
J Badejo, G Kagho, **T Odu**  
INTED2014 Proceedings, 2014
7. Biometric enabled e-banking in Nigeria: Management and Customer's perspectives  
AA Adewale, AS Ibidunni, J Badejo, **T Odu**, AU Adoghe  
Information and knowledge management, 2014
8. A simplified overview of Text-To-Speech synthesis. Onaolapo, J.O. Idachaba, F.E.  
Badejo, J. Odu, **T. Adu**, O.I.

## 8. PROFESSIONAL DEVELOPMENT

9<sup>th</sup> Summer School for Advanced Studies on “Biometrics for Secure Authentication: Understanding Man-Machine Interactions in Forensics and Security Applications.” June 8 – 15, 2012.

**Engr. Temitope O. Takpor**



### 1. Education

| Degree | Discipline                 | Institution         | Year |
|--------|----------------------------|---------------------|------|
| M.Sc.  | Communications Engineering | Durham University   | 2009 |
| BEng.  | Computer Engineering       | Covenant University | 2008 |

### 2. Academic experience

| Institution         | Rank        | Title              | Dates Held  | FT/PT |
|---------------------|-------------|--------------------|-------------|-------|
| Covenant University | Lecturer II | Project Supervisor | 2015 - 2021 | FT    |

|                     |                    |                  |             |    |
|---------------------|--------------------|------------------|-------------|----|
| Covenant University | Assistant Lecturer | Academic Adviser | 2012 – 2015 | FT |
|---------------------|--------------------|------------------|-------------|----|

### 3. Non-academic experience

| Organisation  | Title   | Duties  | Dates     | FT/PT |
|---|---|---|-----------|-------|
| United Bank for Africa Plc (UBA), Lagos, Nigeria              | Marketing / Customer Services Trainee (NYSC)  | <ul style="list-style-type: none"> <li>• Opening of Account</li> <li>• Provided appropriate solutions &amp; information to customers</li> </ul>   | 2011-2012 | FT    |
| World Mission Agency, Winners Chapel International London, UK | Trainee Finance Officer (Volunteer)           | <ul style="list-style-type: none"> <li>• Internal auditing</li> <li>• Reconciled suppliers' accounts</li> <li>• Coordinated Gift Aid claims on donations</li> </ul>   | 2010      | FT    |
| Great Brands Nigeria Ltd, Lagos, Nigeria                      | Trainee System Engineer (Industrial Training) | <ul style="list-style-type: none"> <li>• Set up new systems and installed programs on systems</li> <li>• Wired Ethernet cables and connected systems to the LAN</li> <li>• Maintenance on systems and printers</li> </ul> | 2007      | FT    |

### 4. Certifications or professional registrations

- Corporate Member, of Nigerian Society of Engineers (**NSE**), No. **49384**
- Graduate Student Member of Institute of Electrical and Electronics Engineers (**IEEE**), No. **92563286**
- Member of Computer Vision Foundation (**CVF**), No. **11699**

- Member of International Association of Engineers (**IAENG**) No. **138424**

#### 5. Current membership in professional organizations

- Member, Nigerian Society of Engineers (M.N.S.E).
- Graduate Student Member of Institute of Electrical and Electronics Engineers (IEEE)
- Member of IEEE Engineering in Medicine and Biology Society
- Member of IEEE Communications Society
- Member of IEEE Women in Engineering
- Member of International Association of Engineers (IAENG)
- Member of Computer Vision Foundation

#### 6. Honors and awards

- 2019, Nominated as one of the Challenge Grant Winners to make a presentation at Facebook AI 1<sup>st</sup> Workshop on Computer Vision for Global Challenges (CV4GC) at IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2019. Poster presentation “Computer Vision for Childbirth Progression Monitoring: Cervical Dilation Assessment”
- 2019, Research Scholarship grant – African Biomedical Engineering Mobility Scholarship to University of Cape Town (UCT), South Africa.
- 2014, Best Paper Award of International Conference of Computer Science and Engineering, presented at The World Congress on Engineering (WCE) 2014 London, UK.

