



National Universities Commission

Core Curriculum and Minimum Academic Standards for the Nigerian University System (CCMAS)

Architecture 2023

Ten Unique Features

1. Current global issues such as sustainability, energy efficiency and environmental pollution have been given greater attention and adequately contextualized.
2. Suitable business models for entrepreneurship have been incorporated. Each is adapted to the specific programme all aimed at producing graduates that are knowledgeable in self-reliant employability skills
3. The place of individualism as relating to innovation has been given adequate attention for the purpose of harvesting local contribution to knowledge and skills.
4. The discipline emphasizes waste recycling and cost saving in form of adaptive reuse of construction materials.
5. Three important concepts relating to building preservation have been adequately incorporated into the curriculum i.e., Redevelopment, Restoration, and Retrofitting. Special skills relating to them have been harnessed in the curriculum in order to equip graduates with unique skills
6. Local arts, crafts and content and their application in contemporary design have been given prominence. The product of their application is given appropriate details
7. Digital skills have been given greater emphasis. In particular, Building Information Modelling and multi-media presentations have been emphasized.
8. The use of eco-tools for generating design data has been incorporated. The goal being to have designs that are based on parametric data and are environmentally responsive.
9. Online course delivery has been introduced during the SIWES programme. This includes teaching assignments and observation of synchronous activities.
10. Practical laboratory skills relating to construction materials have been featured more prominently.

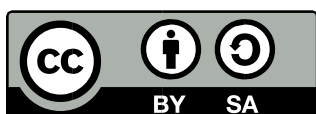
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Foreword

In furtherance of the “change” mantra of the present administration, I published a roadmap to guide my Ministry on ways of addressing the multiple problems that faced the education sector of the country shortly after my assumption of office in 2016. Known as “***Education for Change: Ministerial Strategic Plan – 2016-2019***” (updated to 2018-2022), the content of the document reaffirms government’s commitment to strengthening institutional structures and establishing innovative approaches that would quickly revamp the education sector.

The nations’ universities hold a pride of place in the execution of such a strategy, being at the peak of the educational system and charged in an overall manner, with the responsibility of catalysing the sustainable and inclusive growth and prosperity that the “change” mantra envisions. Thus, a “rapid revitalization of the Nigerian university system”, which is proceeding apace, became imperative. Improvement in research, teaching and learning facilities, deepening ICT penetration and the provision of enhanced power supply in our university campuses are some of the areas receiving stringent attention. In the same vein, the need was felt to radically review the curricula which universities had used for more than a decade so as to put in place one that would more directly address local issues, meet international standards and is fit for purpose for the training of 21st century graduates.

The National Universities Commission has concluded the review of the former *Benchmark Minimum Academic Standards (BMAS)* of 14 disciplines into those of *Core Curriculum and Minimum Academic Standards (CCMAS)* of 17 disciplines. I am therefore pleased to present these documents to the universities, the general public and the international community as I am sure that their application would tremendously uplift scholarship in our universities. I thank all and sundry who worked assiduously to bring this seminal enterprise to fruition.

Malam Adamu Adamu

Honourable Minister of Education



Preface

Section 10 (1) of the Education (National Minimum Standards and Establishment of Institutions) Act, Cap E3, Laws of the Federation of Nigeria 2004, empowers the National Universities Commission to lay down minimum standards for all universities and other degree awarding institutions of higher learning in the Federation and the accreditation of their degrees and other academic awards. The earliest efforts at giving effect to this legal framework in the Nigerian University System (NUS) started in 1989 following the collaboration between the Commission and Nigerian Universities, which led to the development of the Minimum Academic Standards (MAS) for all programmes in Nigerian universities. The MAS documents were subsequently approved by the Federal Government for use as a major instrument for quality assurance in the Nigerian University System (NUS). The documents were employed in the accreditation of programmes in the NUS for over a decade.

In 2001, the Commission initiated a process to revise the documents because the said MAS documents were essentially content-based and merely prescriptive. In 2004, the Commission developed outcome-based benchmark statements for all the programmes through a workshop that allowed for exhaustive deliberations by relevant stakeholders. Following comments and feedback from the universities to the effect that the Benchmark-style Statements were too sketchy to meaningfully guide the development of curriculum and inadequate for the purpose of accreditation, the Commission, in 2007 put in place a mechanism for the merger of the Benchmark-style Statements and the revised Minimum Academic Standards, which birthed the Benchmark Minimum Academic Standards (BMAS). The resultant BMAS, an amalgam of the outcome-based Benchmark statements and the content-based MAS clearly articulated the Learning Outcomes and competencies expected of graduates of each academic programme in Nigerian Universities without being overly prescriptive while at the same time providing the requisite flexibility and innovativeness consistent with institutional autonomy. In all, the BMAS documents were developed for the thirteen existing disciplines namely, **Administration and Management, Agriculture, Arts, Basic Medical Sciences, Education, Engineering and Technology, Environmental Sciences, Law, Medicine and Dentistry, Pharmaceutical Science, Sciences, Social Sciences and Veterinary Medicine.**

The Commission, in 2016, in its sustained commitment to make the NUS adaptable to global trends in higher education, constituted a group of relevant academic experts to develop a BMAS in **Computing**, thus increasing the number of disciplines in Nigerian Universities to fourteen.

