DEPARTMENT OF COMPUTER ENGINEERING

SCHOOL OF ENGINEERING
AMERICAN UNIVERSITY OF NIGERIA

UNDERGRADUATE CATALOG 2022 – 2027

Undergraduate Catalog Disclaimer

Department of Computer Engineering, School of Engineering, American University of Nigeria makes every reasonable effort to provide accurate information in this catalog. This Catalog is effective from 2022 academic year and the content is subject to change. Its purpose is to provide current students and other interested persons with information about the institution. The university reserves the right to change without prior notice, rules and regulations relating to admission, instruction, and graduation; to alter course offerings, and change the calendar. All changes will be effective as authorized by the appropriate offices. It is the student's responsibility to remain aware of expectations for his/her level of study. It is recommended that students regularly check this Catalog for possible changes.

SCHOOL OF ENGINEERING
We Design, We Build

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Professor Attahir B. Yusuf
President/Vice Chancellor, AUN (Interim)



Dr. Patrick Fay
Chairman Deans' Council, AUN

SCHOOL OF ENGINEERING

Dean's Welcome Message



My Dear Students,

I welcome you to the School of Engineering, American University of Nigeria (AUN).

As a guide to your successful career, I want to draw your attention to the fact that the catalog of the School is your most important guiding compass throughout your stay in AUN. The document spells out the philosophy and objectives of the engineering programs, according to the National Universities Commission (NUC) Benchmark Minimum Academic Standards (BMAS). It also provides all the codes of conduct, and specifies the 5-year course plan for each of the engineering programs.

As we all know, Science is about knowing, but engineering is about doing - about identifying and solving problems.

I therefore expect all of you to be inspired and sustain your interest in the engineering profession that you have chosen. The word ''ENGINEERING'' comes from the Latin word INGENIUM - meaning ''CLEVERNESS'' and INGENIARE meaning '' TO DESIGN or DEVISE''.

It goes without saying that Engineers are creators. They are the driving force behind the designs, buildings and innovations for sustainable development that shape the world we live in. As you join us at the School of Engineering in AUN, you will gain real-world experience, because we will teach you problem-solving skills and also teach you how to design and build to solve our societal problems. Mathematics, being an essential backbone for engineering, provides you with the platform to gauge all engineering principles, applications; and when you use it along with science, you can apply scientific principles to design, build and innovate for sustainable development.

In July 2019, the National Universities Commission (NUC) approved the establishment of the full time mode of our undergraduate engineering programs to run on our campus, effective from the 2019/2020 academic sessions. Currently, our School offers the following undergraduate programs, leading to the award of Bachelor of Engineering (B.Eng.): 1. Chemical Engineering; 2. Civil Engineering; 3. Computer Engineering; 4. Electrical & Electronics Engineering, and 5. Telecommunications Engineering.

At AUN, we thrive on critical and creative thinking in line with world class Faculty that will shape the future of engineering & technology.

AUN is an institution built on the core philosophy of entrepreneurship and development, providing American style Liberal Arts education.

AUN guarantees study abroad opportunities whereby our students can study abroad at any of our 28 partner universities in the Global Liberal Arts Alliance and the 74 institutions in the Association of American International Colleges and Universities, whilst still paying AUN tuition fees. At the end of

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their studies, the credits earned from studying overseas are transferred back to AUN, to ensure that participating students are able to graduate on schedule.

AUN maintains small class-size on a 24/7 wireless campus; digital library; 24/7 security surveillance; fully air conditioned residence halls and classrooms; American style Liberal Arts education; active student life and many opportunities for students to serve the community; and we maintain state of the art research and lab facilities.

In November 2022, Engineering Students' Society (ESS) was founded at AUN, with the core philosophy of solving societal problems around Nigeria, Africa and the world. Students of School of Engineering are automatically members of the Engineering Students' Society (ESS).

An important advantage of joining academic studies at AUN, is that, no matter what degree subject students plan to study, we will teach you Telecommunications & Computer networking and emerging mobile technology, which are prerequisite of our modern world. It is our aim at AUN to provide you with the fundamentals of networks and networking, and provide you with the practical insights of the software and hardware components, that make up the Telecommunications & Computer networks and emerging mobile technology.

Our teaching provides breadth and depth in the field of Engineering, nurturing strong theoretical and practical skills to set the foundation in the digital revolution. The balance between theory and practice elevates the students to the frontier of Innovation in Science & Technology, thereby opening opportunities in government, industry and academic teaching and research.

I like to conclude by thanking you so much for reading. I once again welcome you onboard the AUN train! Welcome to the School of Engineering, American University of Nigeria (AUN).

Abubakar Sadiq Hussaini, MSc, PhD
Dean & Founding Chairman, School of Engineering,
Reader In Telecommunications Engineering

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AUN Vision, Mission, Values Statement and Learning Outcomes

Vision

AUN seeks to become a great center of learning and research for Nigeria and Africa, and a catalyst for development in the entire world. In the words of its Founder, it sees its role as a "Development University." Thus, the University will honor the traditional university roles of repository and transmitter of culture and knowledge, and center for the creation of new knowledge. As a "Development University," it will also focus on the practical roles that a great university must play in the development of a great nation and continent.

Mission

To these ends as a "Development University," AUN will foster the creation of leaders committed to sustaining a democracy in which diverse people share in the rights and responsibilities of citizenship, are proficient in creating and applying technology to wise purpose, and are dedicated to securing a humane and prosperous world.

AUN will become a place where students' dreams become Africa's future. At AUN, lives will be transformed for service and leadership to lead Africa and the world in what will surely be the challenging years ahead. To realize this vision and fulfill our mission, we will focus our planning on the following strategic goals: AUN will

Goal 1:	Be the Development University for Africa.
Goal 2:	Retain and recruit faculty with the highest standards of academic excellence who are devoted to teaching, research and mentoring students to solve societal problems.
Goal 3:	Foster and build an environment that develops students who are problem solvers, and whose lives are transformed for service and leadership.
Goal 4:	Develop and encourage the effective use of technology to support learning and research by students and faculty.
Goal 5:	Develop the physical environment to support the learning, teaching and research goals of a Development University.
Goal 6:	Accelerate and sustain financial growth to achieve financial stability.
Goal 7:	Help create and sustain a social and political environment supportive of these goals.

Values Statement

Our values statement defines what we hold in common as members of the AUN community, and informs our vision and mission statements.

- We believe that tolerance and understanding among national, ethnic, and religious groups are essential to the success of Nigeria or any other nation. The University will actively work to instil these values in its students and will itself reflect them in its policies.

- We believe that the University, in all of its activities, shall demonstrate the highest standards of integrity, transparency, and academic honesty.

- We believe that freedom of expression is fundamental to any intellectual community and affirm that all members of the AUN community will have the freedom to express any opinion without fear of reprisals of any kind.

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Sustainability
AUN has adopted a strategic vision to be a Sustainability Leader in all facets of its operations not only in Education and in Africa but also globally.

AUN Learning Outcomes

I. Capacity to think critically and independently, and apply knowledge to solve problems

- Students will develop the skills to analyze, synthesize, and evaluate data and information.
- Students will communicate effectively through expressive and receptive methods (written, oral, quantitative, visual) using appropriate resources, including digital technologies.
- Students will be able to identify, appreciate, and strategize everyday problems.
- Students will develop emotional intelligence.

II. Understanding the importance of sustainable development

- Student will innovate to solve social and development problems.
- Students will develop the ability to apply knowledge to solve social problems.
- Students will develop social responsibility to others through engaging in community service-based projects.
- Students will demonstrate an understanding of national and global issues to function effectively as responsible democratic citizens and global change agents.
- Students will understand and develop the capacity to function effectively in other cultures.
- Students will be able to define their identity in relation to cultural and social differences to include gender, religion, ethnicity, and different lifestyles.

III. Disciplinary and Interdisciplinary knowledge, skills and values

- Students will gain mastery of both disciplinary and interdisciplinary knowledge through their majors and minors. They will be able to use this knowledge to understand their world and participate in civil society.
- Students will gain an appreciation for a liberal arts education.

IV. Ethics

- Students will develop the capacity to act on ethical judgments.
- Students will conduct themselves with honesty and integrity.
- Students will develop a personal code of ethics to guide decision-making rooted in a sense of responsibility as a member of society.

V. Leadership

- Students will become responsible and courageous leaders who will hold themselves and others accountable.

VI. Sustainability

- Students will understand and appreciate economic, political, environmental, and social connections in order to build a sustainable future.
- Students will develop the discipline to manage abundant or scarce resources.

VII. Entrepreneurship

- Students will develop the knowledge and skills to recognize and act innovatively on business and social opportunities.

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VIII. Life Skills, Personal Development, and Careers

- Students will be able to prioritize and manage resources effectively.
- Students will be able to manage and resolve conflict productively.
- Students will be able to master independent living skills.
- Students will be able to practice physical, emotional, spiritual wellness.
- Students will be able to compete effectively for a job.
- Students will become lifelong learners.

Engineering Learning Outcomes

a) Regime of Subject Knowledge
Fundamental Emphasis
The programs in engineering shall be designed with full recognition that:

Mathematics and Science are the basic intellectual tools which graduate engineers use to understand and harness the forces of nature to the benefit of mankind. Students need to develop a good understanding of science in general and study the specific sciences in their chosen disciplines to a greater depth. Engineering is professionally directed toward the skilled application of distinctive knowledge based primarily on mathematics and science integrated with business and management in developing, providing and maintaining infrastructure, goods and services for industry and the community.

Criteria for content of degree programs
These are viewed in the context of the understanding and development of skills in mathematics, science, design, information technology, business know-how and professional practice.

Mathematics Content
Appropriate mathematical methods shall be ensured in the program. The knowledge level should include ability to select and apply appropriate mathematical modeling and analyzing engineering problems. It should also include development of transferable skills in terms of manipulation and sorting of data, presentation of data in a variety of ways. The mathematics content of each engineering curriculum should provide opportunities for understanding of significant number of mathematical methods in the particular discipline including an appreciation of their limitation and ways of applicability.

Science Content
The science level selected shall be as deemed appropriate to the specific discipline. It should be capable of imparting knowledge, understanding intellectual abilities and practical skills to use relevant scientific principles in the development of engineering solution to practical problems; use of scientific principles in modeling and analysis of engineering systems, processes and products.

Design Content
Adequate design training shall be ensured. This includes assurance of understanding of general principles of design and design techniques specific to particular products and processes; development of intellectual capabilities in analysis of systems, processes and components requiring engineering solutions; Creation of new processes or products through synthesis of ideas from a wide range of sources; and assurance of knowledge and understanding of the characteristics of engineering materials and components.

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Information Technology
Knowledge, understanding and intellectual abilities shall be assured in principles and application of information technology in general and also specific to the discipline. These shall include ability to select and apply appropriate computer based methods designed for modeling and analyzing engineering problems.

Business Content
Each program shall include adequate knowledge, understanding and intellectual capabilities in management and business practices, including finance, law, marketing, engineering economics, etc.

Professional Practice
Adequate elements of activities in the practice of engineering shall be ensured. These include applicable codes of practice, safety requirements, manufacturing, operational practice, project management, technical risk evaluation, environmental impact assessment and environmental auditing. Strong attachment of students to industry should be ensured.

b) Competencies and Skills
Each curriculum should provide opportunities to develop in the student competencies and skills in the various components of the regime of knowledge. These include the following:

(i) Ability to manipulate data in alternative forms to create deeper understanding.
(ii) Use of relevant test and measurement equipment including assemblage and use of experimental laboratory/workshop activities; ability to estimate errors/accuracy of measurements.
(iii) Research for information to develop ideas further and working with limited or contradictory information.
(iv) Use of information technology tools, including programming languages and a broad understanding of common information technology tools.
(v) Ability to apply engineering techniques taking into account, industrial and commercial constraints, to learn independently and understand new concepts in the discipline.
(vi) Competence in teamwork and leadership.

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c) Behavioral Attributes
Graduating engineering students must have an understanding of their professional and ethical responsibilities. Therefore, the broad education necessary to understand these and the impact of their work in a global and societal context (including awareness of relevant contemporary issues) should be ensured.

America In Yola: How An American Education Is Different

Coming to AUN and experiencing an American-style university education is new for most African students and for their parents. We are very conscious of the cultural differences (and similarities) between Nigeria and the United States and work hard to develop an intercultural understanding among all members of the AUN community. An American-style education focuses on critical thinking, problem solving and leadership development. In addition, our education is based on the following principles: that every individual deserves equal respect, is unique, and deserves the knowledge and skills to be good citizens in order to improve society.

General Education

Unlike universities in many other countries, in addition to studying a specialty such as "Petroleum Chemistry" or "Marketing" or "English Literature," American universities have programs in "General Education." That means students study more broadly; they learn ideas from other specialties. They learn ethics, and history, and culture, and languages, and literature, and science. We call this a "well-rounded" education. We are training not just specialists, but also knowledgeable global citizens.

Majors And Minors

As in all universities, each student is expected to specialize in a particular course of study. In the American system, such specialties are called "majors." All students will graduate with a particular major. Some students also want to learn about another field of study in some depth, but not as their primary focus. In the American system, such sub-specialties are called "minors." Thus, one could major in Economics and minor in Journalism, or have some other combinations.

Electives

Some courses are required of all students, and some are courses that students choose themselves as electives. Students (with the help of their Chair and academic advisors) get to choose which course in science--for example--is most interesting and helpful. Even "majors" and "minors" allow students to make some individual choices within their respective specialties.

The result is that at the end of four years with us, no two students have taken exactly the same courses. Everyone would have had an individual education, because everyone has different talents, interests and goals. Everyone is an individual, and every education unique.

Class Participation

Because some of the distinctive features of American education are to help train students to think for themselves, be creative, and solve new problems, students are required to actively participate in class. They don't just sit and absorb what comes from teachers, books, and the Internet. They are expected to ask questions, discuss the course materials with fellow-students and professors, read avidly, think critically, and confidently defend their own ideas. They are also expected to respectfully challenge, engage and debate with their instructors. These, we believe, will help students learn how to become creative, assertive adults; and the activities count towards the final grades for each course taken.

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Bachelor of Engineering (B.Eng.) in Computer Engineering

The general philosophy and objectives of the engineering discipline

Philosophy

To achieve the goals and objectives of the National Policy on Industrialization and Self-Reliance, the Engineering and Technology education should be geared towards:

(i) The development of a thorough practice in engineering and technology training.
(ii) Broad–based training in general Engineering and Technology at the early stages of the program.
(iii) Practical application of Engineering, Technology and Manufacturing Processes.
(iv) Adequate training in human and organizational behavior and management.
(v) Introduction to entrepreneurial education and training.
(vi) Close association of the program with industries in the country.

The general philosophy therefore is to produce graduates with high academic standard and adequate practical background for self-employment as well as being of immediate value to industry and the community in general.

Goals and Objectives

The general goals and objectives of Engineering and Technology training should be in consonance with the realization of national needs and aspirations vis-à-vis industrial development and technological emancipation. The graduates must therefore be resourceful, creative, knowledgeable and able to perform the following functions:

Graduates in Engineering

(i) To design engineering projects and supervise their implementation.
(ii) To design and implement components, machines, equipment and systems.
(iii) To design and develop new products and production techniques in industries.
(iv) To install and maintain complex engineering systems so that they can perform optimally in our environment.
(v) To adapt and adopt exogenous technology in order to solve local engineering problems.
(vi) To be able to exercise original thought, have good professional judgment and be able to take responsibility for the direction of important tasks.
(vii) To be able to manage people, fund, materials and equipment.
(viii) To improve on indigenous technology to enhance local problems solving capability.

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Basic Admission Requirements and Expected Duration of the Program

The basic admission requirements for engineering disciplines shall be;

Admission Requirements for UME

1. Completed Application Form
2. Most recent JAMB scores (160 points minimum), National Diploma/International Baccalaureate.
3. End of school leaving exam scores (IGCSE, WASSCE, NECO, SSCE, GCE, Cambridge 'O' Level). Minimum of 5 credits including Mathematics, English Language, Physics and Chemistry.
4. SS1-SS3 secondary school transcripts as well as transcripts for any post-secondary work that has been undertaken or last three years of high school work.
5. One or more recommendation letters from the Counselor, or Principal of the applicant's secondary school or from a teacher who is able to comment on the applicant's potential for post-secondary academic work. The recommendation letter should not be written by a family member. School's stamp or seal is required on this letter.
6. Photocopy of International Passport, National Identity Card, or secondary school ID.
7. A personal statement (Essay) of at least 250 words stating why the applicant chose AUN and what their dreams and ambitions are for the future.

Admission Requirements for Direct Entry

For Direct Entry, candidates must have passes in Mathematics, Physics and Chemistry at GCE 'A' level or equivalent. Holders of OND and HND at minimum of upper credit level are eligible for consideration for admission into 200 and 300 levels respectively.

Minimum Duration

The minimum duration of engineering programs is five academic sessions for candidates who enter with Senior Secondary School Certificate or GCE 'O' Level qualifications. Candidates with relevant passes in Mathematics, Physics and Chemistry at GCE 'A' Level or equivalent will spend a minimum of four academic sessions provided that they satisfy all the other University requirements.

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Evaluation

Techniques of Student Assessment

Practicals

By the nature of the disciplines in Engineering and Technology, laboratory practicals are very important in the training of the graduates. To reflect this importance of practical work, a minimum of 9 hours per week (3 credits) should be spent on students' laboratory practicals. Furthermore, it is very important to determine performance of the student in the practical component of the program. To achieve this, all the laboratory practicals have been lumped together to form a course which the student must pass. It is expected that the weighting given in the various courses is reflected in number and nature in the design of the experiments. These practicals must follow the trend in the current development of the programs.

Tutorials

There should be one hour of tutorial for every three hours of lecture.

Attainment Levels
In the Engineering programs, assessment of students' achievements should be based on:

(i) Examinations
(ii) Laboratory reports
(iii) Planning, conduct and reporting of project work
(iv) Oral presentations and problem solving exercises
(v) Assignment
(vi) Group project work
(vii) Reports of Industrial Training program.

Continuous Assessments

Continuous assessment shall be done through essays, tests, and practical exercises.

(i) Scores from continuous assessment shall normally constitute 30 per cent of the final marks for courses which are primarily theoretical.
(ii) For courses which are partly practical and partly theoretical, scores from continuous assessment shall constitute 50% of the final marks.
(iii) For courses that are entirely practical, continuous assessment shall be based on a student's practical work or reports and shall constitute 100 percent of the final marks.

Examinations
In addition to continuous assessment, final examinations should normally be given for every course at the end of each semester. The final grade should be based on the following breakdown, subject to section 1.5.1 (c) of this document:

Final Examination: 60% - 70%

Continuous assessment (Quizzes, Tutorials, Homework, Tests): 30% - 40%

(i) Each course shall normally be completed and examined at the end of the semester in which it is offered.
(ii) A written examination shall normally last a minimum of one hour for one unit course.