#### 7. Service activities (within and outside of the institution)

- Chairman; Electrical and Information Engineering Departmental Welfare Committee, 2021
- Member; Student Support Programme Committee, Covenant University, 2018- 2019
- Partner; Faith Abiola Oyedepo Foundation (FAOF), 2018-2019
- Winners Satellite Fellowship Secretary, Living Faith Church, Faith Tabernacle Ota, 2018-2019
- Member; Faculty Women Advance, Covenant University, 2017- 2019
- Member; Electrical and Information Engineering Departmental Welfare Committee, 2016-2018
- Mentor; Two David Oyedepo Foundation (DOF) Scholars, 2015- 2017
- Member; Committee on International Office and Linkages on MOUs and Collaboration, Covenant University, 2014-2016.



## 8. List of Selected Publications

1. Smart assistive mHealth system for medication adherence in patients with Alzheimer's disease

**Takpor, T.O.** Ademola, J. Popoola, S.I. Badejo, J.A. Atayero, A.A.

Lecture Notes in Engineering and Computer Science, 2017

2. Occupancy controlled lighting system for smart buildings

Atayero, A.A. Ademola, J. Popoola, S.I. **Takpor, T.O.** Badejo, J.A.

Lecture Notes in Engineering and Computer Science, 2017

3. ECG biosignal: Vital for detecting cardiovascular diseases

**Takpor, T.O.** Ndujuba, C.

Lecture Notes in Engineering and Computer Science, 2016

4. Advances in optical biomedical sensing technology

**Takpor, T.O.** Agboje, O.E.

Lecture Notes in Engineering and Computer Science, 2016

5. Integrating internet of things and EHealth solutions for students' healthcare

**Takpor, T.O.** Atayero, A.A.

Lecture Notes in Engineering and Computer Science, 2015

6. Advances in current techniques for monitoring the progress of child delivery

**Takpor, T.O.** Atayero, A.A. Lecture Notes in Engineering and Computer Science, 2014

7. Analysis and simulation of LTE downlink and uplink transceiver

Takpor, T.O. Idachaba, F.E. Lecture Notes in Engineering and Computer Science, 2014

## 9. Professional Development

A Challenge Grant Winner of Computer Vision for Global Challenges (CV4GC), organized by Facebook Artificial Intelligence and Partnership on AI at their 1<sup>st</sup> Workshop in IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2019. Poster presentation “Computer Vision for Childbirth Progression Monitoring: Cervical Dilation Assessment”

## Adjunct/Visting Academic Staff

Dr. Samuel T. Owoeye



### List of Selected Publications

1. An Assessment of Social Interaction Responsiveness of Selected Online Resources for French Vocabulary Learning by Foreign Learners  
**OB Samuele Owoeye.** Maryam Tar, Eugenia Abiodun-Eniayekan  
International Journal of Languages' Education and Teaching, 2019
2. Elements of Study Skills. **ST Owoeye.** Book Chapter, 4-9, 2019
3. Correlation of hepatobiliary ultrasonographic findings with cd4cell count and liver enzymes in adult hiv/aids patients in Jos  
A Angbalaga, CC Ani, D Atsukwei, ED Eze, AM Afodun, EO Igoh, ...  
Journal of AIDS and HIV Research, 2018

4. A Lexeme-Based Study Of The Agentive French Suffixes-Ant-Eur And-Iste  
**ST Owoeye**, OT Babatunde, Facta Universitatis, Series: Linguistics and Literature, 2018
5. Pillars of Success in Scriptures. **ST Owoeye**. Lecture Note, 1-8, 2018
6. A Propos Du Statut Agentif Des Suffixes –Ant, -Ier, -Iste Et –Oir Du Francais  
**ST Owoeye**, AE Eugenia, T Maryam, OT Babatunde  
Journal of Languages, Linguistics and Literary Studies (JOLLS) 5 (June 2018)
7. Contraintes suffixales et la disponibilité morphologique  
**ST Owoeye**, M Tar, E Abiodun-Eniayekan, OT Babatunde  
TRIPLEL - International Journal of Arts, Languages, Linguistics and Literary, 2018

ENGR. Dr. Olatayo Moses OLANIYAN (Ph.D.)