In keeping with its mandate of making university education in Nigeria more responsive to the needs of the society, the National Universities Commission commenced the journey to restructure the BMAS in 2018, introducing in its place, the **Core Curriculum and Minimum Academic Standards (CCMAS)**, to reflect the 21st Century realities, in the existing and new disciplines and programmes in the Nigerian University System.

The new CCMAS is a product of sustained stakeholder interactions over two years. The composition of each panel took into consideration, the triple helix model, as a unique feature. This involved a blend of academic experts, academies, government (represented by NUC), professional bodies and of course, the private sector represented by the Nigerian Economic Summit Group (NESG). In order to enrich the draft documents, copies of each discipline were forwarded to all critical stakeholders including the relevant academic units in Nigerian Universities, the private sector, professional bodies and the academies for their comments



and input. These inputs along with the curriculum of programmes obtained from some foreign and renowned universities served as major working materials for the various panels constituted for that purpose.

Bearing in mind the need to adhere to covid-19 protocol as prescribed by the National Centre for Disease Control (NCDC), the Commission was compelled by prevailing circumstances to finalize the curriculum virtually. General Assemblies were also held via Zoom, comprising, the NUC Strategic Advisory Committee (STRADVCOM), Chairpersons/Co-Chairpersons of the various disciplines and Panel Members of the respective programmes. Each Discipline and Programme had NUC representatives who assisted panellists with all the tools and working materials. Several online meetings were held at programmes level, where the real business of developing the CCMAS took place. The products of the various programme-based virtual meetings were submitted to the corresponding discipline group and then to the National Universities Commission. These documents were further scrutinized and fine-tuned by a smaller group of versatile subject matter specialists and relevant private sector practitioners.

In line with the dynamism in higher education provisioning, the Commission took cognizance of complaints by the universities on the high number of General Studies (GST) courses in the BMAS, and was subsequently streamlined. Entrepreneurship courses such as Venture Creation and Entrepreneurship, and innovation found generous space. In addition, the new curriculum unbundled the Bachelor of Agriculture, Bachelor of Science in Mass Communication and the Bachelor of Architecture Programmes, while establishing some emerging specializations in these fields as obtained globally. This is in furtherance of the goal of producing fit for purpose graduates. The Allied Health Sciences was also carved out as a new Discipline from the existing Basic Medical Sciences discipline.

Preceding the completion of the curriculum review content and language editing, a 3-day validation workshop (face-to-face mode) involving critical stakeholders, including STRADVCOM, Vice-Chancellors and Directors of Academic Planning of Nigerian Universities, as well as the Nigerian Economic Summit Group (NESG) was organized by the Commission to validate the CCMAS documents, and to engender ownership for ease of implementation.

Consequent upon the afore-mentioned processes, seventeen CCMAS documents were produced for the following academic disciplines in the NUS:

1. Administration and Management
2. Agriculture
3. Allied Health Sciences
4. Architecture
5. Arts
6. Basic Medical Sciences
7. Computing
8. Communication and Media Studies
9. Education
10. Engineering and Technology
11. Environmental Sciences
12. Law
13. Medicine and Dentistry
14. Pharmaceutical Science
15. Sciences
16. Social Sciences
17. Veterinary Medicine



The CCMAS documents are uniquely structured to provide for 70% of core courses for each programme, while allowing universities to utilise the remaining 30% for other innovative courses in their peculiar areas of focus. In addition to the overall Learning Outcomes for each discipline, there are also Learning Outcomes for each programme and course. In general, programmes are typically structured such that a student does not carry less than 30 credit units or more than 48 credit units per session.

Consequently, the Commission is optimistic that the 2022 CCMAS documents will serve as a guide to Nigerian Universities in the design of curriculum for their programmes with regards to the minimum acceptable standards of input and process, as well as, measurable benchmark of knowledge, 21st century skills and competences expected to be acquired by an average graduate of each of the academic programmes, for self, national and global relevance.

Professor Abubakar Adamu Rasheed, *mni, MFR, FNAL, HLR*
Executive Secretary



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Introduction

Two Acts provide the legal framework for the quality assurance and regulatory mandates of the National Universities Commission. The first is the **National Universities Commission Act No. N81 Laws of Federation Nigeria (L.F.N.) 2004**.

*This Act sets up the National Universities Commission as a body corporate charged with the responsibility of advising the Federal and State Governments of all aspects of university education and the general development of universities in Nigeria. The second, **Education (National Minimum Standard and Establishment of Institutions) Act No. E3 L.F.N. 2004**, empowers the National Universities Commission to lay down minimum standards for all universities and other institutions of higher learning in the Federation and the accreditation of their degrees and other academic awards in formal consultation with the universities for that purpose, after obtaining prior approval there for through the Minister, from the President.*

Following the enactment of NUC Act No. E3 L.F.N. 2004, the National Universities Commission developed the first set of Minimum Academic Standards (MAS) in 1989 for all the academic programmes existing in the Nigerian University System (NUS) at that time under the 13 major disciplines of Administration, Agriculture, Arts, Education, Engineering and Technology, Environmental Sciences, Law, Medicine and Dentistry, Management Sciences, Pharmaceutical Science, Science, Social Sciences and Veterinary Medicine. The Minimum Academic Standard served as the reference documents for the first accreditation of programmes conducted in NUS in 1990.