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External Examiners' System
The external examiner system should continue. This system should be used only in the final year of the undergraduate program to assess final year courses and projects, and to certify the overall performance of the graduating students, as well as the quality of facilities and teaching. However, the existing practice of using different External Examiners for major subject areas in professional program should be continued.

SIWES Rating and Assessment

In engineering education, industrial attachment is very crucial. The minimum duration of this attachment should be 34 weeks (one semester and 2 long vacations) and should be broken into the following modules**: Students Work Experience Program (SWEP) (10 weeks – long vacation (SWEP I: 5 weeks during the summer long vacation after second semester of 200 level and SWEP II: 5 weeks during the summer long vacation of 300 level)); Students Industrial Work Experience Scheme (SIWES) (24 weeks, one semester plus summer long vacation).**

To make the training effective, it is important that the students learn how to operate some of the ordinary machines and tools they will encounter in the industry before they go for the attachment.

Therefore they should start with Student Work Experience Program, which is conducted in the Faculty Workshops, under strict industrial conditions. On successful completion of Students Work Experience Program, the Students Industrial Work Experience Schemes can be done in industries under strict industrial conditions and supervision.

Normally, industrial attachment should be graded and no student should graduate without passing all the modules of the attachment and this should be used in degree classification.

There should be a Faculty Industrial Training Unit with full complement of staff and facilities to function.

SIWES forms are available at the Office of the Registrar and must be submitted during the normal Registration period of the semester the internship will take place. In order to register, students must have satisfied all prerequisites, secured the internship position and identified a faculty member who is willing to oversee their course of study within the appropriate department. The supervising faculty member must establish the academic requirements (i.e. learning outcomes, reports, presentations, etc.). Additional requirements may vary by department. The course number 493 is associated with all program internships.

Students' Evaluation of Courses

There should be an established avenue put in place offering opportunity to students to evaluate courses delivered to them at the end of each semester. This should be an integral component of the course credit system; serving as feedback mechanism for achieving the following:

(i) Improvement in the effectiveness of course delivery.
(ii) Continual update of lecture materials to incorporate emerging new concepts.
(iii) Effective usage of teaching aids and tools to maximize impact of knowledge on students.
(iv) Improvement in students' performance through effective delivery of tutorials, timely in presentation of continuous assessment and high quality examination.

In order to achieve effective learning, all students should normally be permitted to evaluate those courses registered at the end of each semester, preferably before the final semester examinations. It is very important that students' evaluation of courses be administered fairly and transparently through the use of well-designed questionnaires, maintain confidentiality demanded by such exercise and apply their scientifically processed outcome to improving effective course delivery in all ramifications.

Degree Conferral/Graduation

Graduation Requirements

Students at the Department of Computer Engineering, School of Engineering are required to complete a minimum of the following credit hours:

(184 credit hours for candidates admitted through the UME and 124 credit hours for candidates admitted through Direct Entry).

With a minimum cumulative grade point average (CGPA) of 2.0 on a scale of 4.0. Candidates must successfully complete the General Education requirements of the University, and a pass grade in

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SIWES, in addition to requirements that are specific to the student's degree program, in order to be eligible for degree conferral. Candidates must have paid all tuition, fees, fines, and charges.

To be eligible for the award of a B. Eng. degree, a candidate must have satisfactorily completed and earned the minimum number of credit hours prescribed for the degree. This will involve successfully completing the approved compulsory and elective/optional courses of the School and other department of the University.

Degree Classifications

The class of degree shall be based on the Cumulative Grade Point Average earned at the end of the program. The GPA is computed by dividing the total number of credit points (TCP) by the total number of units (TNU) for all the courses taken in the semester.

Application for Graduation

Final year students (completed 156 credits or more) are required to submit an Application for Graduation to the Office of the Registrar within the deadlines stated on the academic calendar. Application forms are available online www.aun.edu.ng/registrar/forms.

Only after an application has been received will the academic degree audit will be processed. Candidates will be notified by the Office of the Registrar if additional information is needed and/or discrepancies are found via AUN e-mail. Students who fail to satisfy all degree requirements must reapply for graduation in a future semester (adhering to all guidelines stated above).

If the University Senate approves summer semester, students who have satisfied all but two courses and no more than 8 credits are eligible to participate and walk in the commencement ceremony. All outstanding coursework must be completed by the end of the academic year (Summer) that the student participates in the commencement ceremony.

Degree/Graduation Honors

University Honors, cum laude, magna cum laude and summa cum laude are awarded upon degree conferral for students whose CGPA is 3.5-3.699 (University Honors), a CGPA of 3.7-3.799 (cum laude), a CGPA of 3.8-3.899 (magna cum laude) and a CGPA of 3.9 or higher (summa cum laude). These graduation honors are printed in the graduation program, on the diploma and on the student's transcript. Graduation sashes and honors will only be noted during the Commencement ceremony and in the Commencement booklet if all requirements have been completed.

Names on Diploma

The name and order of names that appears on a student's diploma will be consistent with the name and order of names that appears in the student's file upon admission and is corroborated by a passport or valid identity card and/or a birth certificate.

National Youth Service Corps

All recent AUN graduates (with no outstanding balance) will have their names submitted to the NYSC office for mobilization in the next available Batch, per NYSC calendar/guidelines only. All recent graduates must check their AUN e-mails to receive information from the Office of the Registrar regarding NYSC instructions/dates.

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Diploma Replacement

If an original AUN diploma is destroyed or lost, a duplicate may be ordered from the Registrar's Office. The Duplicate Diploma Request Form must be filled by the alumni; and any evidence that the original diploma was lost, stolen or destroyed must be attached to the Request Form (e.g., police report, fire department report). If the original diploma is damaged, the Duplicate Diploma Request Form must be submitted to the Registrar's Office with the damaged diploma attached. The reverse side of the duplicate diploma will be stamped with the words, "Duplicate issued on MM/DD/YY to replace lost/destroyed original diploma." In order to receive this duplicate, alumni must fill a Diploma Request Form, online www.aun.edu.ng/registrar/forms.

Academic Records

The Office of the Registrar provides these services: creating, maintaining and transmitting academic records; scheduling classrooms; course registration; evaluating transfer credit; auditing degree progress and completion; verifying enrolment/degree completion; coordinating NYSC Batch submissions, and issuing academic transcripts and diplomas.

Student Records

A file is maintained for each student who registers at American University of Nigeria. After an applicant is matriculated, his/her record is maintained by the Office of the Registrar. Additional files may be kept by the Academic Advising Office and/or a student's individual School/Department, however, the primary source of academic information will be housed in the Office of the Registrar. The purpose of the official student record is to document the student's academic career/history. Students have the following rights regarding their education records: The rights

1) to have access to their education records,
2) to consent to release their records to a third party and
3) to seek amendment of information on the record, if the student demonstrates an inaccuracy.

In order to view their academic records, students must submit a Student Record Request form to the Office of the Registrar. After submitting the form, students will be invited to the Office of the Registrar via AUN e-mail within 10-15 business days to view their file. All files and the information in the files must remain in the Office of the Registrar during viewing.

Any alteration or misuse of official student records and/or an attempt to alter or misuse them, will result in immediate dismissal of any student or employee involved. The University reserves the right to initiate legal proceedings as it sees fit in instances of misuse, alteration and/or fraud. Upon graduation, or if a student leaves the University, his or her files are sealed and archived at AUN.

Confidentiality of Student Records

A student's personal information will only be shared with any other person within the University and/or with an external person or agency with the express consent of the student via a signed Consent form (available in the Office of the Registrar). Confidential information will be shared on a 'need to know' basis. The following are exceptions in which prior consent from the student is not required to release confidential information:

- Unless the student expressly requests restriction of its release, Directory information can be shared without prior consent. This includes the student's name, address, telephone number, major, dates of attendance and degrees/awards received.
- In case of imminent and serious threat to the safety or health of the student and/or others.

- Where disclosure of the information is legally mandated.
- To prevent a criminal act.
- Where the information is disclosed to University officials who have a legitimate educational interest in the records.
- Where the information is disclosed to third parties in accordance with national and/or University regulations governing the release of such information.

Transcripts

Students and alumni may obtain transcripts of their academic history from the Office of the Registrar. A request for transcript must be initiated by the student only as requests from individuals other than the student will not be honored. After submitting a processing fee and verification of payment receipt by the Bursar, students can request their transcript in writing (email to registrar@aun.edu.ng) using their AUN e-mail accounts or go online for details:

http://www.aun.edu.ng/academics/registrar/students/101-transcripts

Once the request has been made and payment has been received, it may take between 5-10 business days for processing.

A notation will be made on all AUN transcripts confirming that English is the official medium of communication and instruction for all courses taught at AUN.

The University will not issue a transcript that reflects only a part of the student's record, nor will it make copies of transcripts on file from other colleges and universities.

A notation will be made on all AUN transcripts confirming that English is the official medium of communication and instruction for all courses taught at AUN.

Verification of Enrolment/Degree

On request, the Office of the Registrar can provide a letter verifying enrolment/degree completion at the University. When applying for scholarships and/or submitting employment applications, this verification certifies that the student is/was enrolled. A request for enrolment verification must be student initiated and made via e-mail to registrar@aun.edu.ng and it will take 5-10 business days to process.

A notation will be made on all verification confirming that English is the official medium of communication and instruction for all courses taught at AUN.

Academic Regulations

Academic Course Load

All students in Engineering Programs should take a minimum load of 18 credit units per semester and a maximum of 26 credit units per semester. To reflect the importance of practical work, a minimum of 9 hours per week (3 credits) should be spent on students' laboratory practicals. In addition to lectures and laboratory practicals, it is very important that tutorials are held for students in small groups. Students should, therefore, be divided into small groups for practicals in the laboratories, but each student should be made to work on a specified final year project which should carry a minimum of 4 credits.

The maximum load for a student in the Fall and Spring semesters is 26 credit hours and 6-7 credits hours in the Summer session. In some cases, students may be restricted to fewer credit hours based on prior academic performance. In order to be considered for an Overload (more than the maximum course load), students must have at least a 3.25 CGPA, and receive approval from Academic Advising and their Dean.

Academic Forgiveness

This policy is reserved for special circumstances where a student may require extra support that is beyond the current policies stated. Forgiveness may apply to any academic matter as it relates to the student. This may include course requirements, grade, grade point average, graduation, credits and others. A request for Academic Forgiveness must be made in writing to the person involved immediately after the event. The final Academic Forgiveness approval comes from the Provost.

Academic Integrity

The university is committed to academic honesty and integrity and has developed procedures to deal with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work. Students are expected to act ethically in pursuit of higher learning and to avoid types of behaviors that impair effective assessment. Academic dishonesty is prohibited in all programs of the university.

Academic Misconduct Subject to Disciplinary Action

Academic misconduct is an act in which a student:

(a) Seeks to claim credit for the work or efforts of another without authorization or citation;
(b) Uses unauthorized materials or fabricated data in any academic exercise;
(c) Forges or falsifies academic documents or records;
(d) Intentionally impedes or damages the academic work of others;
(e) Engages in conduct aimed at making false representation of a student's academic performance; or
(f) Assists other students in any of these acts

Possible Disciplinary Sanctions

The following are the disciplinary sanctions that may be imposed by an instructor for academic misconduct:

(a) An oral or written notice of misconduct;
(b) An assignment to repeat the work, to be graded on its merits;
(c) A lower or failing grade on the particular assignment or test;
(d) A lower grade in the course;
(e) A failing grade in the course;
(f) A non-deletable failing grade in the course;
(g) Suspension from the University;
(h) Expulsion from the university.

Any class related infractions are initially managed by the instructor, however, the instructor may present the infraction to the Judiciary Affairs committee for review and impose consequences.

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Admission to Classes
Students will not be admitted to classes unless they have registered and their name appears on the official class roster.

Auditing Courses
A student may audit a course with the permission of the instructor. Final approval from Academic Advising and the Dean must also be gained. Audit tuition/fees apply and registration is completed through the Office of the Registrar. Auditing is on a non-participating basis unless other arrangements are made between the instructor and the student. The audited course will not count towards degree requirements and a final grade of 'AU' will be assigned to the transcript.

Concentration
A Concentration is a list of specified courses within an area of disciplinary or interdisciplinary study, which is completed on an optional basis and is noted on the academic transcript. A Concentration provides students the opportunity to develop in-depth knowledge representing a sub-specialization or emphasis within the core discipline or major. A concentration includes a minimum of 12 semester hours and a maximum of 21 semester hours of specialized course work with no less than 50% of the concentration credits upper level credits. The requirements and the curriculum for a concentration are determined by the academic School offering the concentration.
*Concentrations must be pursued and completed concurrently with a degree program.

Course Add/Drop
Students enrolled in courses have the duration of the Add/Drop period to change course selections. The Add/Drop period will run for two weeks, 10 business days, after the Fall and Spring semesters begin. For the Summer Session, the Add/Drop period will run for 3-4 business days. No changes to registration can be made after the end of Add/Drop. Faculty reserves the rights to deny admittance to a course if that course has met more than twice.

Course Withdrawal
After the end of Add/Drop, students are able to withdraw from courses if they choose not to continue or if they are unable to continue (i.e. due to personal issues or if they are forced to leave AUN due to suspension or dismissal). If a student withdraws from a course they will be held financially liable for the course based on the withdrawal tuition refund schedule. **There will be no refund of housing or meal plans for students who withdraw from courses**.

If a student withdraws from a course during Week 2 through Week 6 of the Fall and Spring semesters (refer to the Academic Calendar for the Summer session) a final grade of 'W' will be input on the student's academic record. After the sixth week of class the student will earn a 'WP' (Withdrawal Pass) or 'WF' (Withdrawal Fail) based on their academic performance in the course, as determined by the faculty member teaching the course. Withdrawals are not accepted after the last day of classes. A 'WP' is not accepted during the last two weeks of the Fall and Spring semesters or the last week of the Summer session. In order to withdraw from courses, students must notify Academic Advising and their professor of their intent to withdraw from the course by completing a Course Withdrawal Form.
Note: the student's discontinuing attendance in class and/or notifying an instructor of a status change does not constitute an official action.

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Declaration/Change of Major
Students are strongly encouraged to consult with Academic Advising prior to making changes to their academic record. A Declaration of Major and Change Major forms are available in the Office of the Registrar. Students may also declare Minors through the Office of the Registrar.

Double Counting for School of Engineering
Double Counting refers to instances when a course taken to fulfill one requirement counts simultaneously toward a major, minor, concentration or a prerequisite. (Anywhere in the catalog indicated ''GENED/CORE'' is for double counting).

Double Major
Students can declare more than one major if they have a minimum 2.50 cumulative GPA and if at least 18 credits are unique to each major. Individual academic unit or teaching units may require a higher GPA and have other requirements that exceed the regulations. If the majors are offered by more than one academic unit within the University, then students will designate at the time of declaration of the majors the single academic unit in which they will be registered and from which they will be graduated. Students will need to satisfy the general academic unit requirements of that single academic unit. When majors lead to different degrees (e.g., B.A. and B.S.), students will specify which degree they wish to be awarded. Electives may be used to satisfy double major requirements.

Enrollment/Course Registration
Enrolled students receive registration information/instructions via their AUN e-mail accounts each semester. Students who fail to register for courses during Registration or Late Registration (the first week of classes) will not be eligible to take courses during that semester. New students enroll in courses during Orientation (an event held prior to the first day of the classes in the fall and spring semesters). All students are mandated to meet with Academic Advising prior to registration.
Note: Course prerequisites and/or Class Restrictions are strictly enforced.

Enrolment/Early Registration & Registration
Students enroll in courses and, where applicable, the connected sections during the registration period prior to the beginning of classes each semester or during early registration. The early registration period is provided in the second half of each semester (or after the midterm) for enrolled students to select courses for the next semester. Upon resumption, students enrolling for the first time register for courses during an orientation period. This takes place before classes begin, and; previously enrolled students may make changes to their schedules at this time. At the American University of Nigeria, a course is an individual subject a student enrolls in; and it may be offered in multiple sections, and at different times during the week.

Examinations
The semester does not officially end until the last examinations are completed. Final examinations must be taken as scheduled by the Office of the Registrar.

Grades
Grades (midterm and final) are assigned based upon the student's performance in courses. Students are required to check their official grades and academic standing via the University Self-Service Portal, after release by the Office of the Registrar.

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Grading System

At the end of each semester, faculty assign letter grades based upon the student's performance in courses. The grades listed below are calculated in the grade point average. Grades assigned at AUN equate the following performance levels:

Grades

A	(95-100%)
A-	(90-94%)
B+	(87-89%)
B	(84-86%)
B-	(80-83%)
C+	(75-79%)
C	(70-74%)
D	(60-69%)
F	(0-59%)

A- to A	Truly outstanding work that demonstrates an excellent command of the subject.
B- to B+	Work that represents a good command of the subject and is beyond usual expectations for the course.
C to C+	Work that represents a command of the subject and meets expectations. C is the minimum pass level for all Major and Minor courses (including concentrations). C is also the minimum pass level for WRI 101 and WRI 102.
D	Work considered at a minimal passing level, but demonstrates significant gaps in knowledge and falls short of expectations.
F	Work that demonstrates substantial shortcomings in knowledge and/or is insufficient in quality to warrant awarding credit for the course.
F*	Judicial Sanction
WF	(Withdrawal Fail) At the time of withdrawal, the student had failing grade. A student must obtain a Course Withdrawal Form. If the approval is granted, the transcript will indicate that the student withdrew with a failing grade (WF). Withdrawals are not accepted after the last day of classes for each semester.

Grading Scale (4.0):

The following are the grading scales used in AUN's 4-point grading system

A	4.0	A-	3.7	B+	3.3 B	3.0
B-	2.7	C+	2.3			
C	2.0	D	1.0	F	0.0	
F*	0.0	WF	0.0 (F)			

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The grade point average (GPA) is determined by dividing the total grade points by the total number of course credits for which the student has been enrolled.

The GPA includes only those courses taken for conventional grades (A-F) and WF. Final grades that will not be calculated into the student GPA are as follows:

AU Audit - Students may audit courses with the approval of the Chair, advisor and Dean. Permission from the instructor must also be gained. Audit tuition/fees apply and registration is completed through the Office of the Registrar. Auditing is on a non-participating basis unless other arrangements are made between the instructor and student.

AW Administrative Withdrawal - Course and/or semester withdrawal for documented Medical or Judicial (i.e. Suspension, University Dismissal) reasons.

IP In Progress - Current course work, final grade pending/ to be assigned.

I Incomplete - given to a student who, due to extenuating circumstances (i.e. confirmed illness, death of family member), is unable to complete the course requirements. The student has six weeks into the subsequent semester (includes the Summer session) to complete the course work. If the work is not completed within the six weeks and a final grade (A-F) is not submitted to the Office of the Registrar by the instructor, the incomplete grade is dropped and the grade of 'F' is automatically assigned.

TR Transfer - Approved transfer credit. Transfer credits accepted from other institutions are included in the total number of credits applicable to degree requirements, but grades earned in these courses are not used when computing the GPA (see the 'Transfer of Credit' section for more information).