1. **Education** – degree, discipline, institution, year

| Degree | Discipline                       | Institution   | Year |
|--------|----------------------------------|---|------|
| Ph.D   | Computer Science and Engineering | Ladoke Akintola University of Technology, Ogbomoso, Nigeria | 2015 |
| M.Sc   | Computer Science                 | University of Ibadan, Ibadan. Oyo state, Nigeria            | 2009 |
| B.Tech | Computer Engineering             | Ladoke Akintola University of Technology, Ogbomoso, Nigeria | 2005 |

2. **Academic experience** – institution, rank, title  
(chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

| Institution  | Rank            | Title   | Dates Held            | FT/P<br>T |
|--|-----------------|---|-----------------------|-----------|
| Department of Computer Engineering<br>Federal University Oye-Ekiti | Reader          | HoD, Computer Engineering<br>University SIWES<br>Director.<br>Faculty SIWES AND<br>SWEP Coordinator | 2021-<br>Till<br>Date | FT        |
| Federal University Oye-Ekiti                                       | Senior Lecturer | -HoD, Computer Engineering<br>-Post Graduate Coordinator  | 2018-<br>2021         | FT        |
| Federal University Oye-Ekiti                                       | Lecturer I      | -Faculty SIWES AND SWEP<br>Coordinator  | 2015-<br>2018         | FT        |
|  | Lecturer II     |   |                       | FT        |

|  |                    |   |               |    |
|--|--------------------|---|---------------|----|
| Department of Computer<br>Science and Technology<br>Bells University of<br>Technology Covenant<br>University Ota, Ogun State |                    | -Examination officer for the<br>college | 2011-<br>2014 |    |
| Department of Computer<br>Science and Technology<br>Bells University of<br>Technology, Ota, Ogun<br>State                    | Assistant Lecturer |   | 2009-<br>2011 | FT |
| Department of Computer<br>Science and Technology<br>Bells University of<br>Technology, Ota, Ogun<br>State                    | Graduate Assistant |   | 2007-<br>2009 | FT |

3. **Non-academic experience** – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

| Organisation                             | Title   | Duties           | Dates       | FT/PT |
|--|---|------------------|-------------|-------|
| SKANNET<br>Bodija, Ibadan.<br>Oyo State. | Client Service<br>Engineer/ Technician<br>Trainee | Service Engineer | 2003 – 2004 | FT    |

4. **Certifications or professional registrations**

- Registered Engineer by the Council for the Regulation of Engineering in Nigeria (R.Engr. COREN) -
- Proficient Certificate in Management (NIM)

5. **Current membership in professional organizations**

- Member, Nigerian Society of Engineers (MNSE).
- Member, Computer Professional Registration Council of Nigeria (CPN)
- Member, The Society of Digital Information and Wireless Communications

6. **Honors and awards**

- Award of the Best coach at Universities Computer Programming Contest (2010)
- Award of the Best coach at Universities Computer Programming Contest (2011)

7. **Service activities (within and outside of the institution)**

- Head of Department, Department of Computer Engineering Federal University Oye- Ekiti Nigeria - (January 2021- till date).
- University SIWES Director (2021)
- College Examination Officer for College of ICT
- Planning and Implementation team player: 2008/2009 NUC Accreditation Exercise for the College of ICT
- Department of Computer Science and Technology Part three level Advisor
- COLICT Hardware Laboratory Administrator
- Maiden College lecture planning and implementation committee member
- Team leader: 2010/2011 Computer competition at Redeemer University.
- Member: University Industrial Training (SIWES) Committee