In its bid to review the Minimum Academic Standard documents, which was predicated on the fact that they were prescriptive, the Commission decided to develop the outcome-based Benchmark Statements for all programmes in the Nigerian University System in line with contemporary global practice in 1999. In the first comprehensive review of the Minimum Academic Standards by NUC, which was in 2004, the Commission decided to merge the Benchmark Statements and the revised Minimum Academic Standards into a new document called Benchmark Minimum Academic Standards (BMAS). These documents were approved for use in Nigerian universities in 2007. A second attempt at reviewing the BMAS was in 2011. It must however be noted that stand alone BMAS for new programmes were at different times developed by the Commission on request from some Nigerian universities.

The Current Review of the BMAS

The journey of the current curriculum review efforts commenced in 2018, when the National Universities Commission circulated the 2018 draft BMAS to all Nigerian universities and other stakeholders for their comments. In addition to the harvested comments, the curriculums of different programmes of some world-class universities were downloaded. The draft 2018 BMAS, compiled comments of Nigerian universities and other stakeholders and the downloaded curriculum of some foreign universities served as the working documents for the curriculum review panels. A multi-stakeholder approach was deployed in constituting the panels for the curriculum review exercise. The constituted panels included:

- i. Academic Staff of Nigerian universities
- ii. Representatives of the Academies;
- iii. Representatives of Professional bodies/associations
- iv. Representatives of the private sector



In addition to the reviewers working individually and in consultation with their subject area peers, over 512 cumulative online meetings of the general assembly (Vice-Chancellors, Discipline Chairmen/Chairpersons, programme-specific reviewers and Heads/representatives of international quality assurance agencies and institutions); Discipline groups; and programme groups were held between March and November, 2021. Physical meetings were also held to finalize the curriculum review exercise.

The reviewers carried out their assignments with a view to producing a curriculum for their respective programmes that will reflect both national and international expectations. Specifically, the reviewers focused on ensuring that the emerging curriculum will be adequate to train Nigerian university students in the 21st Century. By implication and in addition to current trends in the various programmatic areas, the curriculum will be ICT oriented, promote Artificial Intelligence, enhance skills acquisition (including soft skills), inculcate and sharpen entrepreneurship mindset of students and capable of steering the deployment of evolving technologies to deliver its content.

The Core Curriculum and Minimum Academic Standards (CCMAS)

The major highlights of the new curriculum are:

1. Change of nomenclature from **Benchmarks Minimum Academic Standards (BMAS)** to **Core Curriculum and Minimum Academic Standards (CCMAS)**;
2. The curriculum provides for 70% minimum core courses requirements for graduation. Nigerian universities are expected to provide the remaining 30%;
3. In consonance with global best practice, the curriculum is to stimulate blended learning in its delivery;
4. Mass Communication has been unbundled to create a distinct discipline of Communications comprising degree programmes in Advertising, Broadcasting, Development Communication Studies, Film and Multimedia, Information and Media Studies, Journalism and Media Studies, Mass Communication, Public Relations and Strategic Communication;
5. Agriculture has been unbundled into programmes in its contributing components of B.Sc Agricultural Economics, B.Sc. Animal Science, B.Sc. Crop Science and B.Sc. Soil Science;
6. The unbundling of Architecture and introduction of Architecture as a new discipline with programmes like Architecture, Architectural Technology, Furniture Design, Interior Architecture Design, Landscape Architecture and Naval architecture;
7. The split of the Basic Medical Sciences discipline into two – Basic Medical Sciences and Allied Health Sciences;
8. Reduction of the General Studies (GST) course from 36 credit units to 12 credit units of 6 courses as follows:
 - i. Communication in English;
 - ii. Nigerian People and Culture;
 - iii. Philosophy, Logic and Human Existence;
 - iv. Entrepreneurship and Innovation;
 - v. Venture creation; and
 - vi. Peace and Conflict resolution.
9. Entrepreneurship has been repackaged with the introduction of programme-specific entrepreneurship;
10. The number of academic disciplines has been increased from 14 to 17 as follows:
 - i. Administration and Management
 - ii. Agriculture



- iii. Allied Health Sciences
- iv. Architecture
- v. Arts
- vi. Basic Medical Sciences
- vii. Communications and Media Studies
- viii. Computing
- ix. Education
- x. Engineering and Technology
- xi. Environmental Sciences
- xii. Law
- xiii. Medicine and Dentistry
- xiv. Pharmaceutical Science
- xv. Sciences
- xvi. Social Sciences
- xvii. Veterinary Medicine

Having reviewed the curriculum of Nigerian universities, the next steps will include training and retraining of academic staff of Nigerian universities to effectively deliver the content of the curriculum.