W Withdrawal - students may withdraw from a course without GPA penalty, during Weeks 2 through 6, of the Fall and Spring semesters. A student must obtain a Course Withdrawal Form. If approved, a final grade of 'W' will be assigned to the transcript.

WP Withdrawal Pass - students may withdraw from a course without GPA penalty, after Week 6, but before the last two weeks, of the Fall and Spring semesters. A student must obtain a Course Withdrawal Form. If the approval is granted, the transcript will indicate that the student withdrew with a passing grade (WP).

Any grade below C is not accepted for major or minor credit. Any grade below D does not satisfy general education requirements – exception WRI 101 and WRI 102. Students will be required to retake any course if the grade earned does not satisfy the requirement. Students are required to take courses for a letter grade (A-F) in order to earn credit towards degree requirements.

Regarding Pass and Fail (P/F) grades, a grade of P indicates a quality of performance no less than C (2.00) on the grading scale outlined above. Performance below this level is reported as 'F'. If the course is remedial, grades of 'P' and 'F' are not included in the credit hours required for graduation and the student's GPA is not affected positively or negatively. However, if the course is taken for credit the grade of 'F' will negatively impact the students GPA.

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Change of Final Grade
Once reported, a final grade cannot be changed except to remove a grade of '**I'** (Incomplete) or to correct a grade recorded in error. To remove a final grade recorded incorrectly, the faculty member must complete a Change of Grade form indicating that an error was made; the request must include supporting documentation. The form requires the signature/approval of the Dean.

Grade Appeal
Recognizing, however, that the evaluation of student performance is based upon the professional judgment of instructors, and notwithstanding the exceptions noted at the end of this policy, appeals will not be considered unless based upon one or more of the following factors:

- An error was made in grade computation.
- Standards different from the documented departmental, school, or university policies were used in assigning the grade.
- In determining the grade, it is evident that the instructor departed substantially from his or her previously articulated, written standards, without notifying the affected student(s).

If a student feels that s/he has been assigned an inaccurate grade due to any or a combination of the factors stated above, the student should first approach the course instructor in writing within 30 calendar days immediately after the final grade has been published, with a request to review the grade.

The instructor has two weeks to review the request and provide a written decision to the student with express reasons justifying the grade or acknowledging the mistake. If the instructor detects an error, s/he should submit a duly completed and signed Change of Grade form to the Office of the Registrar. If the student has a concern after the instructor has reviewed the grade calculation, the student may appeal further to the chair of the department as it relates to the program. The appeal to the chair must be in writing and initiated within 10 working days of the instructor's feedback based on the student's grievance.

The department chair will review the case and reach a determination in consultation with the student and the instructor within two weeks. After this process is completed, the only grounds for further appeal would be that the appeal process was not conducted as described above. That appeal should be directed to the dean of the school that offers the course. An appeal to the Academic Review Committee must be made via e-mail with supporting documentation attached by the parties involved.

Individual graded assignments that contribute to a final course grade are not subject to appeal unless it can be established that the grade for the individual assignment was given for one of the three impermissible reasons cited above, and resulted in an unfair final grade.

Finality of Appeal
There shall be no further appeal from the decision of the grade appeal committee except for procedural errors. No appeals from these decisions are allowable to the president or to the Board of Directors.

Repeating a Course
Students have the option to repeat courses to improve their academic performances. No student with a D or an F grade in any major/minor credit bearing course is permitted to repeat the course more

than thrice . If the student is unsuccessful after the third attempt, the student will no longer be able to pursue the same degree at AUN. A student who wishes to repeat a course with a passing grade may do so but may only do the same course a total of three times.

Grade Replacement

AUN students have the option to repeat courses to try to improve their academic performance. If the student successfully repeats the exact course, this grade, whether it is a higher grade or not, replaces the original grade in the calculation of the student's GPA. The original grade remains on the transcript, as well as the recent grade; only the most recent grade is used in grade point calculations. The student earns the credit hours for the course only once upon passing the course. The repeated course counts in the student's load for the semester in which it is taken.

If a course is repeated, each attempt, including the final grade, is entered separately on the permanent academic record. Unless specifically indicated otherwise, only one successful attempt of a course is counted toward fulfillment of graduation credit requirements.

Incomplete Grade

The grade of Incomplete may be given to a student who, due to extenuating circumstances (i.e. documented and confirmed illness, death of family member), is unable to complete the course requirements. An '**I**' may be given only if the student is receiving a passing grade at the time the request is made. Arrangements for an incomplete must be made prior to the end of the course and the incomplete form must be filled out by the faculty member in its entirety and submitted to the Office of the Registrar prior to the last day of classes for the semester. The incomplete form requires a full explanation of the remaining coursework and the submission deadlines.

If a student receives an 'I', s/he has six weeks into the subsequent semester (includes the Summer session) to complete the course work. If the work is not completed within the six weeks and a final grade is not submitted to the Office of the Registrar by the instructor, the incomplete grade is dropped and the grade of 'F' is automatically assigned. No grade of 'I' will be recognized by the Office of the Registrar without proper documentation. A 'W' (withdrawal) may not be given to remove a grade of 'I'. An 'I' may not stand as a permanent grade.

Course Substitution

Program chairs may suggest course substitutions in a student's Program of Study based on the student's previous academic records and experiences. Substitute courses should have similar content to those specified in the degree requirements. In some instances, more advanced content could be substituted. Substitutions do not reduce the number of credits required for the degree and must be recorded on the student's Program of Study.

Students may fulfill certain requirements with courses outside the curriculum listings. This provides limited flexibility when required courses are unavailable, or when new "special topics" courses are created by other departments and are relevant to the intentions of the requirement. In all cases, proposed substitutions excluding General Education courses must be approved by the Chair and DEAN.

Students may apply for one course substitution within their Major program all course substitution application for major requirements must initially be reviewed by the Academic Advisor.

Waiving Requirements

Waiving requirements is defined as satisfying degree or program requirements by means other than those specified in the Academic Catalog. Current AUN student may petition to be waived from course requirements based on previous coursework. Course(s) waived does not reduce the number of credits required to graduate. Student must complete a Request for Course Waiver Form and provide requesting documents with the form to the office of Registrar. Student may be asked to demonstrate their proficiency in the course(s) to be waived. The decision to grant a waiver is at the discretion of the school's Chair and Dean.

Valedictorian

Valedictorians are students selected to address the graduating class at one of the university's commencement ceremonies. A unique valedictorian is selected for each ceremony. Students are selected for this honor based on sustained academic excellence and other outstanding accomplishments that contribute to life at AUN, and the community.

Deferral/Leave of Absence

Undergraduate students who must interrupt their studies for any reason must submit a request for deferral/leave of absence prior to their departure from campus to the office of the Registrar. Submitting a deferral/Leave of Absence' form (with the required signatures) ensures that students will be able to return to AUN without reapplying for readmission. Students are able to take a leave or defer for one or two regular semesters (Fall and Spring) of deferral/leave before resuming their studies. If a student is unable to return after two consecutive semesters of leave, including the Summer Session, the student will be removed from enrolment (in-active) at AUN and will be required to reapply to resume studies. The leave becomes void if the student attends any domestic or foreign collegiate institutions during the period of leave without prior written approval from the Registrar. In such instances, students must complete a 'Permit to Study' form prior to study abroad in order to transfer credits to AUN (See the 'Permit to Study' section for more information).

Medical Withdrawal Policy

When a student discontinues attending courses due to medical reasons, in certain cases, it may be possible for that student to receive a pro-rated refund of tuition. If a student is hospitalized due to an emergency (which renders him/her unable to withdraw from courses) the Registrar can process an approved retroactive Medical Withdrawal based on the last date that the student attended class. In order to receive this pro-rated refund of tuition, the student must submit a Course Withdrawal form to the Office of the Registrar with evidence of his/her hospitalization (to be verified by the AUN Director of Health and Wellness). The form will indicate the student's last date of attendance by each instructor. If the petition is approved and provided that the retroactive withdrawal falls within the tuition cancellation period (based on the administrative withdrawal chart – see the Tuition and Fees section), the student's account will be credited with their tuition refund (housing and meal plans are not refundable). All medical withdrawal petitions will be reviewed by Academic Advising, the Registrar, AUN Clinic and the Dean of Students. If approved, a final grade of AW will be assigned to the transcript.

Readmission to AUN

A student whose studies at the University are interrupted for any reason for a period of two or more semesters (excluding the Summer session) or a student who Withdrew from the University is required to submit a formal application for readmission, with a reapplication fee to the Office of the Registrar (registrar@aun.edu.ng). All prior balances must be cleared for a readmission application to be considered. The application and supporting documentation for readmission must be received at least one month before classes resume in the semester that the student wishes to attend. The only

exception to the readmission policy is when written authorization is given for a leave of absence or to study at another collegiate institution. This authorization must be obtained prior to the interruption of study.

A student who is readmitted is subject to the academic requirements and regulations in effect at the time of readmission.

Independent Study

Students may independently pursue areas of study beyond regularly scheduled courses. In the Catalog, the course code for any Independent Study is 492. Each School offers this opportunity through designated independent study courses designed by instructors. An independent study project is a student's research on a topic agreed upon by the student and the instructor. Independent Study is not suitable for group instruction, paid work or activities outside the competence and/or concern of one of AUN's existing departments.

To qualify, students must have completed/earned at least 60 credit hours, and be in good standing with a CGPA of 2.0 or higher. All Independent Study credits must be taken for the assigned letter grade (A-F) and credit value (1-6). Only one independent study is allowed per semester and no more than six (6) independent study credits can be taken when completing undergraduate coursework; and of these, up to three (3) credits can be used to satisfy major (course) requirements (if in line with degree requirements and approved by the appropriate Department Chair and Dean).

Once the dean of the school has approved the Independent Study application, the form must be submitted to the Office of the Registrar where the course will be added to the student's schedule of classes.

Applications for Independent Study must be submitted by the end of the first week of classes of the applicable semester.

Registration Procedures

The Office of the Registrar will provide specific course information before early registration each semester. Courses listed may be canceled if there's insufficient enrolment. The Registrar's office reserves the right to change class schedules and adjust individual section enrolments as necessary. Students must be present at the first meeting of every class (lecture and laboratory) to validate their registration. If students cannot attend the first meeting, they must notify the instructor beforehand if they intend to continue in that section. Otherwise, they may be delisted from the class. It is the student's responsibility to ensure that tuition is paid, and to note that courses can only be dropped before tuition liability begins. Courses can also be cancelled by the Registrar's office if the student is suspended, dismissed, or if the section is cancelled. All deadlines should be verified from the academic calendar.

<u>Registration involves three main steps:</u>
Advisement and consultation
Selection and registration of courses

Payment of Fees

Students must attend the section of the course for which they are registered. No instructor may authorize a student to shift from one section of the course to another without following official Add/Drop procedures. Students are responsible for registering on time and for the correct

courses. Students may not attend classes they are not enrolled in and will not receive credit for these courses. Students may not register or add courses retroactively. Students will receive the "F" grade if they stop attending classes without officially dropping the course.

Minors

A minor is a course sequence within an area of study providing a degree of specialization within that area, a specialty within a discipline, or a specialty integrating several disciplines. Minors balance introductory and advanced coursework. Students wishing to obtain a minor are encouraged to contact their academic advisor. Please note that no more than six (6) credits of minor coursework can overlap with major or general education requirements. Minor should have normally completed a minimum of 30 credits of course work and be in good academic standing. The following rules apply:

- The minor consists of a minimum of 18 credits, including at least nine credits in courses at or above the 300 level.
- At least nine credits of the 18 credits required for the minor must be taken in residence at AUN.
- At least six credits of the nine credits at or above the 300 level must be taken in residence at AUN
- A minimum GPA of 2.00 must be earned in courses completed to satisfy the minor. Students seeking a minor in must successfully complete the following courses as prescribed by each school

WRI 101 and WRI 102 Requirement

Students must complete WRI 101 and WRI 102 courses alongside the General Education requirement in the first two years of study. Adherence to this rule provides not only competent skills for university writing but also provides opportunities for offering courses with Writing pre-requisites. **Students must obtain a C grade or better** for Writing as it satisfies the general education requirements, failure to do so, requires students to repeat the subject matter.

Late Course Registration

A period of Late Registration occurs at the beginning of each semester. Students who unavoidably arrive late to campus and/or are physically unable to participate during the regular registration period may register during the first week of classes, on a space-available basis. After five complete days of classes (refer to the Academic Calendar for the Summer session), students will no longer be able to register for courses and must wait until the following semester. A late registration fee of 30,000 Naira may be applied when students miss the regular registration period and seek to enroll during Late Registration - the first week of classes.

Undergraduate Student Status – School of Engineering

A full-time student is one who is admitted in a degree program at AUN and registers for 15 or more credit hours each semester at School of Engineering. A student may drop one or more courses and still be considered a full time student provided he/she maintains enrolment in at least 15 credit hours. Any student enrolled in fewer than 15 credit hours or registered for fewer than 12 credit hours is considered a part time student. Part time students are not permitted to reside in dormitory.

Time Limit for Degree Completion – School of Engineering

The maximum duration of an undergraduate program, excluding deferment approvals, is seven years (fourteen semesters) for the School of Engineering as a full time student, ten years (twenty semesters) for a part-time student.

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Academic Performance and Standing

Academic Integrity Code

The central commitment of AUN is to develop thoughtful and responsible human beings with the highest moral and ethical standards, within the context of a very diverse yet collaborative academic environment. This commitment is founded on the following core values of the University:

- Tolerance and understanding among national, ethnic, and religious groups;
- Freedom of Expression; and
- Non-discrimination in the admission and employment processes with regard to gender, age, religion, nationality, ethnicity, physical ability, political affiliation, or personal relationships.

Excellence and Integrity Are The Core Principles That Guide Us

This Academic Integrity Code is designed to benefit and assist the AUN community in forming the highest standards of ethics and morals among its members. It is designed to foster the University's commitment to excellence and equality, while affirming the shared values that make community life possible. Students with alleged violations of the Academic Integrity Code should contact the Office of the Dean of their respective program to receive further information on disciplinary procedures (See Appendix B for the full text of The Academic Integrity Code).

Academic Performance Policy

An undergraduate student who fails to maintain the academic average required by the university and/or fails to make satisfactory academic progress towards completion of degree requirements is subject to probation, suspension and/or dismissal. All students of the American University of Nigeria are required to meet baseline academic standards in order to continue with their studies. The minimum satisfactory standard of achievement is a cumulative grade point average (CPGA) of 2.0.

Continued Enrolment

Continued enrolment at AUN depends upon an undergraduate student's ability to maintain satisfactory academic progress towards attaining a degree. The university measures this ability by the student's cumulative grade point average. To assist students in maintaining satisfactory progress, AUN has adopted academic standards designed to provide early identification of students who are experiencing academic difficulty and to provide timely intervention through academic support programs.

Regulations regarding academic probation, restriction, suspension, and dismissal are designed to provide close supervision of the academic progress of AUN students. At the end of each semester, student records will be reviewed and sanctions will be imposed. A change in students' academic status can occur following any semester when the student's cumulative GPA falls below 2.0. Students under academic sanction are subject to restrictions with respect to academic course load as determined by the Director of Academic Advising and Retention.

Each student's transcript will be evaluated at the end of each academic semester. Students liable for academic sanction will receive written notification and the notice will stipulate the terms of the sanction. Parents/Guardians of students, who have signed the consent form, will also be notified of the actions imposed on their child/ward. The following are academic designations that can be imposed:

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Good Standing

Undergraduate students who maintain a cumulative grade point (CGPA) average of at least 2.0 are considered to be in academic good standing and are eligible for continued enrolment at AUN.

Probation for School of Engineering Students

This is an indication of serious academic difficulty and applies whenever a student's cumulative grade point average (CGPA) falls below 2.0. Students who are placed on academic probation at the end of each semester (including summer session) may continue with enrolment and the student's course load registration will be limited to 18 credits. The standing *Probation* will appear on the transcript for that semester.

Restriction

Academic Restriction is designed to reduce the credit load of students in academic peril. When a student's CGPA is less than 2.0 for two consecutive semesters and having been on Academic Probation the previous semester, the student's course load registration will be limited to 18 credits in the subsequent semester. The standing *Restriction* will appear on the transcript for that semester.

Suspension

After Probation and Restriction standing and continued poor academic performance, a student's enrolment will be suspended for one semester (Fall/Spring, including summer). If the student wishes to return to the university, s/he must contact Registrar's office and submit a request letter for reinstatement (Readmission). This must be done one month before the beginning of the semester. Once a student's request for reinstatement (readmission) has been approved by the respective school and the student continues with his/her enrolment, if the CGPA falls below 2.00, s/he will be (indefinitely) dismissed. The standing *suspension* will appear on the transcript for that semester.

Appeal of Academic Suspension

A student may appeal an academic suspension due to continuous poor academic performance. There are only two grounds for appeal:

1) Dispute of grade or evaluation
2) Extenuating circumstances*

In the case of dispute of grade or evaluation, the student must be able to demonstrate that the grade average or evaluation was incorrectly calculated and should be sufficiently higher as to remove the student from the circumstances that led to the dismissal. In the case of extenuating circumstances, the student must be able to demonstrate that s/he encountered unusual circumstances during the previous semester that caused poor academic performance and s/he is sufficiently capable academically to clearly perform at an acceptable academic level in the subsequent semester to meet the requirements for satisfactory academic performance.

**Extenuating circumstances are defined by the University as "Exceptional circumstances which are outside the control of the student and which have prevented, or will prevent, him/her from performing in assessment at the level expected or required of him/her." Extenuating circumstances might include:*

- *Illness (serious) affecting the student*
- *Bereavement*
- *Serious illness affecting a close family member*
- *Unforeseeable or unpreventable events*

Independent documentary evidence, such as medical certificates, must be provided in all cases to verify extenuating circumstances.

Appeal Process

The process for appeal of dismissal requires that the student submit a formal appeal application to the Director of Academic Advising & Retention requesting a review by the Academic Review Committee stating clearly the reasons for the appeal. Notification of the verdict will be sent to the student via e-mail when the Committee renders a final decision, of the receipt of the appeal. Submission of an appeal does not guarantee a favorable review. All records of appeal will be forwarded to the Office of the Registrar to be included in the student's record.

Dismissal

Students whose CGPA falls below 2.00 after suspension of one semester, will be recommended for Academic (indefinite) Dismissal and can no longer seek reinstatement (readmission).

Honors Program

American University of Nigeria recognizes that academic excellence is of critical importance for each student. Thus, AUN is committed to ensuring that each course and program offered is academically challenging and meets the highest international standards of excellence and performance. The University also acknowledges that some students seek additional challenges, opportunities, and distinctions as they develop their talents and knowledge. Thus, the University offers an Honors Program that enables highly motivated students to earn honors credits in their courses and academic degree programs. For truly exceptional students, a "University Honors" is available.

Course Honors

The student applies for course honors by indicating on the Honors Application Form his\her desire to pursue honors in the particular course. This form is to be submitted no later than week 12 prior to the following semester. The form is available from the Office of the Registrar. To be eligible, the student must have a CGPA of 3.0 or higher at the time of applying. The course instructor(s) will review the application and determine the additional requirements and assignments that the student will need to complete by the end of that semester.