## 8. Selected publications

- **Olatayo Moses Olaniyan**, Ayobami Taiwo Olusesi, Bolaji Abigail Omodunbi, Wajeed Bolanle Wahab, Olusogo Julius Adetunji (2023): A Data Security Model for Mobile Ad Hoc Network Using Linear Function Mayfly Advanced Encryption Standard. International Journal of Emerging Technology and Advanced Engineering. (E-ISSN 2250-2459, Scopus Indexed, Volume 13, Issue 03, March 2023) [www.ijetae.com](http://www.ijetae.com)(**Indexed in Scopus**)
- Oluwaseun Opeyemi Martins, Adefemi Adeyemi Adekunle, **Olatayo Moses Olaniyan**, Bukola Olalekan Bolaji (2021). An Improved multi-objective a-star algorithm for path planning in a large workspace: Design, Implementation, and Evaluation. African Institute of Mathematical Sciences / Next Einstein Initiative. Journal homepage: [www.elsevier.com/locate/sciaf](http://www.elsevier.com/locate/sciaf) (**ELSEVIER**) (**Indexed in Scopus**)
- **Olaniyan O.M**, Olusesi A.T, Omodunbi B.A, Esan A.O, Wahab W.B, Oyediran M.O, Adanigbo O.O (2020). Power Aware and Secured Routing Protocol in Mobile AD-HOC Network: A SURVEY. International Journal of Advanced Research in Engineering and Technology. (IJARET), 11(7):706-717(Indexed In Scopus).  
<http://www.iaeme.com/IJARET/issues.asp?JType=IJARET&VType=11&IType=7>
- **Olaniyan O.M**, Albas J, Ogude U.C (2020). Implementing Decentralized Fortified Voting System Using Blockchain Technology. Fuoye Journal of Pure Applied Science 5(1):180-191. *Published by Federal University Oye Ekiti.* (UNIVERSITY BASED)

## 9. Professional Development

**Dr. Olamide. O. Olusanya**



**List of Selected Publications**

1. Design and Implementation of a Certificate Verification System using Quick Response (QR) Code OO Mayowa, EW Adedayo, OO Olamide, JAP Awokola, QB Sodipo  
Lautech Journal Of Computing And Informatics 2 (1), 35-40, 2021
2. Evaluation of Customer Service Delivery in Banking Operation Using Python  
OO Omolara, OA Ayodeji, OA Taiwo  
American Journal of Electrical and Computer Engineering 5, 2021
3. Simulation of a Model for International Traveler's Check-In Process Using Arena Software Tool, AWE J. L. Obetta, O. O. Olusanya, M. O. Oyediran\*, W. B. Wahab, A. T. Olusesi  
Engineering, 13, 125-134, 2021
4. Development of a Model for International Traveler's Check-In Process Using Arena Software Tool, OO Olusanya, JL Obetta, MO Oyediram, AW Elegbede  
Engineering, 2020
5. Modelling and Simulation of Nigerian Airspace Management Agency Billing System Using Python Simulation Packages  
OO Omolara, AC Reginald, OM Oyedepo, EA Wasiat, OA Taiwo  
American Journal of Mathematical and Computer Modelling, 2020

6. Design and implementation of a prototype active infrared sensor controlled automatic sliding door for mitigation of coronavirus disease 2019 (COVID-19)  
A Amole, MO Oyediran, OO Olusanya, WA Elegbede, AT Olusesi,  
Journal of Electrical, Control and Telecommunication Research, 2020
7. Computing Framework Incorporating Bring Your Own Component Strategy for Higher Education Institutions. SRI xiii. Periola A.A., Olusanya O.O  
Journal of the Nigerian Academy of Engineering, 2020
8. An Embedded Arduino based LPG Detection System with SMS Alert and Automatic Gas Shut Off. AK xii. Olusanya Olamide O., Oyediran Mayowa O., Usman Musa, Elegbede  
Journal of Scientific and Engineering Research, 2019
9. Development of a Matlab Based Pattern Design System for Plain Textile (Ankara)  
AAO ElegbedeAdedayo W., OlusanyaOlamide O., OyediranMayowa O.  
IOSR Journal of Computer Engineering (IOSR-JCE), 2019
10. Modelling and Simulation of Deposit Slip Mode of Bank Cash Deposit Transactions Using Hierarchical Timed Coloured Petri-Nets  
OO Olusanya, EO Omidiora, SO Olabiyisi, RA Ganiyu  
Journal of Engineering Research and Reports, 2018
11. Development of A Model for Bank Cash Deposit Transactions Using Hierarchical Timed Coloured Petri Nets. OO Olusanya, EO Omidiora, SO Olabiyisi, RA Ganiyu  
International Journal of Engineering Research and Development