Glossary of Course Codes

These are the 3-letter codes for the identification of courses offered in the various programmes in the Architecture discipline as well as courses offered in other disciplines covered in the CCMAS for the Nigerian University System. Three categories of course codes are identified here namely:

Category A: Course codes for the general courses offered by all students registered in the various programmes in the University.

Category B: Course codes for courses offered by the various programmes in the Architecture discipline.

Category C: Course code for other courses offered by the various programmes in the other disciplines outside the Architecture Discipline.

Category A

The Programmes offering the Courses	Course Code
General Studies Courses offered at the University Level for students registered for courses in all the disciplines in the university.	GST ENT

Category B

The Programmes offering the Courses	Course Code
Architecture	ARC
Architectural Science Technology	ARST
Furniture Design	FUD
Interior Architecture Design	IAD
Landscape Architecture	LAA
Naval Architecture	NAA



Category C

The Programmes offering the Courses	Course Code
Engineering in the Engineering Discipline	GET
Geography in the Environmental Science Discipline	GEO
Mathematics Programme in the Science Discipline	MTH
Physics Programme in the Science Discipline	PHY

Basic elements of the operation of the Core Curriculum Minimum Academic Standards in Architecture programmes

Preamble

The Core Curriculum Minimum Academic Standards (CCMAS) document for the Architecture discipline provides a description and the general characteristics of the first degree programmes in the Architecture discipline. It articulates the core areas of knowledge, understanding and skills expected of graduates from Architecture programmes in Nigerian Universities. It provides for the minimum requirements for admission into and graduation out of the faculty of architecture.

The Core Curriculum Minimum Academic Standards statement takes into consideration, current development in the Architecture disciplines in general. New concerns about the changing environment as well as the need for life-long skills and 'employable' graduates have suggested the introduction of new courses in the undergraduate programme. The Core Curriculum Minimum Academic Standards statements are intended to provide a broad framework within which educators can develop appropriate and challenging programmes that respond to the needs of the student, changing nature of the environment, as well as new developments in the society and technology. They seek to articulate the primary qualities expected of Bachelor's degree graduates and to maintain the standards of education in the architecture subject areas.

The purpose of the Core Curriculum Minimum Academic Standards (CCMAS) Statement is to:

1. assist the Nigerian University System in the designing, approval and accreditation of programmes of study;
2. assist professional bodies in their accreditation and review of programmes relating to professional competence;
3. assist students, employers and internal organisations seeking information about education in the architecture discipline; and
4. provide a basis for setting up internal quality assurance mechanisms by universities.

The Core Curriculum Minimum Academic Standards statement is made up of four major component parts as follows:

1. The objectives and purpose of the bachelor degree in different programmes.
2. The competencies, abilities and skills expected of a graduate of the different programmes.
3. Assessment procedures and criteria for evaluating the body of knowledge covered and different levels of abilities and skills attained.
4. The essential courses expected to be covered in the programme leading to the award of undergraduate and professional postgraduate degrees.



Programmes and Degrees

Table 1.1 below includes a list of programmes and the degrees in view covered in the current CCMAS document for Architecture disciplines.

Table 1.1 Lists of Programme(s) and Degree(s) in View

S/N	PROGRAMME	DEGREE(S) IN VIEW
1.	Architecture	B.Sc. Architecture
2.	Architectural Technology	B.Sc. Tech. Architecture
3.	Furniture Design	B.Sc. Furniture Design
4.	Interior Architecture Design	B.Sc. Interior Architecture Design
5.	Landscape Architecture	B.Sc. Landscape Architecture
6.	Naval Architecture	B.Sc. Naval Architecture

Philosophy

The Philosophy of the faculty is to provide professionally, diversified as well as specialised training in architecture and related disciplines towards a technologically, and culturally responsive as well as sustainable built environment. Architecture discipline is set out to produce graduates that understand the physical sciences, such as the nature of materials, structure and environmental control, including the energies in terms of manifestation of heat, light and sound, humanities, sociology, behavioural sciences and technology and the necessary skills to produce environmentally efficient and culturally sensitive design.

Objectives

Programmes in the Architecture discipline aim to:

1. create a deeper awareness of the nature of materials, structure, environment and space and to create a balance through design;
2. create an understanding of the interdisciplinary and multidisciplinary nature of environmental issues;
3. provide an exposition of temporal and spatial scales of environmental challenges and the various approaches and options for remediation, adaptation and mitigation through design and construction;
4. harness common tools and methodologies relevant in the teaching of creative disciplines;
5. encourage inter disciplinary studies and career building;
6. produce graduates that are competent in skills as well as knowledge and are internationally competitive;
7. utilize contemporary teaching methods and technology in dispensing knowledge;
8. infuse in the training of the Architect, critical thinking as well as entrepreneurship disposition;
9. contextualise the teaching of architecture and related disciplines towards a culturally, responsive as well as sustainable built environment;
10. afford students the opportunity to develop a range of subject specific and transferable skills to support their studies and prepare them for employment; and
11. enable students develop skills of reflection, critical analysis, communication and the capacity for independent as well as team work.