The instructor, with the approval of the appropriate program chair and dean will inform the student no later than the second week of the applicable semester whether the honor's application has been approved or rejected. If approved, both the student and the course instructor must agree in writing, to the required additional work; and it is normally equivalent to 20% of the regular course requirements. In order to be eligible to receive course honors, the student will be required to complete the additional assignments and the entire course with a final grade of "B" or higher. A grade below "B" is deemed inadequate for attaining a course honors.

If a student does not complete the additional work to fulfill the course honors, or attains a grade lower than a B, the instructor will reflect the grade accordingly without the designation of Honors. If the student is unable to complete the approved requirements due to extenuating circumstances, the student must notify his/her instructor in writing and the details will be concluded at the discretion of the instructor(s) concerned.

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Program Honors

Students may apply for Program Honors no later than week 12 of the second year (59-79 earned credits) by completing the Honors Application Form which is available at the Office of the Registrar. This form indicates the student's intention to pursue the Program Honors. The course instructor(s) will review the application and determine the additional requirements and assignments that the student will need to complete by the end of that semester.

To be eligible, the student must have a CGPA of 3.0 or higher. The instructor, with the approval of the appropriate program chair and dean, will inform the student no later than the second week of the applicable semester whether the honor's application has been approved or rejected. Both the student and the course instructor must agree in writing,to the additional work required. In order to be awarded with designation of Honors, the student, by the time of graduation, must have successfully completed all additional requirements as determined by the program, maintain a CGPA of 3.0, and achieved a B grade in the program honor's course(s). If after starting the program, a student falls short of expectation, and for instance has a GPA that is lower than 3.0, continuation inthe academic honors program will be at the discretion of the program chair.

There is a caveat to the minimum passing grade for program honors. Grades below “B” are deemed inadequate to fulfill the requirements for attaining a program honors. Hence, a student with a grade below “B” in their program must sit for and pass the Senior Research Project courses in their departments to obtain the usual degrees, without honors. If you complete the honors program, you will not be required to fulfill the Senior Research Project requirements. If a student does not complete the additional work to fulfill the program honors, the instructor will reflect the final grade without the designation of Honors. If the student is unable to complete the requirements due to extenuating circumstances, the student must notify his/her instructor in writing and the details will be concluded at the discretion of the instructor(s) concerned.

Academic Recognition

The University is proud to recognize student academic leadership and excellence — acknowledging students for President's List, Deans' List, Scholarly Leadership, Most Improved, Peer Mentors, and other honorable titles - whose outstanding initiative and contributions to academia improve the campus community.

Deans' List and President's List

All students who achieve a term GPA of 3.5 to 3.799 will earn the **Deans’ List** recognition. The **President's List** recognition will be given to students who achieve a term GPA of 3.8 or higher in all courses taken that semester. Students that have contributed to expanding and sharing scholarly work by presenting at conferences, publishing articles and participating in exceptional activities, such as the Model UN, are acknowledged in the Scholarly Leadership award. Students that have achieved a CGPA of 2.0 – 2.69 are eligible to be recognized as the ‘Most Improved’ and are awarded a certificate. The university seeks opportunities to recognize exceptional contributions to academic, scholarly and extracurricular activities.

Honor Society

AUN sponsors the Honor Society for students who maintain exceptionally strong academic performance. Students are eligible for membership in the Honor Society beginning in their second year. Applicants must have completed/earned 30 credit hours or more and have a minimum CGPA of 3.5. To maintain membership, the student must earn CGPA of 3.5 or higher. Honor Society members

are eligible to participate in special activities and may have the distinction of being called upon to represent the University in leadership roles and as mentors to other students.

Transfer of Credit

Transfer of Credit

Candidates transferring from other higher institutions are subject to the following conditions; must be on good standing (not on probation or dismissal) and the institution they are transferring from must be accredited by a recognized body.

A maximum of 60 credit hours from accredited institutions of higher learning may be accepted and used to satisfy major and general education requirements at AUN.

Grades earned in courses accepted for transfer will not be included in the GPA of the student at AUN. However, the credits earned will count towards the total number required for graduation and only courses where students earned a grade of 'C' or higher will be considered for transfer to AUN.

Students who have successfully completed college/university level coursework prior to their acceptance at AUN are required to submit along with their transfer application, material/course descriptions/syllabi for course evaluation to the Registrar not later than 2 weeks before new student orientation. Courses will NOT be evaluated for possible transfer until an official transcript, course syllabi/descriptions are submitted to the Registrar. Transfer credits are evaluated by the Registrar's Office, in consultation with the appropriate Deans prior to enrolment at AUN.

All students who have completed 2 or more years or have completed 60 transferable credit hours and above from an accredited university with a CGPA of 2.0/4.0 or higher or 2.5/5.0 or higher will be admitted without having to present the University with any secondary school or examination documentation. Students who do not meet the above-mentioned criteria must apply as new students.

Transfer applicants from affiliate institutions will be awarded both credit and grade while applicants from other accredited universities/institutions will be awarded only credits

AUN reserves the right to deny credit for any courses completed more than five (5) years prior to matriculation as an undergraduate at AUN. Only those courses that are compatible to AUN courses in content and rigor may be approved for transfer.

Students should seek the approval of the program chair for transfer of credit prior to taking any course at another institution to ensure the course(s) is/are comparable and will be acceptable for transfer. AUN reserves the right to deny credit for any courses taken at other institutions for any reason.

Students who have successfully completed University level coursework at other accredited institutions may submit official transcripts to the Office of the Registrar (with their application to Admissions if prior to matriculation). The official transcript must be sent directly from the other institution to AUN. The transcript will be evaluated and authenticated. The student will be notified of acceptable transfer credits and course equivalents via AUN e-mail. Only those courses that are comparable to AUN courses in content and rigor may be approved for transfer. Courses taken more than 10 years prior to acceptance will require additional review.

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Grades earned in courses accepted for transfer credit, including study abroad courses, will not be included in the CGPA. However, the credits earned will be counted towards the total number required for graduation and only courses where students earn a final grade of 'C' or higher will be considered for transfer to AUN. A maximum of 60 credit hours from all institutions of higher learning may be accepted and used to satisfy major and general education requirements, or serve as free electives. For transferred courses the final grade of 'TR' will appear on the transcript.

Students transferring credits from a university on a quarter system, may receive 2/3 of an AUN credit hour for each quarter hour earned. For example, four quarter hours from a transfer institution equals 2.67 credit hours at AUN. AUN may allow a maximum of 12 credits to transfer that are recorded on a pass/fail basis.

AUN students who study abroad in an AUN approved abroad program are eligible to transfer credits from their coursework abroad. Please see the 'Permit to Study' section for more information.

Permit to Study (Study Abroad)

An enrolled student who plans to take courses at another college or University (either domestically or internationally) to transfer credit to AUN must be in good academic standing and have a solid record of good conduct. Permits to Study may not be authorized for courses at non-accredited four-year institutions, and all AUN Transfer of Credit policies apply.

Prior to study at another institution, students must receive approval from their Dean, their Department Chair, Academic Advising and the Registrar using the 'Permit to Study' form. With proper approvals in place, transfer of credit can be applied to both major and general education requirements when appropriate.

Students intending to study outside the country must be in close communication with the Coordinator of Study Abroad Program regarding application requirements and arrangements with the host University. Upon return to AUN, students must submit an official transcript to the Office of the Registrar. The official transcript must be sent directly from the other institution to AUN. The transcript will be evaluated and authenticated. The student will be notified of accepted transfer credits and course equivalents via AUN e-mail. Only those courses that were previously approved on the Permit to Study form will transfer. For details of Study Abroad see the section on Academic and Consolidated Services for AUN Students.

We will evaluate transcripts of A-Level students on an individual basis and determine what credits will be transferred.

AUN accepts to transfer passing grades A-D on all relevant A'level subjects. It is at the discretion of each school to accept credit transfer a passing grade of E at the A 'level.

Student Code of Conduct

Preamble

The central commitment of the American University of Nigeria (AUN) is to develop thoughtful and responsible human beings with the highest moral and ethical standards, within the context of a very diverse yet collaborative academic environment. This commitment is founded on the following core values of the University: Tolerance and understanding among national, ethnic, and religious groups;

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Freedom of Expression; Non-discrimination in the admission and employment processes with regard to gender, age, religion, nationality, ethnicity, physical ability, political affiliation, or personal relationships. Excellence and integrity are the core principles that guide us.

This Student Code of Conduct is designed to benefit and assist the AUN community in forming the highest standards of ethics and morals among its students population and it is not in any way designed to either conform or conflict with any civil or criminal justice system of Nigeria. It is designed to foster the University's commitment to excellence and equity, while affirming the shared values that make community life possible. Students with alleged violations of the Student Conduct Code should contact the Office of judicial affairs to receive further information on disciplinary procedures.

I. Authority for Student Discipline

Ultimate authority for all University policies is vested in the Board of Trustees of the American University of Nigeria. Nonacademic disciplinary authority has been delegated by the President to the Dean of Students to implement student conduct policies and take all necessary and appropriate action(s) to protect the safety and well-being of all members of the American University of Nigeria community.

In practice, the resolution of nonacademic disciplinary cases may involve an array of the University administrators, committees of students, staff, and faculty. Such resolutions or decisions are forwarded to the Dean of Students as recommendations. Students are expected to assume positions of responsibility in the University judicial system in order to contribute their skills and insights to the resolution of disciplinary cases. The University reserves the right to amend this Student Conduct Code at any time according to the established procedures.

II. Responsibilities and Rights

Every student has a duty to read, understand and abide by the rules and regulations of the University. Ignorance of a rule or regulation will not be an acceptable defense. Students accused of disciplinary violations are entitled to the following procedural protections:

1. To be informed of the charges against them;
2. To request an informal resolution of the case;
3. To be allowed reasonable time to prepare a defense;
4. To hear and respond to evidence upon which a charge is based;
5. To call relevant witnesses and question the witnesses who testify in Code violation proceedings;
6. To be assured of confidentiality according to the terms of the University policy on confidentiality;
7. To request that any person conducting a disciplinary conference, or serving as a Conduct Council member or Hearing Administrator, be disqualified on the grounds of personal bias;
8. To be provided with an opportunity to review these rights before any disciplinary conference or hearing;
9. To be considered not responsible for the charges until found responsible by a preponderance of evidence; and
10. To have reasonable access to the case file prior to and during the disciplinary conference or hearing.

III. Jurisdiction

The Student Code of Conduct is the University's policy for nonacademic conduct offenses and applies to all students, student groups, and student organizations at AUN. The University retains jurisdiction

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over alleged infractions that occur during a student's matriculation or attendance at the University, including Fall, Spring, and Summer breaks and periods of leave of absence from the University. Therefore, a hearing may be scheduled after a student has completed a program, withdrawn, or graduated from the University.

Generally, the University will take disciplinary action for on-campus infractions of the Code. However, the University may take disciplinary action for off-campus infractions of the Code, when a student's behavior threatens or endangers the safety and well-being of the University community; when a student is the subject of a violation of local, state, or federal law; or when, in the judgment of the University officials, a student's alleged misconduct has a negative effect on the University's pursuit of its mission or on the well-being of the greater community.

IV. Violations of Laws and Regulations of the University

Students may be accountable both to civil authorities and to the University for acts that constitute violations of law and of this Code. The University reserves the right to initiate disciplinary proceedings where the conduct of the student is unbecoming of a fit and proper person worthy of the University's degree recommendation.

V. Definitions

A. *"Aggravated violation''* — a violation that resulted, or could have resulted, in significant damage to persons or property or which otherwise posed a substantial threat to the stability and continuance of normal University, or University-sponsored, activities.

B. *"Consent''* — words, or acts of conduct, indicating a freely given agreement to have sexual intercourse or to participate in sexual activities. Sexual contact will be considered –without consent, if no clear consent, verbal or nonverbal, is given; if inflicted through force, threat of force, or coercion; or if inflicted upon a person who is unconscious or who otherwise reasonably appears to be without the mental or physical capacity to consent.

C. *"Disciplinary Conference''* — a forum in which a hearing officer meets with a student to adjudicate an alleged violation of the Code.

D. *"Disciplinary Hearing''* — a forum in which a panel of the Conduct Council meets with a student to adjudicate an alleged violation of the Code.

E. *"Disorderly''* — conduct which a reasonable person under similar circumstances should be expected to know would disturb the peace.

F. *"Group''* — persons who are associated with each other, but who have not complied with University requirements for recognition as an organization.

G. *"Harassment''* — a form of discrimination consisting of physical or verbal behavior that:

(i) is directed at an individual because of the individual's age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity or other status; and

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(ii) is sufficiently severe or pervasive so as to substantially interfere with the individual's employment, education or access to University programs, activities and opportunities.

H. ''*Hearing Administrator''* – a staff member who conducts disciplinary hearings as set Fourth in section XV of this Code.

I. *"Hearing Officer''* — a staff member who conducts disciplinary conferences as set Fourth in Sections XIV of this Code.

J. *"Jurisdiction''* - the ability to hear and decide a case.

K. *"Institution"* and *"University''* — American University of Nigeria and all of its undergraduate and graduate departments and programs.

L. *"Organization''* — an association of persons that has met University requirements for formal recognition.

M. *"Preponderance of evidence''* — a measure of proof that a reasonable person would accept as more likely than not that a fact is true or an incident occurred.

N. *"Sexual violence''* — any act of sexual intercourse or sexual penetration of any orifice of the body with a body part or other object that takes place against a person's will or without consent or that is accompanied by coercion or the threat of bodily harm. [Also see ‑consent].

O. *"Reckless''* — conduct which a reasonable person under similar circumstances should be expected to know would create a substantial risk of harm to person(s) or property or which would otherwise be likely to result in interference with normal University or University sponsored activities.

P. *"Relevant''* — related to the charges at hand. Relevant information may be excluded by a hearing officer or administrator during a disciplinary conference or hearing if it is unfairly prejudicial.

Q. *"Sexual harassment''* — unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature when: submission to such conduct is made explicitly or implicitly a term or condition of a person's employment or academic advancement; submission to or rejection of such conduct by a person is used as the basis for employment decisions or academic decisions affecting such a person; or such conduct has the purpose or effect of unreasonably interfering with a person's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment. [Also see Sexual Discrimination and Harassment Policy]

R. *"Stalking''* — repeated and unwanted contact directed at any person, including contact by electronic means or by proxy, or the credible threat of repeated contact with the intent to place a reasonable person in fear for his or her safety or the safety of his or her family or close acquaintances.

S. *"University Premises''* — buildings and grounds owned, leased, operated, controlled, or supervised by the University.

T. ''*University Sponsored Activity''* — any activity, on or off University premises, that is specifically initiated or supervised by the University.

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U. *"Weapon''* — firearms, fireworks, explosives, metal knuckles, knives, or any other instrument designed, used or intended to be used to inflict injury to person or property.

V. *"No Contest''* - where the respondent neither admits nor disputes charges. Serving as an alternative to pleading guilty or not guilty.

VI. Prohibited Conduct

This Code is not written with the specificity of a criminal statute, nor is it intended to cover every instance of potentially prohibited conduct. American University of Nigeria expects its students, wherever they are, to adhere to high standards of honor and good citizenship and to conduct themselves in a responsible manner that brings credit to themselves and the University.

Attempting to commit; aiding, abetting or inciting others to engage in any prohibited conduct is punishable under this Code and may be considered as serious as engaging in the violation itself. Retaliating against anyone who reports an alleged violation of the Code, a witness or participant in any Code proceeding or investigation is also prohibited.

The following misconduct is subject to disciplinary action:

A. Physical Abuse/Endangerment of a Person: Includes but is not limited to physical assault causing bodily injury or harm, conduct which threatens or endangers the health or safety of any person(s), facilitating or participating in any mental or physical activity that creates a reasonable apprehension of harm.

B. Sexual Misconduct: Prostitution, engaging in lewd or indecent conduct and all forms of nonconsensual sexual activity including sexual violence; and sexual abuse such as unwanted sexual touching or fondling.

C. Harassment or Stalking: See Definitions' section above.

D. Weapons: Using, possessing, distributing or manufacturing a material or device offensive or likely to be used to cause injury to another. No person shall possess, use or carry any weapon, ammunition or explosive unless specifically authorized by the University.

E. Safety Hazards: Unless explicitly authorized by the University any possession, use, carrying, manufacturing and/or distribution of fireworks on University property is forbidden. Tampering/interfering with fire or other safety equipment or setting unauthorized fires is also prohibited.

F. Property Offences: Stealing of property or services; knowingly possessing stolen property; willful or reckless destruction or defacement of property of the University or members of the University community;

G. Unauthorized Entry or Use: Entry, attempt to enter, or remaining without authority or permission in any University office, residence hall room, University sponsored event, or University premises; unauthorized use/abuse of University computer equipment, networks, systems, services, corporate name, logo, or symbols.

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H. Alcohol/Drugs/Substance Abuse: Violation of University policies pertaining to substance abuse, use, possession, manufacturing, sale or distribution of any controlled substance, alcohol, illegal drug and/or illegal drug paraphernalia. It is also a violation for a student to be in the presence of any person(s) engaging in substance abuse, use of illegal drugs or alcohol on University premises contrary to established policies.

I. Providing False Information: Knowingly providing false statements about a Code violation or during a University investigation/proceeding; intentionally providing or causing to be initiated any false report, warning, or threat of fire, explosion, or other emergency.

J. Fraud/Forgery: In University matters not covered by the Academic Integrity Code – dishonesty; misrepresentation; fraud; forgery; or knowingly using false information, documents, or instruments of identification. This includes but is not limited to falsifying residence hall contracts, stealing another's identity, forging a permit and misuse of official forms and meal tickets.

K. Disrupting University Activities: Intentionally or recklessly interfering with normal University or University sponsored activities, including but not limited to studying, teaching (including class sessions or office hours), research, University administration; or fire, police, or emergency services.

L. Unruly Conduct: Disorderly conduct including participating in a riot or interfering with the rights of others.

M. Failure to Comply: Willfully failing to comply with the directions of University officials, including public safety personnel or housing staff members who act in performance of their duties; violating the terms of any disciplinary sanction imposed in accordance with this Code.

N. Violations of University Regulations: Violation of other published nonacademic University regulations or policies including but not limited to gambling or gaming unbecoming of a University student; policies related to discrimination and discriminatory harassment, computer use, the residence halls, hazing, bullying, unauthorized use of vehicles, littering, and amplification of sound.

O. Violations of Law: Violation of local, state, or federal law that substantially affects the University's mission or interest.

VII. Standards of Classroom Behavior

Primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in disruption of a class may be directed by the faculty member to leave the class for the remainder of the class period. Longer suspensions from class or dismissal on disciplinary grounds for prohibited conduct under section VI of this Code may include interim suspension, as set Fourth in Section IX. All other violations under section VI of this Code must be preceded by a disciplinary conference or hearing, as set Fourth in Sections XIV and XV of this Code.

Academic dishonesty allegations are processed in accordance with procedures set Fourth in the Academic Integrity Code. Students could be subject to both the Student Code of Conduct and the Academic Integrity Code in cases where there is a combination of alleged violations of academic and nonacademic regulations. Where there is any conflicts whether procedurally or otherwise, the Director of Judicial Affairs will put up a recommendation to both the DSA and Academic VP or those in charge.

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VIII. Student Groups and Organizations

Student groups and organizations may be charged with violations of this Code, as described below:

A. A student group or organization and its officers or members may be held collectively and individually responsible when violations of this Code by those associated with the group or organization have received the consent or encouragement of the group or organization or of the group's or organization's leaders or officers.

B. The officers or leaders or any identifiable spokesperson for a student group or organization may be ordered by the Dean of Students to take appropriate action designed to prevent or end violations of this Code by the group or organization. Failure to make reasonable efforts to comply with the Dean's order shall be considered a violation of this Code, both by the officers, leaders, or spokespersons for the group or organization and by the group or organization itself.

C. Sanctions for group or organization misconduct may include revocation or denial of registration or recognition, as well as other appropriate sanctions.

D. Student organizations, may appoint panels or boards to mediate disputes and enforce association bylaws. Decisions or recommendations by such panels or boards do not constitute official action by the University.

IX. Interim Suspension

The Dean of Students or his/her designee may suspend a student from the University for an interim period, pending disciplinary or criminal proceedings or a proceeding investigation or medical evaluation regarding the behavior relevant to such proceedings. The interim suspension will be effective immediately without prior notice whenever there is evidence that continued presence of the student at the University poses a substantial and immediate threat to him or herself, to others, or to the stability and continuance of normal University functions. Interim suspension excludes students from University premises and other privileges or activities. A student suspended on an interim basis could be given a prompt opportunity to appear personally before the Dean of Students or designee in order to discuss the following issues only:

(a) the reliability of the information concerning the student's conduct, including the matter of identity;

(b) whether the conduct and surrounding circumstances reasonably indicate that the continued presence of the student on University premises poses a substantial and immediate threat to him or herself, to others, or to the stability and continuance of normal University functions.

X. Conduct Council

The Conduct Council will consist of students, faculty, and staff: students to be chosen by the Student Government Association; faculty to be chosen by the Faculty Senate or academic VP/Provost, and staff to be chosen by the Residence Hall Association or staff council. In addition, students, faculty, and staff may apply to become members of the Conduct Council by contacting their respective constituent units. The Dean of Students or his/her designee is responsible for training and providing administrative support to the Council. Among other duties, members of the Conduct Council will sit

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on hearing panels designed to resolve allegations referred for a hearing in accordance with Section XV of this Code.

A. The Conduct Council shall comprise of five (5) persons: one (1) student, two (2) faculty members, and two (2) staff members.

B. At the request of the Dean of Students or his/her designee, an *ad hoc* hearing panel of the Conduct Council may be established (selected from the existing Conduct Council or *bona fide* members of the AUN community) whenever a five-person hearing panel cannot be constituted, or is otherwise unable to hear a case. An *ad hoc* Conduct Council hearing panel may be composed of a minimum of three persons: one (1) faculty member, one (1) student member, and one (1) staff member of the Conduct Council (or bona fide members of the AUN community.)

C. The Conduct Council, or its *ad hoc* equivalent, shall have the power to render a decision by a simple majority, and the Chair or the Hearing Administrator, following reasonable deliberations, shall, on behalf of the panel, pronounce appropriate sanctions (sentence) as prescribed, or set Fourth in the —Offences and Sanctions Guidelines in certain circumstance, the Director of Judicial affairs or designee shall break a tie where such exist.

D. Members of the Conduct Council who are charged with any violation of this Code, other University policies, or a criminal offense may be temporarily suspended from their positions by the Dean of Students while charges against them are pending. Members found responsible for any such violation or offense may be disqualified from any further participation in the University discipline system. Additional grounds and procedures for removal may be established by the Dean of Students.

XI. Advisors

At their own discretion, complainants and respondents may be advised by an AUN student, faculty, or staff member. The role of advisors is limited to consultation. While advisors may be present at disciplinary conferences or hearings, they may not address hearing bodies, speak in disciplinary proceedings, or question witnesses. Because the purpose of this disciplinary process is to provide a fair review of alleged violations of this Code rather than a formal legal proceeding, participation of persons acting as legal counsel is not permitted

XII. Standards of Due Process

Students who may be subject to dismissal, suspension, or removal from the University housing will be referred to the Director of Judicial Affairs and will be responsible for their off-campus necessitates including ticket back home. The Director, in consultation with the Dean of Students, may determine the case at first instance or refer it to a disciplinary hearing, as specified in Section XV of this Code. Students who may be subject to lesser sanctions for nonacademic misconduct will be referred to a disciplinary conference, as set Fourth in Section XIV of this Code. Formal rules of evidence will not be applied, nor will deviations from prescribed procedures necessarily invalidate a decision, unless significant prejudice to a student respondent or the University may result.

XIII. Procedures for Case Resolution

A. Mediation is encouraged as an alternative means to resolve some disciplinary cases. The Dean of Students will determine if mediation is appropriate. The Dean, at his or her discretion, may decline to process a complaint until the parties in a nonacademic misconduct case make a reasonable attempt to achieve a mediated settlement. To be binding in a disciplinary case, any mediated

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settlement must be approved by the Dean of Students. If mediation fails, the case will be forwarded for a disciplinary conference.

B. Any AUN student, faculty, or staff member may refer a student, student group, or organization suspected of violating this Code to the Director of Judicial Affairs. Those referring cases are normally expected to serve as the complainant and to present relevant evidence in hearings or disciplinary conferences. The complainant may request the assistance of an advisor, as set Fourth in Section XI of this Code. A written complaint must be filed with the Director of Judicial Affairs within 15 days (excluding weekends, official University holidays, Fall and Spring breaks) of the occurrence or discovery of the alleged infraction(s). Complainants filing cases after the 15- day filing period may request in writing an extension of the filing period from the Director of Judicial Affairs. Requests for waivers of the filing period may be made up to one major semester (Fall or Spring) after the date of discovery of the alleged incident. In such cases, the Director will evaluate whether a reasonable person might be justified in filing after the 15-day period due to the nature of the charges alleged. The deadline for filing a case will also be extended if there is an alleged violation of the University's discrimination and discriminatory harassment policy, sexual discrimination and harassment policy, whistleblower policy, or a Conduct Code violation involving rape, sexual assault, or stalking. In such cases, the complainant will have one semester from the date of discovery within which to file a complaint as set Fourth in this Student Code of Conduct.

C. The Director of Judicial Affairs will conduct a preliminary review to determine whether the alleged misconduct, if proved, might result in dismissal, suspension, or removal from University housing. Students, who may be subject to removal from University housing, suspension, or dismissal, will have their case determined by the Director of Judicial Affairs who will then make recommendation to the Dean of Students, unless the Director refers the case to a Conduct Council panel. Students who are unlikely to be subject to removal from University housing, suspension, or dismissal will be referred to a disciplinary conference or a disciplinary hearing with a hearing officer (either the Director of Judicial Affairs or his/her designee), as set Fourth in Section XIV of this Code.

D. Students referred for a disciplinary hearing by the Director of Judicial Affairs may elect to have their cases resolved in a disciplinary conference in accordance with Section XIV of this Code. Such an election must be in writing, affirming that the student is aware a hearing is being waived. The full range of sanctions may be imposed, including removal from the University housing, suspension, or dismissal from the University. Both the findings and the sanctions determined by the hearing officer will be regarded as recommendations to the President or his/her designee in the case of removal from University housing, suspension, or dismissal.

E. Hearing panel members, complainants, and respondents will have the right to question relevant witnesses who testify at disciplinary hearings.

F. The University may withhold awarding a diploma or degree otherwise earned until the completion of the process as set Fourth in this Code, including the completion of all sanctions imposed, if any. Withholding of a diploma or degree means the withholding of a diploma or degree otherwise earned for a defined period of time or until the completion of assigned sanctions.

XIV. Procedures for Disciplinary Conferences (Minor offences)

Students accused of nonacademic offenses that will likely result in penalties less than removal from the University housing, suspension, or dismissal could be subject to a disciplinary conference with a hearing officer. The Director of Judicial Affairs or designee will serve as the hearing officer and

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conduct the disciplinary conference. Any party may challenge a hearing officer on the ground of personal bias. The hearing officer may be disqualified by the Dean of Students.

The hearing officer will make inquiries into evidence if necessary to ensure a just outcome of the case. Respondents who fail to appear after proper notice will be deemed to have pled no contest to the charges pending against them. Nonetheless, the complainant will be required to file a case that meets the standard of a preponderance of evidence.

In complex cases, the Director of Judicial Affairs, at his or her discretion, may refer the case to a disciplinary conference board. Such Conference board members, as opposed to the Conduct Council, will be selected by the Dean of Students. The board will consist of one hearing officer and two Conduct Council members, including at least one student.

Decisions of the disciplinary conference board are determined by majority vote and are final. The Dean of Students will review all disciplinary conference decisions to ensure their procedural integrity and consistency with the outcomes of prior disciplinary cases. In cases of minor violations where the Dean of Students serves as the hearing officer, the President or his/her designee will conduct the review.

The following procedural protections are provided to respondents in disciplinary conferences:

A. written notice of the specific charges at least three business days prior to the scheduled conference with additional time at the discretion of the Director of Judicial Affairs;

B. reasonable access to the case file prior to and during the conference;

C. an opportunity to respond to the evidence;

D. a right to be accompanied by an advisor, as provided in Section XI of this Code

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XV. Procedures for Disciplinary Hearings (Major offences)

The Director of Judicial Affairs will consult the Dean of Students before deciding any disciplinary hearing case or referring such case to a Conduct Council panel. In cases before the Conduct Council:

A. The Dean of Students or designee may participate in hearing panel deliberations and discussions of the Conduct Council but cannot vote. The Council Chair is responsible for final decisions on all procedural issues and may modify hearing procedures, if necessary, to ensure a fair and expedient administration of the hearing.

B. The Director of Judicial Affairs shall serve respondents notice of the hearing date and the specific charges against them at least five business days in advance of the hearing. Respondents will be accorded reasonable access to the case file, which will be retained in the office of the Director of Judicial Affairs.

C. Respondents who fail to appear after proper notice will be deemed to have pled no contest to the charges pending against them. Nonetheless, the complainant will be required to present a case that meets the standard of a preponderance of evidence.

D. All hearings are closed to the public. The Director of Judicial may allow certain required persons to attend a hearing.

E. The hearing administrator will exercise control over the proceedings to avoid needless consumption of time and to achieve orderly completion of the hearing. Any person -including the respondent- who disrupts a hearing may be excluded by the hearing administrator.

F. The University will make audio recordings of hearings. A transcript of the hearing will be provided, upon written request by the respondent, who must pay for the cost of the transcript service.

G. Any party may challenge a panel member or the hearing administrator on the grounds of personal bias. Hearing panel members may be disqualified by the hearing administrator. A hearing administrator may be disqualified by a majority vote of the members of the hearing panel. Votes will be taken by secret ballot.

H. Witnesses will be asked to affirm that their testimony is truthful and may be subject to charges of violating this Code by intentionally providing false information to the University.

I. Witnesses, other than the complainant and the respondent, will be excluded from the hearing except when providing testimony to the hearing panel. All parties, the witnesses, and the public will be excluded during panel deliberations, which will not be recorded or transcribed.

J. The charges against the respondent must be established by a preponderance of evidence.

K. Formal rules of evidence will not be applicable in disciplinary proceedings conducted pursuant to this Code. The hearing administrator will abide by the rules of confidentiality and privilege, but will admit all other matters into evidence which are relevant. The respondent may challenge the relevance of evidence. Irrelevant or unduly repetitious evidence may be excluded by the hearing administrator.

L. Complainants and respondents will be accorded an opportunity to ask relevant questions of witnesses who testify at the hearing.

M. Affidavits will be admitted into evidence only if signed by the affiant and witnessed by the Dean of Students or his/her designee.

N. A determination of responsibility will be followed by a supplemental proceeding in which either party may submit relevant evidence or make relevant statements concerning the appropriate sanction to be imposed. The past disciplinary record of the respondent will be supplied to the panel only during the supplementary proceeding.

O. Any determination of responsibility by majority vote of the hearing panel will be supported by written findings, which will be placed in the case file and made available to the student respondent before a final decision is rendered by the Dean of Students.

P. All members of the conduct council are bound by confidentiality before hearings and after the proceedings.

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XVI. Sanctions

Significant mitigating or aggravating factors will be considered when sanctions are imposed, including the present demeanor and past disciplinary record of the offender, the nature of the offense, and the severity of any damage, injury, or harm resulting from it. Repeated or aggravated violations of any part of this Code may also result in relocation or removal from University housing, suspension, or dismissal. Sanctions which may be imposed in accordance with this Code include, but are not limited to:

A. "Apology Letter" – a written admission of guilt requesting forgiveness from the complainant or offended party. A copy of the letter will be kept in the case file.

B. "Warning"—notice, oral or written, that continuation or repetition of prohibited conduct may be cause for additional disciplinary action.

C. "Censure"—a written reprimand for violation of specified regulations, including a warning that continuation or repetition of prohibited conduct may be cause for additional disciplinary action.

D. "Alcohol/Drug/Substance Abuse Education Program" – requirement to complete a University or University approved education program on alcohol/drug/substance abuse. Students sanctioned under this heading will be required to pay for all attendant costs.

E. "Disciplinary Probation"—status assigned for a designated period of time, during which any other violation of the Code may result in removal from University housing, suspension, or dismissal from the University. Students on disciplinary probation may not hold or run for any elected or appointed positions. Additional conditions appropriate to the violation may be imposed.

F. "Restitution"—repayment of the direct cost to the University for damages resulting from a violation of this Code.

G. "Relocation in University Housing"—administrative reassignment to a different residence hall and/or room.

H. "Removal from University Housing"—denial of housing privileges.

I. "Suspension"—exclusion from University premises and other privileges or activities for a specified period as set Fourth in the suspension notice. This action will be permanently recorded on the student's academic transcript.

J. "Expulsion"—permanent termination of student status and exclusion from University premises, privileges, and activities. This action will be permanently recorded on the student's academic transcript.

K. "Revocation of Degree"— rescinding a student's degree awarded by the University.

L. "Other Sanctions"—other sanctions may be imposed instead of or in addition to those specified in sections (A) through (K) of this section. Service or research projects may be assigned.

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Sanctions by the code of conduct council are to be considered as recommendations to the Dean of Students and are not final.

XVII. Appeals

First instance disciplinary hearing decisions of the Conduct Council are appealable to the appeal board while disciplinary conference decisions are to the Dean of Students who may refer the appeal to the Conduct Council. All appeals shall be in keeping with the following provisions:

A. The appeals to the appeal board/panel must be in writing and delivered to judicial affairs to be processed for the appeal board's hearing within seven business days after the notice of removal from the University housing, suspension, or dismissal is delivered to the address on record for the student in the Office of the Registrar.

B. Appeals will be reviewed by an appellate board of the Conduct Council to determine their viability. The appellate board will consist of one student, one faculty member, and one staff member selected from the Conduct Council. In appeal cases from Conduct Council decisions the appellate panel will be constituted of members who did not serve on the original hearing panel. The appellate board will meet as soon as possible after the appeal is received.

C. The appellate panel will determine viability based on whether there is new information that significantly alters the finding of fact, evidence of prejudicial deprivation of rights or improper procedure, or excessive sanctions. Only when deemed viable will the appeal be forwarded to the Conduct Council or the Dean of Students, as the case may be, for review. Decisions of the appellate board about the viability of the appeal are determined by majority vote and are final.

D. The appellate panel may deny the request for appeal and affirm the original findings or grant the request for appeal and forward its recommendations to the Dean of Students or his/her designee. Appeals are not meant to provide a second hearing of the case. All appeals will be decided based on the report filed by the hearing officer and the appellate board, the respondent's written statement, and any written response or memoranda prepared by University officials. All written materials considered by the appellate board and the Dean of Students or his/her designee will be subject to inspection by the respondent. The respondent may request an opportunity to discuss the written materials in person with the Dean or his/her designee. Appeal decisions rendered by the Conduct Council or the Dean of Students or his/her designee are final.

E. The following standards will apply when appeals are deemed viable:

1. Sanctions may be reduced only if found to be substantially disproportionate to the offense.

2. Cases may be remanded for rehearing only if:

(a) The rights deprived, specified procedural errors or errors in interpretation of the University regulations were so substantial as to deny the student a fair hearing; or

(b) New and significant evidence becomes available that could not have been discovered by a properly diligent student before or during the original hearing.

F. The imposition of sanctions will be deferred while an appeal is pending, unless, in the discretion of the Dean of Students or his/her designee, the continued presence of the student in the residence

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halls or on the campus poses a substantial threat to him or herself, to others, or to the stability and continuance of normal University functions.

XVIII. Disciplinary Records

Except as noted below, disciplinary records are maintained by Office of the Judicial Affairs for seven years from the date of the letter providing notice of final disciplinary action. Records for a student who is suspended, dismissed, or who withdraws with a disciplinary case pending are maintained indefinitely. Evidence collected for cases shall also form part of disciplinary records. The university reserves the right to confiscate any student item(s) that is/are associated with a reported matter for investigation/hearing/any cogent concern. Such item(s) may be kept in the custody to the Office of Judicial Affairs indefinitely.

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Bachelor of Engineering Degree Program Requirements

Engineering students must complete the University wide required General Education program (50 + 1 credits). This program supports a liberal arts experience that prepares students for success in their majors and personal & professional lives after graduation.

General Education Requirements (50 + 1 credits)

This general education requirement below is specific to Engineering programs.
Students are required to complete all General Education courses as listed.

Discipline	Course Code	Course Title	Credit Hours
First Year Experience (total 1 credit)	AUN 101	First Year Experience	1
Arts and Humanities (total 9 credits)	GEN 102 GEN 103 PHI 300	Nigerian Peoples and Culture History and Philosophy of Sc. Ethics and Leadership	3 3 3
Community Service (total 3 credits)	CDV 2xx	Community Development	3
Critical Thinking and Problem Solving (total 3 credits)	AUN 300	Critical Thinking and Problem Solving	3
Entrepreneurship (total 6 credits)	ENT 101 ENT 201	Intro. to Entrepreneurship Entrepreneurship II	3 3
Information Technology (total 3 credits)	CIE 111	Introduction to Computers and Computing	3
Mathematics* and Statistics (total 6 credits)	MAT 112 MAT 210 STA 101	*Pre-calculus* Calculus 1 Introduction to Statistics I	*3* 3 3
Natural and Physical Sciences (total 8 credits)	PHY 205 (Lab) CHE 120 (4 credits) (Lab)	University Physics I General Chemistry I	4 3+1*
Social Behavioral Sc. (total 6 credits)	ANT/CIV/ECO/HIS/ICP/PSY/SOC ANT/CIV/ECO/HIS/ICP/PSY/SOC	Refer to Course Description	3 3
Writing* (total 6 credits)	WRI 101 and WRI 102	Composition I Composition II	3 3
		TOTAL	**50+1**
NOTE: SOE students are strongly encouraged to complete two four (4) credit hours of Natural & Physical Sciences as a General Education requirement to reach the minimum total overall graduating credit hours required, hence a total of 51 total credits of GENED is earned.			