Learning Outcomes

At the end of the programme, Students should possess:

1. proficiency in written and oral communication skills;
2. problem-solving skills, relating to both qualitative and quantitative information, especially where information is limited;



3. computational and numerical skills;
4. information-retrieval skills, in relation to primary and secondary information sources, including information retrieval through on-line computer searches;
5. information technology skills such as word processing and spreadsheet use, data-logging and storage and internet communication;
6. interpersonal skills relating to working in multi-disciplinary teams;
7. time-management and organizational skills; and
8. skills needed for continuing professional development and research.

General Admission Requirements

Candidates may be admitted into the degree programmes through any of the following entry modes:

1. Unified Tertiary Matriculation Examinations (UTME) admission
2. Direct Entry admission

UTME

Candidates who have successfully completed the Senior Secondary School or its equivalent and obtained five credits (in not more than two attempts) in English Language, Mathematics, and any other three relevant subjects to the programme of choice will be eligible for admission currently through the Unified Tertiary Matriculation Examinations (UTME)

Direct Entry

Candidates who fulfil the requirements for UTME admission and who have obtained General Certificate of Education (GCE), Advanced Level; Higher School Certificate (HSC)/Interim Joint Matriculation Board (IJMB), National Diploma (ND), Higher National Diploma (HND), Nigeria Certificate in Education (NCE) or other approved equivalent qualifications by Federal Ministry of Education in two relevant subjects to a particular programme, at a sitting, may be admitted into the 200 level or 300 level if upper credit is obtained.

Duration of the Programmes

Degree programmes in Architecture discipline shall normally be for a minimum of eight (8) or ten (10) academic semesters for UTME entry mode students and six (6) or eight (8) academic semesters for Direct Entry admission candidates. Further details of Duration of Programme are available in the statements for the different programmes in the current CCMAS.

Graduation Requirements

Depending on the programme within the discipline, the duration of training would vary between four to five years, according to identified focus. Graduates are to prove through design projects and thesis their competency in understanding spatial concepts, social and technological contexts as well as media communication and entrepreneurial knowledge. The minimum number of credits to be earned before graduation would be stipulated in the programme and regulated by the National Universities Commission.

Course Credit System

Academic work in the Architecture discipline is organized in concentrated modules of subject materials referred to as courses. Each course is planned as a complete unit of study with a scheduled amount of instructional/contact hours each semester. Credits are weights attached to a course. One credit is equivalent to one hour per week per semester of 15 weeks of lectures or three hours of laboratory/studio/workshop work per week per semester of 15 weeks or 32 hours of SIWES per week.



Definition of Course System

This should be understood to mean a quantitative system of organization of the curriculum in which subject areas are broken down into unit courses which are examinable and for which students earn credit(s) if passed. The courses are arranged in progressive order of complexity or in levels of academic progress, e.g. Level or year I courses are 100, 101, and Level II or year II courses are 200, 202 and many others. The second aspect of the system is that courses are assigned weights allied to Units.

Units

Consist of specified number of student-teacher contact hours per week per semester. Units are used in two complementary ways: one, as a measure of course weighting, and the other, as an indicator of student workload.

1. As a measure of course weighting for each Unit course (e. g) ARC 105, LAA 203, FUD 404), the credit unit to be earned for satisfactorily completing the course is specified; e.g. a 2-credit unit course may mean two 1-hour lecture per week per semester or one 1-hour lecture plus 3-hour practical per week per semester.
2. As a measure of workload, "one credit unit" means one hour of lecture or one hour of tutorial per week per semester. For other forms of teaching requiring student teacher contact, the following equivalents may apply: two hours of seminar: three hours of laboratory or field work, clinical practice/practicum, studio practice or stadium sporting activity, six hours of teaching practice; four weeks of industrial attachment where applicable.

The minimum number of credit units for the award of a degree is 120 units for UTME, subject to the usual Department and Faculty requirements. A student shall therefore qualify for the award of a degree when he has met the conditions. The minimum credit load per semester is 15 credit units. For the purpose of calculating a student's cumulative GPA (CGPA) in order to determine the class of degree to be awarded, grades obtained in **ALL** the courses whether compulsory or optional and whether passed or failed must be included in the computation. Even when a student repeats the same course once or more before passing it or substitutes another course for a failed optional course, grades scored at each and all attempts shall be included in the computation of the GPA. Pre - requisite courses must be taken and passed before a particular course at a higher level.

Grading of Courses

At the end of each course, a grade comprising a percentage score and a corresponding letter grade is awarded to each student. These grades will include the results of both formative and summative assessments conducted throughout the Duration of Programme. Range of percentage scores, letter grades and numerical grade point equivalents are indicated in Table 1.2.