Writing and Mathematics Requirement*

Dependent on the results of the placement test, this will determine the number of courses required.

If a student is placed in…	**Credit Hours**

WRI 100 *Intro. to Compositions*	*This is a non-university credit bearing course and does NOT count towards the overall total graduation credits required. This course does not satisfy GENED requirement. Upon successful completion, a student must enroll in WRI 101.*	*0*
MAT 100 (Pre-algebra)	*This is a non-university credit bearing course and does NOT contribute towards the overall total graduation credits required. This course does not satisfy GENED requirement. Upon successful completion, a student will enroll in MAT 110.*	*0*
MAT 110 University Algebra	This course does not satisfy GENED requirement for all SOE programs. ***NOTE – this course may satisfy FREE ELECTIVE (min. C grade required). Consult with program chair.***	3
MAT 112 Pre-Calculus	This course satisfies GENED requirement for all SOE programs. ***NOTE – this course may satisfy FREE ELECTIVE (min. C grade required). Consult with program chair.***	3
MAT 210 Calculus I	This course satisfies GENED requirement.	3

Free Electives are required by all AUN students, a minimum of 9 credits is required as part of any degree program.

Requirement	Course Code	Course Title	Credit Hours
FREE ELECTIVES (min. 9 credits)	XXX xxx	Visit program chair	1-4
	XXX xxx		1-4
	XXX xxx		1-4

In addition to the general education and free elective courses, SOE students are also required to complete specific SOE major requirements (core, internship, major electives) to complete the graduating credit hours.

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Bachelor of Engineering (B.Eng) Computer Engineering

The Computer Engineering Program is designed to prepare an engineer to work with all aspects of computers – not just software, not just hardware, but both. The software world includes high-level languages and complex programs, which are often required to solve problems. In the hardware world, designs also include many aspects of the physical world like temperature or noise, energy source and characteristics (particularly in our country still witnessing equipment-damaging power surges) and often must include compromises between many opposing factors. The ability of a computer engineer to work in both worlds is what distinguishes him or her from a computer scientist (with little training with hardware) or an electrical engineer (with little training in software). Thus, the Computer Engineering Program includes several courses in both Electrical and Electronic Engineering (such as circuits and electronics) and Computer Science (such as data structures and operating systems).

Graduates are expected to have a sound knowledge of the fundamentals in electrical or computer engineering that allows them to analyze and solve technical problems, to apply hardware and software tools to problem solution, and to create and evaluate technical products.

The primary areas of specialization are:

a. Artificial Intelligence (developing computers that simulate human learning and reasoning abilities)

b. Computer Architecture (designing new computer instruction sets, and combining electronic or optical components to yield powerful computing systems)

c. Computer Design and Engineering (designing new computer circuits, microchips, and other electronic computer components)

d. Computer Theory (investigating the fundamental theories of how computers solve problems, and applying the results to other areas of computer engineering)

e. Information Technology (developing and managing information systems that support a business or other organization)

f. Operating Systems and Networks (developing the basic software computers use to supervise themselves or to communicate with other computers)

g. Robotics (designing computer-controlled robots for performing repetitive industrial tasks)

h. Software Applications (applying computing software to solve problems outside the computer field - in education or medicine, for example).

i. Software Engineering (generating computer programs).

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AUN 5-Year Computer Engineering Degree Award Requirement

To be eligible for the award of a COMPUTER ENGINEERING degree, a candidate must satisfactorily complete the minimum number of units prescribed for the degree. This would involve successfully completing the approved compulsory and elective courses of the School and other departments of the University.

Bachelor of Engineering Computer Engineering Credit Hours Requirement						
Program	MAJOR					**Overall Graduation Requirement**
	Minimum Total Credit Hours					
	GenEd	Core	Internship	Free Electives	Major Electives	184
Computer	50 + 1*	114	6	9	4	

*All Engineering students must enroll in a two 4-credit hour course that satisfies Natural & Physical Sciences which is a total of 8 credit hours and not 7 credit hours as listed in General Education requirements.

Credit Hours Load Breakdown

Year 1 40
Year 2 42
Year 3 42
Year 4 24
Year 5 36

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5 YEAR STUDY PLAN SAMPLE - BACHELOR OF ENGINEERING COMPUTER ENGINEERING

Please note that this study plan is meant as a guide only.
This study plan does not represent any remedial course (WRI 100, MAT 100). Due to faculty and scheduling changes, some courses may not be offered during the semesters indicated. Check with your faculty and academic advisors along with your program chair each semester to be up to date with changes to the study plan.

YEAR 1 FIRST SEMESTER (20 CREDITS)			**Computer Engineering**	
Course Code		**Course Title - Prerequisite**	**Credit Hours**	**Requirement**
MAT 112	-	Elementary Mathematics II; Pre-req: Placement Test/MAT 110	3	GENED
WRI 101	-	Composition I; Pre-req: placement exam/WRI 100	3	GENED
AUN 101	-	AUN First Year Experience; Pre-req: None	1	GENED
ENT 101	-	Introduction to Entrepreneurship; Pre-req: None	3	GENED
CIE 111	-	Introduction to Computers and Computing; Pre-req: None	3	GENED
CHE 120	-	General Chemistry I; Pre-req: None	4	GENED
Select One	-	ANT/CIV/ECO/HIS/ICP/PSY/SOC; Pre-req: None	3	GENED

YEAR 1 SECOND SEMESTER (20 CREDITS)			**Computer Engineering**	
Course Code		**Course Title - Prerequisite**	**Credit Hours**	**Requirement**
GEC 134	-	Mathematics III & IV; Pre-req: Placement Test/MAT 110	3	CORE
PHY 205	-	University Physics I; Pre-req: None	4	GENED
GEN 102	-	Nigerian Peoples and Cultures; Pre-req: None	3	GENED
AUN 300(PHI 102)	-	Logic and Philosophy; Pre-req: None	3	GENED
CHE 121	-	General Chemistry II; Pre-req: CHE 120	4	CORE
WRI 102	-	Composition II; Pre-req: WRI 101	3	GENED
TOTAL NO OF CREDITS:			***40***	

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YEAR 2 THIRD SEMESTER (20 CREDITS)			Computer Engineering	
Course Code		**Course Title - Prerequisite**	**Credit Hours**	**Requirement**
GEC 202	-	Engineering Mathematics I; Pre-req: GEC 134	3	CORE
PHY 206	-	University Physics II; Pre-req: PHY 205	4	CORE
GEN 103	-	History and Philosophy of Science	3	GENED
GEC 201	-	Basic Engineering Drawing	2	CORE
GEC 214	-	Applied Mechanics	3	CORE
GEC 218	-	Manufacturing Technology/Workshop Practice	2	CORE
CDV 2xx	-	Community Service	3	GENED

YEAR 2 FOURTH SEMESTER (22 CREDITS)			Computer Engineering	
Course Code		**Course Title - Prerequisite**	**Credit Hours**	**Requirement**
GEC 203	-	Engineering Mathematics II; Pre-req: GEC 202	3	CORE
STA 101	-	Introduction To Statistics	3	GENED
GEC 211	-	Introduction To Electrical Engineering	3	CORE
GEC 221	-	Thermodynamics and Fluid Mechanics	3	CORE
GEC 217	-	Engineer in Society	1	CORE
GEC 224	-	Strength of Materials and Materials Science	3	CORE
GEC 204	-	Introduction To Programming for Engineers; (Programming Principles I)	3	CORE
GEC 228	-	Laboratory Course	3	CORE
TOTAL NO OF CREDITS:			***42***	

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SWEP & SIWES Rating and Assessment – Ask Your SIWES Coordinator & Career Service Office for All The Required Forms.

200 Level - Students Work Experience Program I (SWEP I) - (5 Weeks During The Summer Long Vacation, After The Second Semester of 200 level)

In engineering education, industrial attachment is very crucial. The minimum duration of this attachment should be 34 weeks (one semester and 2 long vacations) and should be broken into the following modules: Students Work Experience Program (SWEP) (10 weeks – long vacation **(SWEP I: 5 weeks during the summer long vacation, after the second semester of 200 level** and SWEP II: 5 weeks during the summer long vacation, after the second semester of 300 level)); Students Industrial Work Experience Scheme (SIWES) (24 weeks, one semester plus summer long vacation).

YEAR 3 FIFTH SEMESTER (21 CREDITS)			Computer Engineering	
Course Code		Course Title - Prerequisite	Credit Hours	Requirement
GEC 301	-	Engineering Mathematics III; Pre-req: GEC 203	3	CORE
EEE 320	-	Measurements & Instrumentation	3	FREE
EEE 314	-	Circuit Theory I	3	CORE
EEE 323	-	Analogue Electronic Circuits	3	CORE
CEN 319	-	Computer Organization & Architecture	3	CORE
CEN 318	-	Laboratory Practicals I	3	CORE
Select One	-	ANT/CIV/ECO/HIS/ICP/PSY/SOC; Pre-req: None	3	GENED

YEAR 3 SIXTH SEMESTER (21 CREDITS)			Computer Engineering	
Course Code		Course Title - Prerequisite	Credit Hours	Requirement
GEC 302	-	Engineering Mathematics IV; Pre-req: GEC 301	3	CORE
EEE 327	-	Digital Electronic Circuits	3	CORE
EEE 329	-	Communication Principles	3	FREE
EEE 311	-	Electromagnetic Field and Wave I	3	CORE
EEE 316	-	Electrical Machines	3	CORE
CEN 316	-	Software Development Techniques	3	CORE
GEC 320	-	Data Communication & Network	3	CORE
TOTAL NO OF CREDITS:			***42***	

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SWEP & SIWES Rating and Assessment – Ask Your SIWES Coordinator & Career Service Office for All The Required Forms.

300 Level - Students Work Experience Program II (SWEP II) - (5 Weeks During The Summer Long Vacation, After The Second Semester of 300 level)

In engineering education, industrial attachment is very crucial. The minimum duration of this attachment should be 34 weeks (one semester and 2 long vacations) and should be broken into the following modules: Students Work Experience Program (SWEP) (10 weeks – long vacation (SWEP I: 5 weeks during the summer long vacation, after the second semester of 200 level and **SWEP II: 5 weeks during the summer long vacation, after the second semester of 300 level))**; Students Industrial Work Experience Scheme (SIWES) (24 weeks, one semester plus summer long vacation).

YEAR 4 SEVENTH SEMESTER (18 CREDITS)			Computer Engineering	
Course Code		**Course Title - Prerequisite**	**Credit Hours**	**Requirement**
GEC 401	-	Engineering Mathematics V; (Probability & Statistics for Engineers)	3	FREE
CEN 417	-	Prototyping Techniques	2	CORE
CEN 418	-	Laboratory Practicals II	2	CORE
CEN 426	-	Object Oriented Design & Programming	3	CORE
GEC 420	-	Technical Communications	2	CORE
PHI 300	-	Ethics and Leadership	3	GENED
ENT 201	-	Entrepreneurship II Pre-req: ENT 101	3	GENED

YEAR 4 EIGHTH SEMESTER (6 CREDITS)			Computer Engineering	
Course Code		**Course Title - Prerequisite**	**Credit Hours**	**Requirement**
CEN 493	-	Industrial Training; 4th yr. standing	6	SIWES

TOTAL NO OF CREDITS: ***24***

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YEAR 5 NINTH SEMESTER (18 CREDITS) **Computer Engineering**

Course Code		Course Title - Prerequisite	Credit Hours	Requirement
EEE 512	-	Reliability & Maintainability	3	CORE
EEE 508	-	Control Theory	3	CORE
CEN 510	-	Embedded System Design	3	CORE
CEN 540	-	Artificial Intelligence	3	CORE
CEN 512	-	Digital System Design With VHDL	3	CORE
CEN 590	-	Project I	3	CORE

YEAR 5 TENTH SEMESTER (18 CREDITS) **Computer Engineering**

Course Code		Course Title - Prerequisite	Credit Hours	Requirement
CEN 526	-	Digital Signal Processing	2	CORE
CEN 515	-	Computer Graphics & Animation	3	CORE
CEN 516	-	Computer Security Techniques	3	CORE
CEN 524	-	Microprocessor System & Interfacing	3	CORE
CEN 591	-	Project II; Pre-req: CEN 590	3	CORE
XXX xxx	-	2 Electives:	4	MAJOR ELECTIVE
		(Recommended - GEC 505 Plus Any 1 Major Electives)		

Electives - Select any 2 major elective courses

Course Code		Course Title - Prerequisite	Credit Hours
CEN 514	-	Cyberpreneurship & Cyberlaw	2
CEN 525	-	Fuzzy Logic and Programming	2
CEN 530	-	Robotic & Automation	2
CEN 528	-	Cryptography Principles & Applications	2
CEN 531	-	Micro-Computer Hardware & Software Techniques	3
CEN 533	-	Digital Image Processing	2
CEN 532	-	Analogue and Digital Computer	2
EEE 533	-	Power Electronics & Devices	3
EEE 537	-	Industrial Electronics Design	2
TLE 505	-	Optical Communication System	2
TLE 507	-	Communication Systems Planning	2
GEC 505	-	Engineering Project Management; Pre-req: 5th yr. (Recommended)	2

TOTAL NO OF CREDITS: ***36***

COURSE SYNOPSES

100 and 200 LEVELS COMMON TO ALL ENGINEERING PROGRAMS & GENERAL EDUCATION

100 LEVEL

AUN 101 First Year Experience (1 Credits)

Is made up in-class interactions and workshops. The course is based on specific topics each week. This course is an introduction to an American style of education and philosophy with a specific focus on academic success, campus involvement and community engagement. Students will discuss issues of value and behaviour in the university setting, discover what resources are available to them, and learn what it means to integrate themselves into the campus and surrounding communities. **Prerequisite: None.**

AUN 300 Critical Thinking and Problem Solving (3 Credits)

Explores critical thinking and problem solving. It addresses issues such as: what is critical thinking and why is it important? how to analyze reasoning; how to evaluate reasoning; fallacies (mistakes in reasoning); analogies; hypotheses; deduction; induction and probability; reading with a critical eye. How to analyze problems; problem solving tools and techniques; how to think 'outside the box' (creative thinking). The course will make extensive use of examples taken from real life.
Prerequisite: None.

CHE 120 General Chemistry I ((4 Credits): 3 lecture, 1 lab)

Introduces matter and measurements; atoms, molecules and ions; stoichiometry; electronic structure of atoms; periodic properties of the elements; basic concepts of chemical bonding; molecular geometry and bonding theories; gases; intermolecular forces; aqueous reactions and solution; thermo chemistry. **Prerequisite: None for Engineering Students.**

CHE 121 General Chemistry II ((4 Credits): 3 lecture, 1 lab)

Introduces modern materials; properties of solutions; chemical kinetics and equilibrium; acid-base equilibria; thermodynamics; chemistry of the non-metals; metals and metallurgy; electrochemistry; chemistry of coordination compounds; the chemistry of life: organic and biological chemistry. **Prerequisite: CHE 120.**

ENT 101 Introduction to Entrepreneurship (3 Credits)

Introduces students to the principles of entrepreneurship, the major areas of business, and the relevance of the various business functions. They are also exposed to the principles of business and connected to how you apply relevant economic, accounting, finance, marketing, human resource management, and other business concepts in the real world of starting and running a successful business. **Prerequisite: none.**

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CIE 111 Introduction to Computers & Computing (3 Credits)

Aims to introduce all AUN students to: 1. The computer as a tool/platform for content creation, storage, processing, and access to applications and services online, and 2. Computing methods to problem solving. Emphasis is placed on gaining literacy and some practice on concepts and the broad areas of computing. Topics: concepts, principles and mechanisms in hardware, software, networking, computer security, algorithms, computer programming, database, Artificial Intelligence, e-commerce, decision support systems, and other emerging technologies such as blogs, wiki, RSS, podcasting, Cloud Computing, Mobile Computing and Google applications. Additional lectures examine social, legal, ethical issues including privacy, intellectual property, health concerns, green computing, and accessibility. **Prerequisite: None.**

GEC 134 Mathematics III & IV (3 Credits)

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 Integral. Application to Areas, Volumes, Moment of Inertia. Approximate Integration: Trapezoidal and Simpson's Rule. Taylor's and Mclaurin's Theorems, Partial Differentiation and Implicit Differentiation. **Prerequisite: Placement Test/MAT 110.**

DEPARTMENT OF

GEN 102 Nigerian Peoples and Cultures (3 Credits).

This course focuses on the history and the cultures of peoples of Africa and particularly Nigeria. It explores the origin of African and Nigerian peoples, as well the social beliefs, norms and values of the peoples of Nigeria and their respective characteristics. This course also examines a wide range of topics from evolution of Nigeria as a political unit, to the diversity of the ethnic groups in pre-colonial, colonial, and post-colonial Nigeria, to topics such as social justice, political economy, religion, politics, colonialism, law and society, nationalism, and host of other contemporary issues in Nigeria. The actual range of issues examined may vary from one semester to another. **Prerequisite: None.**

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MAT 112 Elementary Mathematics II (3 Credits)

(Vectors, Geometry and Dynamics)

Geometric representation of vectors in 1 – 3 dimensions, components, direction cosines. Addition, Scalar, multiplication of vectors, linear independence. Scalar and vector products of two vectors. Differentiation and integration of vectors with respect to a scalar variable. Two-dimensional co-ordinate geometry. Straight lines, circles, parabola, ellipse, hyperbola. Tangents, normals, Kinematics of a particle. Components of velocity and acceleration of a particle moving in a plane. Force, momentum, laws of motion under gravity, projectiles, resisted vertical motion. Angular momentum. Simple harmonic motion, elastic string, simple pendulum, impulse. Impact of two smooth sphere and of a sphere on a smooth surface. **Prerequisite: Placement Test/MAT 110.**

PHI 102 Philosophy and Human Existence (3 Credits)

Is a brief survey of the main branches of Philosophy – philosophy of religion, ethics, self, knowledge and mind, political philosophy. Reference will be made to Nigerian philosophy, where appropriate. **Prerequisites: None.**

PHY 205 University Physics I (4 Credits)

This course covers basic principles of mechanics, heat and wave motion are studied using calculus with an emphasis on applications. Students who have not taken high school physics are advised to take a semester of PHY101 before enrolling in this course. **Prerequisite: None.**

WRI 101 Composition I (3 Credits)

Focuses on the developing effective written communication ability, critical reading skills, and analysis in several major forms of writing. **Prerequisite: WRI 100 or University Placement Test**.

WRI 102 Composition II (3 Credits)

Focuses on the continued development of writing, critical reading, and analysis, and includes argumentative and research-based writing. **Prerequisite: WRI 101.**

ANT/CIV/ECO/HIS/ICP/PSY/SOC - (6 Credits)

ANTHROPOLOGY (ANT)

ANT 101: Introduction to General Anthropology (3 Credits)

Is the study of human life in all its aspects. It is generally divided in four sub-disciplines, all related in their aim to provide a better understanding of the human condition: 1) Physical/Biological Anthropology; 2) Archaeology; 3) Cultural Anthropology, and 4) Linguistics. This course provides an introduction to those major areas of anthropology and the methods and concepts anthropologists use to study human beings. **Prerequisite: None.**

ANT 201: Introduction to Cultural Anthropology (3 Credits)

Focuses on the cultural sub-discipline of Anthropology. Its objective is to introduce students to human cultural diversity and to the methods and concepts anthropologists use to study human societies and cultures. It also examines the temporal, geographic, adaptive, and social diversity of humanity as well as the interaction between culture and human biology. **Prerequisite: None.**

CIVILIZATION (CIV)

CIV 101: African Civilization (3 Credits)

Traces the history of Africa from the birth of the human species to the present, taking into account the way various academic disciplines contribute to the body of knowledge about African history and development; highlighting key moments in African history that have shaped its present socio-political and economic context, and focusing on North and West Africa. **Prerequisite: None.**

CIV 102 Western Civilization (3 Credits)

Emphasis on conceptual approach to intellectual, cultural, political, economic, social, and technological issues that have formed the spirit of the various ages from ancient Greece to the present. Team taught by instructors from a variety of disciplines. **Prerequisite: None.**

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CIV 111 African Civilization: Special Topics (3 Credits)

Focuses on special topics related to African civilization and the development of its societies, cultures, and institutions and the forces that have shaped that development. Topics vary. **Prerequisite: None.**

CIV 112 Western Civilization: Special Topics (3 Credits)

Focuses on special topics related to western civilization and the development of its societies, cultures, and institutions and the forces that have shaped that development. Topics vary. **Prerequisite: None.**

CIV 201 Middle Eastern and Asian Civilization (3 Credits)

Traces the development of societies in the Middle East and in Asia and focuses on key events and movements in the history of these areas. **Prerequisite: None.**

CIV 211 Middle Eastern and Asian Civilization: Special Topics (3 Credits)

Focuses on special topics related to Middle Eastern and Asian civilization and the development of its societies, cultures, and institutions and the forces that shaped that development. Topics vary. **Prerequisite: None.**

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ECONOMICS (ECO)

ECO 101 Introduction to Economics (3 Credits)

Introduces basic principles of economics and their application in Nigeria. Topics include: supply and demand, consumer and firm behavior, inflation, economic growth, and international trade. This course is designed for students not majoring in economics. **Prerequisite: None.**

ECO 210 Principles of Microeconomics (3 Credits)

Introduces the basic principles of microeconomics and their applications: supply and demand, operation of markets, consumer and enterprise behavior, competition and monopoly, income distribution and international trade. **Prerequisite: None.**

ECO 220 Principles of Macroeconomics (3 Credits)

Introduces the basic principles of macroeconomics, stressing national income, unemployment, inflation, economic growth, business cycles and open economies. **Prerequisite: None.**

ECO 230 Introductory Mathematics for Economists (3 Credits)

Introduces and applies some basic mathematical tools needed for economics majors. Topics include the following: functions and economic models, logarithms and exponential growth, linear models and basic matrix algebra, review of univariate differential calculus, univariate optimization, and multivariate calculus. **Prerequisites: None.**

HISTORY (HIS)

HIS 202 World History Since 1500 (3 Credits)
Provides an overview of World history, from about 1500 to the present. We will address how the human past has been shaped by various socio-economic and political forces such as religion, trade, migration, technology, military rivalry, and competition for resources and the events and convergences that have led to our world today. (World scale) **Prerequisite: None.**

HIS 212 Conquest & Resistance: African History Since 1880 (3 Credits)

Deals with the emergence of modern Africa. It examines the African search for modernity, social reforms, the European conquest of Africa, anti-colonialism, and post-independence challenges. (Regions scale) **Prerequisite: None.**

HIS 270 Nigeria In World History (3 Credits)

Provides an overview of Nigerian history from the conquest of the territories that comprise modern Nigeria, to colonial rule, the fight for independence, civil war, post-colonial developments, and the influence of Nigeria and Nigerians in African and world affairs. It will place the main themes and developments of the Nigerian past into a global context. (State/Nation/Locality scale) **Prerequisite: None.**

HIS 301 Forced And Free Migration: The Global African Diaspora (3 Credits)

Explores selected themes in the history of the African Diaspora in the Americas, Europe, the Middle East, and Asia with a focus on understanding the experiences of Africans and people of African descent. (World scale) **Prerequisite: None.**

HIS 311 The History Of Islam In Africa (3 Credits)

Explores the historical, political, cultural, and religious aspects of the expansion of Islam in Africa from about the 9th century CE into the post-independence period through a chronological, thematic, and regional approach. (Regions Scale) **Prerequisite: None.**

POLITICS AND INTERNATIONAL STUDIES (formerly known as *International and Comparative Politics* - ICP) – **(ICP)**

ICP 101 Introduction to Comparative Politics (3 Credits)

Examines various forms of government and political cultures across time and nations. The first half of the course looks at the variety of principles and concepts having to do with comparative politics. The second half looks at specific case studies such as, for example, Nigeria, South Africa, Mexico, Brazil, India, China, Russia, Germany, Britain and the United States. **Prerequisite: None.**

ICP 131 Introduction to International Relations (3 Credits)

Looks first at the structures and dynamics of the international system of states and then considers alternative perspectives, non-state actors, and a wide variety of issues in global politics including the political economy, information and culture, the environment, development, conflict and conflict resolution. **Prerequisite: None.**

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ICP 135 Introduction to International Development (3 Credits)

This course introduces students to the emerging discipline of sustainable human development (SHD), which utilizes a holistic approach to the challenges of development by taking into account the interaction between economic, environmental, political, and social processes. Students will examine the theory, methods, and goals of development on a global scale through articles and case studies. Students will emerge from the course with a greater understanding of what fosters successful development, what policy options and strategies are available to overcome challenges, and how development standing can be measured through the use of indicators and comparative analysis. **Prerequisite: None.**

ICP 161 Introduction to Political Theory (3 Credits)

Introduces students to political theories, primarily those within the Western tradition, as well as the key names and texts within this tradition. Consideration will also be given to the relationship between the "modern" (post-1500) Western tradition and Islamic traditions of political thought. **Prerequisite: None.**

ICP 186 Introduction to Public Administration (3 Credits)

Focuses largely on policy implementation and to a lesser degree on public policymaking. This course is designed to examine the role of administration in government. It explores various trends in public administration as well as examining the unique circumstances involved in administering public organizations. **Prerequisite: None.**

ICP 187 Introduction to Public Policy (3 Credits)

Focuses on understanding how public policies are made, how the policy processes work and shape public policy. It examines why certain problems make their way to the policy agenda and why some policies are adopted; why others are rejected, and why some policies seem to succeed while others appear to fail. It specifically focuses on public policy at the national level, exploring a wide range of policy areas, including education, economy, society, globalization, sustainable development, environmental, foreign policy, and other problems. **Prerequisite: None.**

ICP 201 Contemporary Nigerian Politics (also known as Introduction to Nigerian National Government for Public Policy and Administration program) (3 Credits)

Addresses the internal political processes of modern Nigeria including issues such as regionalism, ethnicity, religion, democracy, the military, and corruption. **Prerequisite: None for School of Engineering.**

PSY 101 Introduction to Psychology (3 Credits)

This course introduces students to the science of Psychology. It explores essential topics such as perception, human communication, cognition, memory, the process of decision-making, faith and religion, persuasion, love, art, dreams and general functioning of the human mind – revealing its complexities. The course further explores how these aspects of the mind develop in children; how they differ across peoples; and how they break down in situations of old age, disease and injury. Students will also gain insight into the history and development of the field, explore basic theories and

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understand the importance of the scientific methods. On completion, students should have a richer understanding of individuals as thinking, feeling and social beings. **Prerequisite: None for School of Engineering.**

SOCIOLOGY (SOC)

SOC 101 Introduction to Sociology (3 Credits)

Introduction to the fundamental questions, concepts, theories, and general principles of sociological thought. Inquiries into culture, socialization, norms, power relations, social institutions, and group interaction. Illustrates how human action transforms society, and how social and cultural forces constrain human actions. **Prerequisite: None.**

SOC 288: Criminology (3 Credits)

What causes a person to commit murder? How does one become a terrorist? How close to becoming a criminal are you? What goes on in the mind of a criminal? What makes the quiet boy/girl in school become a mass-murderer? Can you become a suicide bomber? Need answers? This course provides answers to the study of crime, violence, and terrorism. Criminology is primarily concerned with understanding the causes of crime and we will visit some of the most influential explanations for criminal behavior. As social context shapes general beliefs, it also shapes beliefs about crime; we will consider how different explanations have emerged at different times and how society contributes to explanations of crime and criminality. To develop credible explanations for crime, criminal behavior, and terrorism, we must understand the nature of crime and examine a range of criminal activity. **Prerequisite: None.**

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200 LEVEL

CDV 2xx Community Service (3 Credits) – (Select One)

COMMUNITY DEVELOPMENT

CDV 201 Literacy & Numeracy (3 Credits)

Combines academic learning with community service at an introductory level. We will collaborate in one of AUN's community development projects, Students Empowered through Language, Literacy, and Arithmetic (STELLAR). In this course we will confront some of the major challenges facing the Nigerian primary education system today and spend most of our time working on-site in a primary school to set up and deliver an afterschool tutoring program. We will also develop educational resources, and collect and track data. **Prerequisite: Min. Second Year Standing.**

CDV 202 IT Literacy (3 Credits)

There is a great need for poor communities to participate and become involved in the information society as a way to move out of abject poverty. Students taking this class are expected to think like developmental experts and help the community improve their IT literacy by visiting local communities, collecting baseline data about ICT literacy, skills, and usage among the various stakeholder groups.

The students will deliver ICT training to the stakeholder groups and undertake other suitable ICT intervention in the community relating to positively affecting the beneficiary groups. **Prerequisite: Second Year Standing.**

CDV 206 Peace Through Arts (3 Credits)

Introduces students to the concepts of community service, citizenship, and critical reflection through applied arts as an interdisciplinary service project to the community. Students will serve AUN's immediate community by using art as the medium for supporting and promoting peaceful dialogue and co-existence. The target community members will be the youth. This course integrates classroom knowledge, applied art and community outreach. **Prerequisite: Min. Second Year Standing.**

CDV 207 Environmental Sustainability (3 Credits)

Explores and implements promising and pertinent strategies for redeveloping and resettling communities in Northern Nigeria that were destroyed by the Boko Haram insurgency. Through in-class lessons, reading and on-line materials, research, and hands-on field experience, students will understand the challenges and opportunities presented by post-disaster circumstances. Students will learn how to engage with stakeholders, survey and map land attributes, and develop large-scale plans for housing, water, sanitation, and agriculture. **Prerequisite: Min. Second Year Standing.**

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CDV 208 Financial Literacy (3 Credits)

Financial literacy results in more stable communities while improved financial literacy, particularly early in life, results in a higher standard of living over the long term, including retirement. This course will help students to understand the strong interconnection between financial illiteracy and poverty. This course includes researching sustainable financial options and creating community learning network opportunities that will assist the abject poor in the community to make sound financial decisions. This course requires students to use knowledge gained in the classroom combined with indigenous knowledge systems to affect meaningful change in the community through training, capacity building, skills transfer, advocacy, and other interventions. **Prerequisite: Second Year Standing.**

CDV 211 Law and Justice in Development (3 Credits)

Essentially seeks to promote the knowledge and the understanding of the Nigerian legal system vis-a-vis vulnerable groups and the socio-economic challenges for law in a developmental state. The course will adopt a proactive initiative by sensitizing students to the plight of the marginalized and vulnerable groups in society as well as how the law could become a tool for the protection and promotion of the rights of such groups of persons. The SOL will organize intensive, short and regular trainings for all students registered in the course to equip them with the basic understanding sufficient to deliver on the objective of the course. **Prerequisite: Second Year Standing.**

CHM 201 Chemical Engineering Fundamentals (3 Credits)

The basic principles and techniques used for calculations of material balances in chemical engineering processes are introduced. The material covered involves fundamental engineering concepts, formulation and solution of increasingly complex chemical engineering process problems and familiarization with physical properties and behavior of ideal and real gases. Problem solving sessions. **Prerequisite: None.**

ENT 201 Entrepreneurial Field Experience (3 Credits)

Is the second required course for all students in the GER entrepreneurship mandate of the Board of Trustees. Students will engage in an entrepreneurial field experience in order to study in more depth aspects of running a business, to create a business plan for a business of their own, and to study business plans of small and large businesses. The transferable skills to be acquired during and after the course include environmental scanning, opportunity identification skill, idea screening/sifting, business concept development, writing business plan, risk taking, people management, consensus-building, financing & financial management, book-keeping & reporting, crisis management among other. He said the students will find these helpful when they become employed. **Prerequisite: ENT 101.**

GEC 201 Basic Engineering Drawing (2 Credits)

(i) Use of draughting instruments, lettering, dimensioning, layout.
(ii) Engineering graphics – Geometrical figures, comics, etc. Graphical calculus and Applications. Development, intersection of curves and solids.
(iii) Projections – lines, planes and simple solids. Orthographic and projections, simple examples Threaded fastness.
(iv) Pictoral/Freehand Sketching.
(v) Conventional practices.
(vi) Introduction to Computer Aided Drafting: Electronic draughting packages: principle and use in engineering design. Simulation packages: principle and use in engineering.

GEC 202: Engineering Mathematics I (3 Credits)

Complex analysis – Elements of complex algebra, trigonometric, exponential and logarithmic functions. Real number, sequences and series.
(i) Vectors – Elements, differentiation and integration.
(ii) Elements of linear algebra.
(iii) Calculus – Elementary differentiation. Relevant theorems.

Prerequisite: GEC 134.

GEC 203 Engineering Mathematics II (3 Credits)

(i) Differential equations – Exact Equations. Methods for second order equations. Partial differential equation. Simple cases – Applications.
(ii) Numerical Analysis – linear equations, non-linear equations. Finite difference operators: Introduction to linear programming.

Prerequisite: GEC 202.

GEC 204 Introduction To Programming for Engineers (CIE 105 Principles of Programming I) (3 Credits)

Introduces the basic principles of programming and the fundamentals of object oriented programming including objects, classes, inheritance, polymorphism, aggregation/ composition, state, methods, loops, selection, exceptions, events, and container types using an OO language such Ruby to teach and practice with cross cutting, language agnostic mechanisms. **Prerequisite: None.**

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GEC 211 Introduction To Electrical Engineering (3 Credits)

Introduction to fundamental concepts and applications of electrical engineering. Topics include:

(i) Circuits – elements, DC and AC circuits, Basic circuit laws and theorems. Resonance, power, power factors, 3-phase circuits.
(ii) Introduction to machines and machine designs.
(iii) Physics of devices – Discharge devices, semi-conductors, diode and transistors.
(iv) Transistor characteristics, devices and circuits
(v) Electrical and electrical power measurements.

GEC 214 Applied Mechanics (3 Credits)

Statics Laws of statics, system of forces and their properties, Simple problems, Friction.

(i) Particle dynamics – Kinematics of plane motion. Newton's laws – Kinetics of particles, momentum and energy methods.
(ii) Kinematics of rigid body – velocity and acceleration diagrams for simple problems.
(iii) Kinetics of rigid bodies – Two dimensional motion of rigid bodies, energy and momentum, Mass, Moment of inertia, Simple problems.
(iv) Simple harmonic motions.

GEC 217 Engineer In Society (1 Credit)

Philosophy of Science

(i) History of Engineering and Technology.
(ii) Safety in Engineering and Introduction to Risk Analysis.
(iii) The Role of Engineers in Nation Building.
(iv) Invited Lectures from Professionals.

GEC 218 Manufacturing Technology/Workshop Practice (2 Credits)

Elementary introduction to types and organization of engineering Workshop, covering jobbing, batch, mass production.

(i) Engineering materials: their uses and properties.
(ii) Safety in workshop and general principles of working. Bench work and fitting: Hand tools, instruments.
(iii) Carpentry: Hand tools and working principles. Joints and fastenings: bolt, rivet, welding, brazing, soldering. Measurement and marking: for uniformity, circulatory, concentricity, etc.
(iv) Blacksmith: Hand tools and working principles. Joints and fastenings: Bolt, rivet, welding, brazing, soldering, measurement and marking: for uniformity, circulatory, concentricity, etc.
(v) Standard measuring tools used in workshop: Welding, brazing and soldering: Principles, classification, power source.
(vi) General principles of working of standard metal cutting machine tools.
(vii) Invited lectures from Professionals.

GEC 221 Thermodynamics and Fluid Mechanics (3 Credits)

Thermodynamics

(i) Basic concepts, definitions and laws.
(ii) The ideal gas, Heat and Work.

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(iii) The first Law of thermodynamics, applications to open and closed systems.
(iv) The steady State flow equation (Bernoulli's Equation) and applications.
(v) Second law of thermodynamics and Heat Cycles.

Fluid Mechanics

(i) Elements of fluid statics; density; pressure, surface tension, viscosity, compressibility etc.
(ii) Hydrostatic forces on submerged surfaces due to incompressible fluid.
(iii) Introduction to fluid dynamics – conservation laws.
(iv) Introduction to viscous flow.

GEC 224 Strength of Materials and Materials Science (3 Credits)

Strength of Materials

(i) Force equilibrium – free body diagrams.
(ii) Concept of stress, strain; Tensile test. Young's moduli and other strength factors.
(iii) Axially loaded bars, composite bars, temperature stresses and simple indeterminate problems. Hoop stresses in cylinders and rings.
(iv) Bending moment, shear force and axial force diagrams for simple cases, Simple torsion and application.

Materials Science

(i) Atomic and molecular structure, crystals, Metallic states, Defects in crystals, conductors, semi-conductors and insulators.
(ii) Alloy theory – Application to industrial alloys – steel in particular.
(iii) Engineering Properties – Their control, Hot and cold working, heat treatment, etc. Creep, fatigue and fracture. Corrosion and corrosion control.
(iv) Non-metallic materials – glass, rubber, concrete, plastics, wood and ceramics.
(v) Elastic and plastic deformations: Defects in metals.

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GEC 228 Laboratory Course (3 Credits)

All courses share the laboratory schedules to suit; sometimes alternate weeks.