Table 1.2 Grading System

Score (%)	Letter Grade	Grade Point equivalent
70 – 100	A	5.0
60 – 69	B	4.0
50 – 59	C	3.0
45 – 49	D	2.0
40 – 44	E	1.0
0 – 39	F	0



Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA)

A system of Grade Point Average (GPA) and Cumulative Grade point Average (CGPA) is currently in use in the Nigerian University system. Grade Point Average and Cumulative Grade Point Average are calculated as numerical representations of a student's quality of performance. These averages are used to determine if a student qualifies for certain academic actions (e.g., probation, graduation and class of degree). A student's Grade Point Average (GPA) is the weighted mean value of all grade points earned through examinations and other forms of formal assessment in a particular academic semester/session. While the Cumulative Grade Point Average (CGPA) is the weighted mean value of all the Grade Point Averages earned since enrolment on the particular programme.

For the purpose of determining a student's standing at the end of every semester, the Grade Point Average (GPA) system shall be used. The GPA is computed by dividing the total number of Units x Grade Point (TUGP) by the total number of units (TNU) for all the courses taken in the semester as illustrated in Table 1.3. The Cumulative Grade Point Average (CGPA) over a period of semesters is calculated in the same manner as the GPA by using the grade points of all the courses taken during the period.

Table 1.3 Calculation of GPA or CGPA

Course	Units	Grade Point	Units x Grade Point (UGP)
C ₁	U ₁	GP ₁	U ₁ x GP ₁
C ₂	U ₂	GP ₂	U ₂ x GP ₂
-	-	-	-
-	-	-	-
C _i	U _i	GP _i	U _i x GP _i
-	-	-	-
-	-	-	-
C _N	U _N	GP _N	U _N x GP _N
TOTAL	TNU		TUGP

$$TNU = \sum_{i=1}^N U_i \quad TUGP = \sum_{i=1}^N U_i * GP_i \quad CGPA = \frac{TUGP}{TNU}$$

Degree Classifications

Students are ordinarily expected to register for a minimum of 18 units each semester including all compulsory and required courses. Courses in all the programmes are normally taught for a semester of fifteen (15) weeks duration. In addition to these general provisions, students are expected to satisfy the specific requirements of individual programmes with regards to compulsory and required courses in order to qualify for graduation.

The overall performance of each student shall be based on a 5-point scale Cumulative Grade Point Average (CGPA) system. Degree qualifications are classified as in table 1.4.



Table 1.4 Degree Classification

Cumulative Grade Point Average (CGPA)	Class of Degree
4.50 – 5.00	1 st Class Honours
3.50 – 4.49	2 nd Class Honours (Upper Division)
2.40 – 3.49	2 nd Class Honours (Lower Division)
1.50 – 2.39	3 rd Class Honours
1.00 – 1.49	Pass Degree

For students enrolled on a four (4) or five (5) year degree programme, a maximum period of ten (10) or twelve (12) semesters respectively is allowed for an honours degree. Any additional period of study beyond this will qualify the candidate for the award of a pass degree. Candidates admitted into any of the programmes through direct entry, will normally be allowed eight or ten semesters for 4- and 5-year programmes respectively to earn an honours degree. A student will normally be allowed to remain on a programme for a period not exceeding 1½ times the stipulated Duration of Programme.

Probation

A student shall be placed on academic probation if at the end of the second semester of an academic year the student earns less than 1.0 Cumulative Grade Point Average (CGPA). During Probation, a student will be expected to register for all failed courses as well as other compulsory and required courses which the student may have failed to register for in an attempt to improve the CGPA. A student on probation may be allowed to register for courses at the next higher level in addition to his/her probation level courses provided that:

1. the regulation in respect of student work-load is complied with; and
2. pre-requisite courses for the higher-level courses have been passed.

Withdrawal

A student shall be asked to withdraw from a particular programme if they have been on probation for two consecutive semesters or if the student fails to make satisfactory progress (CGPA at least above 1.0). Such a student may however be allowed a change of programme within the same university or alternatively asked to withdraw from the university.

Evaluation

Techniques for Student Evaluation

The primary goal of assessment is to improve the overall quality of learning as well as evaluate the quality of instruction. It is recommended that different types of formative and summative evaluation methods be adopted through the semester for all course offered in the environmental science discipline. The list below though not exhaustive, highlights some of the more common methods of assessment that may be adopted for students' courses performance evaluation:

- a. Problem Solving Exercises
- b. Term Papers/Essay Assignments
- c. Individual Project Work
- d. Oral Presentations
- e. Jury Assessment
- f. Design studio exercises
- g. Surveys and Evaluation reports
- h. Laboratory Reports



- i. Collaborative Project Work
- j. Report on External Placement (SIWES)
- k. End of semester examinations
- l. External Examination Reports

Assessment of theory subjects

Assessment used for theory subjects should include continuous monitoring of student's progress by subject lectures through course work evaluation. Continuous assessment may involve class tests, tutorial assignments, seminar presentations, and reports on fieldwork, class attendance and so on. These should carry between 30% and 60% of the total weighting for any subject. The final end of semester examination will normally account for the balance of 40% to 70% of the overall marks for the subjects.

Assessment of Studio projects

The regular formative review of design studio projects is encouraged as an important part of the learning process. Students are required to present their work to an audience that may comprise fellow students, studio staff or visiting studio critics at least at the end of each project. Feedback and scores may be given in these instances. The summative assessment of the design studio work is usually carried out by well-informed assessors based on predetermined assessment criteria. Scores in these assessments are usually very subjective and rely on the judgements of the expert assessors.

External Examiner System

The involvement of external examiners from other universities is a crucial quality assurance requirement for all courses in Nigerian University System. In this regard, external examiner should go beyond mere moderation of examination questions to examining of examination papers to scope and depth of examination questions vis a vis the curricular expectation.

SIWES Rating and Assessment

Students in the Architecture disciplines shall be exposed to a combination of field and office experience both in the public or private sectors relevant to their various disciplines. This is achieved through the students' participation in the supervised Student Industrial Work Experience Scheme (SIWES). SIWES shall be undertaken in an approved establishment. A minimum period of 12 weeks for a 4 year programme and 16 weeks for a 5 year programme of SIWES should be undertaken as part of the graduation requirements.

At the end of the SIWES programme, each participating students' is required to submit a systematic log-book for assessment by the programme in addition to undergoing any other forms of assessment as may be required by individual programmes and institutions. Individual programmes will be expected to allocate credit unit ratings to the SIWES training programme that count towards the requirements for graduation. Students with unsatisfactory performance in SIWES shall be required to repeat the training programme.

Students' Evaluation of courses

As an integral part of the course credit system, students will be given the opportunity to evaluate the courses taken in the semester based on the following criteria:

- a. Course relevance
- b. Adequacy in terms of time and content coverage
- c. Students understanding of the courses
- d. Adequacy of Teaching, tutorials and practical technology/aids
- e. Instructor evaluation



The students' course evaluation is aimed at improving the efficiency of course delivery by offering timely feedback to the course lecturers/instructors. It is expected that each programme will work out a mechanism to achieve this goal.

Performance Evaluation Criteria

The accreditation of the Architecture discipline degree programme means a system of recognising educational institutions (universities and programmes offered by them) for a level of performance, integrity and quality which entitles them to the confidence of the educational and professional community, the public they serve, and employers of labour.

The objectives of the accreditation exercise are to:

1. ensure that at least the provisions of the minimum academic benchmark statements are attained, maintained and enhanced;
2. assure employers and other members of the community that graduates of these institutions have attained an acceptable level of competence in their areas of specialisation; and
3. certify to the international community that the programmes offered in these universities are of high standards and that their graduates are adequate for employment and for further studies.



B. Sc. Architecture

Overview

The programme is designed as a two-tier degree structure. The first degree leads to the award of a Bachelor's degree in architecture, while the second-tier leads to the Master's degree in Architecture. The Master's degree is recognized as minimum professional qualification. Architecture is an interdisciplinary field that synthesizes knowledge from several fields including the humanities, the social and the physical sciences. A graduate of architecture is trained in the art and science of planning, design, construction, maintenance, management and the co-ordination of allied professionals in the development of the built environment. Architecture seeks to accommodate all human activities under varied conditions with a full understanding of the different physical contexts. The programme is designed to account for the changing needs of the architectural education arising from changing social, economic, psychological and technological environment.

Philosophy

The philosophy of the Architecture programme is to provide a broad spectrum of skills and knowledge necessary for the design and construction of spaces for human activities. These include technological and scientific knowledge; artistic skills and environmental sensitivity. The programme also leverages on the rich cultural and traditional heritage in the country.

Objectives

The aim of the Architecture programme is to produce competent, creative, intellectually mature, ethical and socially responsible professional architects. The objectives of the programme are to:

1. equip the student with advanced knowledge of the environmental, social, cultural, economic and technological contexts underlying design and construction in the built environment;
2. provide a high-quality design education which emphasizes an in-depth understanding of design principles, the design process, the design culture, the acquisition of creative design skills, and the ability to respond appropriately to local, global, cultural and environmental design challenges;
3. develop in the student adequate professional knowledge, attitudes, specialised skills and character qualities that will upon their graduation, enable them to effectively co-ordinate and control the design and construction processes;
4. create a learning environment that fosters active interest in research and development in architecture; encourages individual and team learning; and facilitates participation in community and professional activities; and
5. provide the student with entrepreneurial knowledge and skills to enable them to be self-reliant.

Unique Features of the Programme

The unique features of architecture programme are aimed at:

1. addressing current global issues such as, sustainability, gender and diversity, globalization, digital communication, climate change, twenty-first century business models and entrepreneurship and their influence on architecture;
2. placing emphasis on studying and understanding architecture in the local context, as in the history courses which addresses Architecture and Architects in Nigeria;
3. emphasizing digital skills not only with respect to design drawings but as it relates to new digital applications; and
4. preparing graduates to meet both local and international standards of practice in architecture.



Employability skills

1. in order to produce employable graduates, the programme has been designed to include a course titled 'Entrepreneurship for Architects' which is peculiar to students undertaking the architecture programme. It is designed to provide entrepreneurial skills in decision making and critical thinking which are important employability indices;
2. imbibing digital skills and software packages knowledge to enable students perform task that were previously done manually thereby enhancing employability;
3. designing to encourage some degree of independent learning thereby building the capability of the student with capacity in a variety of design related fields;
4. communication and presentation skills are also emphasized to encourage team work, verbal and visual communication as well as building a strong architectural vocabulary; and
5. students will obtain practical experience within the programme courses (for example 'Workshop Practice') and also during their SIWES.