GEN 103 : History and Philosophy of Science (3 Credits)

The aim of this course is to explore the history and the philosophy of science and technology from the first efforts of human beings to investigate, understand and master the natural environment, to the separation between scientific knowledge and other forms of knowledge, the birth of rational and objective thinking, the earliest formulations of scientific laws, to the elaboration and spread of modern science and scientific thought. A special emphasis will be put on the universal character of science as a way of thinking, the contributions of African peoples and all peoples of all continents and cultural traditions to scientific progress, and the common challenges we are facing today, due in part to questionable uses of modern science and modern technology. The case of Nigeria will be specially highlighted as a good example of those challenges in the areas of threat to biodiversity, climatic change, and natural and environmental resources management. The course will also examine the scientific methods and related epistemological issues as well as some of the current theories of science and the relationship between science, society and development, particularly in the African and Nigerian context. **Prerequisite: None.**

PHI 300 Ethics and Leadership (3 Credits)

This course provides an understanding of the two fundamental areas of social life – ethics and leadership: their basic paradigms, concepts and practical dimensions. Moreover, course examines the ethical issues involved in effective leadership, with examples from the African experience. **Prerequisites: None for School of Engineering.**

PHY 206 University Physics II (4 Credits)

This course provides a continuation for PHY205. Basic principles of electricity, magnetism and optics are studied using calculus with an emphasis on applications. **Prerequisite: PHY 205.**

STA 101 Introduction To Statistics (3 Credits)

Offers a general introduction to statistical methods and applications with illustrations from business, economics and sciences; it prepares students for further quantitative courses. **Prerequisite: None.**

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COMPUTER ENGINEERING COURSE SYNOPSES

300 LEVEL

CEN 316 Software Development Techniques (3 Credits)

Software development life cycle. Top-Down design. Program, design using pseudo-code, flowchart. 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 structural 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.

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CEN 318 Laboratory Practicals I (3 Credits)

All courses share the laboratory schedules to suit; sometimes in alternate weeks.

CEN 319 Computer Organization and Architecture (3 Credits)

Computer Fundamentals: Development history of computer hardware and software. Hardwired vs stored program concept. Von-Neuman architecture. Havard 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).

EEE 311 Electromagnetic Fields and Waves I (3 Credits)

Review of electromagnetic laws in integral form, Gauss's Law, Ampere's and Faraday's Laws; Electrostatic fields due to distribution of charge, magnetic fields in and around current carrying conductors, time-varying magnetic and electric fields; conduction and displacement current.

EEE 314 Circuit Theory I (3 Credits)

Laplace and Fourier transforms, application of Laplace transformation to transient analysis of RLC circuits, transfer function concepts, reliability of transfer functions, Foster and Cauer's methods of Synthesis, 2-port network synthesis, active filters.

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EEE 316 Electrical Machines (3 Credits)

Review of electromechanical energy conversion, rotating magnetic fields, performance and methods of speed control of DC machines, induction motors, linear induction motors, circle diagrams, power transformers, and parallel operation of 3-phase transformers. Performance of synchronous machines, parallel operation of synchronous generators, fractional horse-power motors, single-phase induction motors, universal motors. Reluctance motors, hysteresis motors. Faults on machines, methods of starting and protection of machines.

EEE 320 Measurements & Instrumentation (3 Credits)

General Instrumentation, Basic Meter in DC measurement. Basic meter in AC measurements; rectifier voltmeter, electro-dynamometer and Wattmeter, instrument transformers; DC and AC bridges and their applications; general form of AC bridge universal impedance bridge; Electronic instruments for the measurement of voltage, current resistance and other circuit parameter, electronic voltmeters, AC voltmeters using rectifiers, electronic multimeter, digital voltmeters; oscilloscope: vertical deflection system, horizontal deflection system, probes, sampling CRO, Instruments for generating and analyzing waveforms; square-wave and pulse generator, signal generators, function generators, wave analyzers, Electronic counters and their applications: time base circuitry, universal counter measurement modes; Analog and digital data acquisition systems: tape recorders, D/A and A/D conversions, sample and hold circuits.

EEE 323 Analogue Electronic Circuits (3 Credits)

Review of single-stage transistor amplifiers using BJTS and EETs Equivalent circuit and calculation of current gain, voltage gain, power gain, input and output impedance. Operational Amplifiers:

Parameters and applications. Feedback, Broadband and narrowed band amplifies. Power amplifiers. Voltage and current stabilizing circuit. Voltage amplifiers, multi storage amplifier. Using BJTs and FETs.

EEE 327 Digital Electronics Circuits (3 Credits)

Number Systems and Codes. Logic Gate Simplification of Logic expressions using Boolean Algebra. Simplification of Logic expressions using Karnaugh Method. Design combinational circuit. Flip-Flops. Application of Flip-Flops in the design of counters, registers and timers. Switching and Waves shipping circuit. Generation of non-sinusoidal signal (multi vibrators). Introduction to ADC and DAC. Design of Logic Gates (Diode, DTL, TTL, ECL etc).

EEE 329 Communication principles (3 Credits)

Amplitude modulation; double sideband, single sideband and vestigial sideband modulation schemes; simple modulators, power and bandwidth performance. Angle modulation; frequency modulation, phase modulation, band width requirements, clipers and limiters. Amplitude modulated signal reception; discrimination, frequency tracking loop, phase locked loop and noise performance. Commercial radio systems. Transmission media; attenuation in open space, air, cable and fibre channels; construction of cables and fibres, sampling theorem, pulse amplitude modulation, pulse width modulation, multiplexing, quantization systems and pulse code modulation, delta modulation, courses and correction of errors in PCM and DM.

GEC 301 Engineering Mathematics III (3 Credits)

Introduction to Partial differential equations. Fundamental equations of mathematical physics. Classification of quasilinear differential equations of the second order. Properly posed initial and boundary value problems for linear differential equations of the second order. Correctness of properly posed problems of mathematical physics. Problems in heat transfer (parabolic equation); wave propagation (hyperbolic equations); steady-state (elliptic equation). Problems in different co-ordinate systems, boundary value problems. **Prerequisite: GEC 203.**

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GEC 302 Engineering Mathematics IV (3 Credits)

Elements of Matrices, determinants, Inverse of matrix, Theory of linear equations, eigenvalues and eigenvectors. Analytic geometry – co-ordinate transformation – solid geometry polar, cylindrical and spherical co-ordinates. Elements of functions of several variables. Numerical differentiation, solution of ordinary differential equation, Curve fitting. Simple linear programming, Fourier series – Euler coefficients, even and odd functions, Sine and cosine functions, Simple Applications. Gamma, Beta and probability functions. Differential equation of second order – series solutions. Legendre and Bessel functions and their properties. Vector Theory – Dot product, cross product, divergence, curl and Del operators. Gradient. Line, surface and volume integrals and related theorems. Complex variables – advanced topics, differentiation and integration of complex functions. Cauchy – Rieman equations: Related theorems: Laplace and Fourier transforms – Applications Introduction to non-linear differential equations – stability and Applications. **Prerequisite: GEC 301.**

GEC 320 Data Communication and Network (3 Credits)

Introduction to Data communications: the Development of Data Communications; types and sources of data, simple communications network, transmission definitions, one way transmission, half duplex

transmission, transmission codes, transmission modes, parallel transmission, serial transmission, bit synchronization, character synchronization, character synchronization, synchronous transmission, asynchronous transmission, efficiency of transmission, error detection methods and data compression. Protocols: Introduction to network protocol. Seven Layer ISO-OSI standard protocols and network architecture. Transport protocols, session services protocols, and other protocols. Institute of Electrical and Electronics Engineering 802 standards. Error control and Data Compression: Forward Error Control; error detection methods; parity checking; linear block codes, cyclic redundancy checking; feedback error control, data compression, Huffman coding and dynamic Huffman coding. Local Area Networks: medium access control techniques – Ethernet, token bus and token ring; LAN standards; fibre distributed data interface, metropolitan area network. Peer-to-peer, Client Server. Client-Server Requirements: GUI design standards, interface independence, platform independence, transaction processing, and connectivity, reliability, backup and recovery mechanisms. Information Network Software; Features and benefits of major recovery mechanisms. Information Network Software: features and benefits of major Network Operating Systems. Network OS: (e.g. Novell NetWare, UNIX/LINUX, OS/2 & WindowsNT). TCP/IP and Network OS. INTERNET: Definition, architecture, services, Internet addressing. Internet protocol, IPv4, IPv6. Internet programming, Intranet. System administration, and security issues.

400 LEVEL

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CEN 417 Prototyping Techniques (2 Credits)

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.

CEN 418 Laboratory Practicals II (2 Credits)

All courses share the laboratory schedules to suit; sometimes in alternate weeks.

CEN 426 Object Oriented Design & Programming (3 Credits)

Principles and implementation issues in object-oriented programming languages, problem solving, software design, and computer programming using an object-oriented language; computer organization – data processing, memory, registers and addressing schemes; Boolean algebra; floating-point arithmetic; representation of non-numeric information; problem-solving and algorithm development; coding (solution design using flowcharts and pseudo codes), and UML class diagrams. Data models and data structures; computer software and operating system; computer operators and operators precedence; components of computer programs; introduction to object oriented, structured, visual programming; and algorithms include: arrays, characters strings, linear search. Use of MATLAB in engineering applications.

CEN 493 SIWES (6 Credits)

In engineering education, industrial attachment is very crucial. The minimum duration of this attachment should be 34 weeks (one semester and 2 long vacations) and should be broken into the following modules: Students Work Experience Program (SWEP) (10 weeks – long vacation (SWEP I: 5 weeks during the summer long vacation, after the second semester of 200 level and SWEP II: 5 weeks during the summer long vacation, after the second semester of 300 level)); Students Industrial Work Experience Scheme (SIWES) (24 weeks, one semester plus summer long vacation).

GEC 401 Engineering Mathematics V - (Probability & Statistics for Engineers) - (3 Credits)

Probability – Elements of probability, Probability density function and distribution functions, moments generating function, standard distribution. Simple application of discrete and continuous probability distributions (Binomial, Poisson, Gamma, Beta, and, Normal distributions), etc.
Statistics inferences – Regression and Correlation analysis – Large sampling theory. Test hypothesis and Quality control.

GEC 420 Technical Communications (2 Credits)

Oral communication: Public speaking skills with effective use of visual aids and statistical and technical information. Principles of effective communication in interpersonal and mass communication process. Effective reading skills- extracting main ideas and reading for specific information through speed reading. Written communication: principles of technical writing. Project report presentation.

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500 LEVEL

CEN 510 Embedded System Design (3 Credits)

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.

CEN 512 Digital System Design with VHDL (3 Credits)

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 data path level modeling, and 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.

CEN 514 Cyberpreneurship & Cyber Law (2 Credits)

Introduction: Definition of creativity, innovation, examples of creativity leading to innovation, commercialization of creative and innovative ideas. Trends in technology development. Entrepreneurship management and ownership. Characteristics of entrepreneur, starting a new business, business planning, strategic planning & management, site selection and layout. **Establishing new venture**, risk management. **Business Plan Development:** definition, need, preparation of business plan. Forecasting developments and charting an action plan. Identifying the product/service, market research and feasibility study. **Financing business.** Sources of debt financing. Creating the marketing plan, pricing, creative advertising and promotion. **Entrepreneurship case studies**: Overview and analysis of successful entrepreneurs such as Bill Gates, Michael Dell, David Filo and Jerry Yang of Yahoo, etc. **Nigerian Entrepreneurship**: Discussion of Nigerian business environment, and illustrated with successful Nigerian entrepreneurs. **Overview of the Nigerian Legal System**: Civil and criminal. Basic concepts of law. **Contract Law**. Current issues: digital signatures, Intellectual **property and copyright. 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 Nigeria:** Developing an in-depth understanding of the nature and function of Nigerian media law. Public and Private licensing. Intellectual and moral rights. Music royalties, synchronization rights, performance rights. Role of music publishers. Broadcast rights, merchandising. Detailed analysis of Communications and Multimedia Act. **Ethic and Etiquette**: New codes of social behavior: the right to privacy.

CEN 515 Computer Graphics & Animations (3 Credits)

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

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object space and world space. Principles of making characters alive. Polygonal Modeling 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 & Animation Camera, Set & 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 modeling. Render options and file output. Same as CSP 421.

CEN 516 Computer Security Techniques (3 Credits)

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, Knaspsack 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, Ethnical Issue in Computer Security.

CEN 524 Microprocessor System and Interfacing (3 Credits)

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.

CEN 525 Fuzzy Logic & Programming (2 Credits)

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 approximation, fuzzy neural network, fuzzy associate memory matrix, self-learning fuzzy systems. Fuzzy logic system applications. Fuzzy programming.

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CEN 526 Digital Signal Processing (3 Credits)

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, and video.

CEN 528 Cryptography Principles & Applications (2 Credits)

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, Auto key, 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, Video guard, etc. Security and Legality Issues: Copyrights, Patents, Trade Secret, Ownership of Products, Computer Crimes, Ethical Issue in Computer Security.

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CEN 530 Robotic & Automation (2 Credits)

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 statics. 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.

CEN 531 Micro-Computer Hardware & Software Techniques (3 Credits)

Elements of digital computer design; control unit, micro-programming, bus organization and addressing schemes. Micro-processors, system architecture, bus control, instruction execution and addressing modes. Machine codes, assembly language and high-level language programming, Micro-processors as state machines. Microprocessor interfacing: Input/output. Technique, interrupt systems and direct memory access; interfacing to analogue systems and applications to D/A & A/D converters. System development tools: simulators, EPROM programming, assemblers and loaders, overview of an available microprocessor application.

CEN 532 Analogue and Digital Computer (2 Credits)

Analogue computation, electrical analogue of mechanical, electromechanical systems and servomechanisms. Analogue computer elements: potentiometers, operational amplifiers, function generators, simulation of system transfer functions. Digital computer structure and elements, CPU, storage, peripherals Arithmetic processes, Hybrid computer systems.

CEN 533 Digital Image Processing (2 Credits)

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. Color 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.

CEN 540 Artificial Intelligence (3 Credits)

Introduction to search methods in AI problems. Self-organizing systems, information theory, rational decision making, pattern recognition, parametric and non-parametric training for developing pattern classifiers; problem solving. The Minimax and alpha-beta algorithms and heuristic approaches to state space search problems.

CEN 590 Project I (3 Credits)

Projects will depend on staff expertise and interest but most preferably should be of investigatory nature. Preferably, students should be advised to choose projects in the area of their option/elective subjects.

CEN 591 Project II (3 Credits)

Continuation and completion of CEN 590 Project I. **Prerequisite: CEN 590.**

EEE 508 Control Theory (3 Credits)

Basic concepts and examples of control systems; Feedback, Time response analysis, concept of stability, Routh-Hurwits criterion; Root-locus techniques, Frequency-response analysis, Polar and

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Bode plots, Nyquist stability criteria. Nicholas chart, compensation techniques chart, compensation techniques, introduction to non-linear systems.

EEE 512 Reliability and Maintainability (3 Credits)

Introduction to reliability, maintainability, reliability specification and metrics. Application to computer hardware system, communication equipment, power systems, electronic components. Basic maintenance types, and procedures of computer and digital communication system. Fault troubleshooting techniques. QoS and time of availability of data communication. Quality control techniques. Design for higher reliability, fault tolerance. Software Reliability: software reliability specification, software reliability 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.

EEE 533 Power Electronics and Devices (3 Credits)

Switching characteristics of diodes, transistors, thyristors etc. analysis of diode circuit with reactive loades, analysis of circuits using transistors as switches, power control circuits, ACDC converters, characteristics of switching transformers, power semi-conductor device protection, examples of power electronic circuits, solar devices.

EEE 537 Industrial Electronics Design (2 Credits)

Characteristics and industrial applications of thyristors and other SCR devices. Transducers and their applications in sensing light, voltage pressure, motion, current temperature, etc. Mechanical relays, solid state relays and stepping motors. Real time control and remote control concepts in instrumentation. Micro-processor and micro-computer based systems. Fire alarms, burglar alarms and general home and industrial instrumentation.

GEC 505 Engineering Project Management (2 Credit)

The Management of Environment; Organizational structure and behavior; engineer to engineer manager transition; Managerial functions, principles and techniques of planning, forecasting, organizing technical activities; project selection and management; leadership, styles of leadership and management. Techniques in engineering management – motivated, appraisal, participative and control techniques. Management Concepts. Project organization, teams, methods and tools for project management. Organization constraints on development. Project Planning Objectives, Resources, Project Estimation, Cost Factors, Decomposition Techniques, Estimation Models. Risk Strategies, Risk Identification, Risk Projection, Risk Monitoring and Management. Work Breakdown Structure, Task Allocation/Effort Distribution. Network Diagrams, PERT and Critical Path Method, Gantt Chart. Scheduling Strategies. Project Tracking, Controlling Progress. Quality measurement.

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School of Engineering Faculty

LIST OF ACADEMIC STAFF

S/N	NAME OF ACADEMIC STAFF	AREA OF SPECIALIZ.	DISCIPLINE	QUALIFICATION	RANK
1.	Dr. Abubakar Sadiq Hussaini	Telecomm. Engineering	Telecomm. Engineering	PhD	Dean & Associate/Reader
3.	Dr. Adewale James	Mathematics	Mathematics	PhD	Associate/Reader
4.	Dr. Ahmad M. Aliyu	Mathematics	Mathematics	PhD	Associate/Reader
5.	Dr. Charles Nche	Computer Engineering	Computer Engineering	PhD	Asst. P./S. Lecturer
6.	Dr. Olusegun Ogundapo	Elect/Elect Engineering	Elect/Elect Engineering	PhD	Asst. P./S. Lecturer
7.	Dr. Adamu Salihu Girei	Chemical Engineering	Chemical Engineering	PhD	Asst. P./S. Lecturer
8.	Dr. Munzali Ahmed Abana	Elect/Elect Engineering	Elect/Elect Engineering	PhD	Asst. P./S. Lecturer
9.	Dr. Osho Ajayi	Mathematics	Mathematics	PhD	Asst. P./S. Lecturer
10	Mr. Abbey Chukwuma	Physics	Physics	PhD	Asst. P./S. Lecturer
12	Abubakar Audu	Computer Engineering	Computer Engineering	MSc	Instructor
13.	Engr. Musa Askira Abubakar	Chemical Engineering	Chemical Engineering	MSc	Instructor
14.	Engr. Hassan Ahmed Saddiq	Chemical Engineering	Chemical Engineering	MSc	Instructor

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School of Engineering Staff

LIST OF SUPPORT STAFF

S/N	NAME OF SUPPORT STAFF	AREA OF SPECIALIZ.	DISCIPLINE	QUALIFICATION	RANK
1.	Mr. Theman Jirnadu	Electrical/Elect Engineering	Electrical/Elect Engineering	HND	Lab Tech.
2.	Mr. Cosmas Izu Chigbo	Electrical/Elect Engineering	Electrical/Elect Engineering	BSc	Lab Tech.
3.	Mr. Saidu Sanusi	Mechanical Engineering	Mechanical Engineering	BSc	Lab Tech.
4.	Mr. Anas Audi	Telecoms. Engineering	Telecoms. Engineering	BSc	Lab Tech.
5.	Ms. Rosemary Nkannebe	Chemical Engineering	Chemical Engineering	BSc	Lab Tech.
6.	MS. Sibo Febel	Economics	Economics	BSc	Admin Staff
7.	Mr. Fidelis Sali	Agriculture Engineering	Agriculture Engineering	HND	Admin Staff

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