21st Century Skills

Acquisitions of 21st Century skills are highly emphasized in this programme. These include:

1. digital skills at all levels to be acquired in specific courses such as '**Building Information Modelling**' and '**Digital Communication in Architecture**'. In addition, digital skills will also be acquired within technological courses where current computer applications are to be learnt;
2. critical thinking skills, problem solving, reasoning, analysis, interpretation, synthesizing information are emphasized in the design process as well as in history and theory courses;
3. creativity, artistry, curiosity, imagination, innovation, personal expression;
4. oral and written communication, public speaking and presenting, listening;
5. leadership, teamwork, collaboration, cooperation, facility in using virtual workspaces; and
6. team-work is specifically introduced in both design and non-design courses.

Admission and Graduation Requirements

Duration

Schools of Architecture shall offer a two-tier degree programme. The minimum recommended duration of the first degree is eight (8) academic semesters. The first degree programme leads to the award of a Bachelor's degree in Architecture. A students' Industrial Training (SIWES) programme of three months duration shall be incorporated in the programme without prejudice to the minimum academic semesters recommended above.

The second-tier of Four (4) academic semester's duration leads to a professional Masters degree.

Admission Requirements

Admission into the Architecture programme may be through any of the following modes:

UTME

In addition to UTME score, the candidate should possess five credit passes in Mathematics, English Language, Physics and two other subjects from the following; Chemistry, Biology, Technical Drawing, Fine Arts, Geography, Economics, Building Construction and Land Surveying at not more than two sittings. Subject combinations for the UTME are Mathematics/Physics and any one of the following subjects: Chemistry, Geography, Fine Arts, or Technical Drawing.



Direct Entry

Five SSC-credit passes, two of which must be at the advanced level or candidates who hold National Diploma in relevant field may be admitted into the 200 Level to study Architecture. Holders of Higher National Diploma (HND) in relevant field may also be admitted into 300 - Level if they have Upper Credit or Distinctions.

Graduation Requirements

Total minimum credit units required for graduation is 120 and 90 or 60 for students admitted through UTME and Direct Entry admissions respectively. In order to graduate, a student must pass all compulsory and required courses. The minimum credit requirements for Direct Entry students are to be determined by their entry level.

Global Course Structure

100 Level

Course Code	Course Title	Units	Status	LH	PH
GST111	Communication in English	2	C	15	45
GST112	Nigerian Peoples and Culture	2	C	30	-
MTH101	Elementary Mathematics I	2	C	30	-
MTH103	Elementary Mathematics III	2	C	30	-
PHY101	General Physics I (Mechanics)	2	C	30	-
FAA103	Graphics Communication I	2	C	15	45
FAA104	Graphics Communication II	2	C	15	45
FAA 121	Introduction to Basic Computer Applications	2	C	15	45
FAA 126	Introduction to Sustainable Built Environment	2	C	30	-
ARC 101	Introduction to Architecture	2	C	30	-
	Total Units	20			

200 Level

Course Code	Course Title	Units	Status	LH	PH
GST 212	Philosophy, Logic and Human Existence	2	C	30	-
ENT 211	Entrepreneurship and Innovation	2	C	15	45
FAA 221	Introduction to Computer-Aided Design	2	C	-	90
ARC 201	Architectural Design Studio I	6	C	-	27 0
ARC 202	Architectural Design Studio II	6	C	-	27 0
ARC 203	Building Components and Methods I	2	C	30	-
ARC 204	Building Components and Methods II	2	C	30	-
ARC 205	History of World and Traditional Architecture	2	C	30	-



ARC 206	Building materials workshop practice and safety	2	C	-	90
ARC 207	Building Structures, I	2	C	30	-
ARC 208	Building Structures II	2	C	30	-
	Total Units	30			

300 Level

Course Code	Course Title	Units	Status	LH	PH
GST 312	Peace and Conflict Resolutions	2	C	30	-
ENT 312	Venture Creation	2	C	15	45
FAA 313	Research Methods	2	C	30	-
ARC 301	Architectural Design Studio III	6	C	-	270
ARC 302	Students' Industrial Work Experience Scheme (SIWES)	6	C	-	270
ARC 303	Building Components and Methods III	2	C	30	-
ARC 304	Entrepreneurship for Architects	2	C	-	90
ARC 305	Building Structures III	2	C	30	-
ARC 307	Building Services I	2	C	15	45
ARC 309	Building Information Modelling	2	C	15	45
	Total Units	28			

400 Level

Course Code	Course Title	Units	Status	LH	PH
FAA 484	Professional Practice	2	C	30	-
ARC 401	Architectural Design Studio IV	6	C	-	270
ARC 402	Architectural Design Studio V	6	C	-	270
ARC 403	Building Components and Methods IV	2	C	30	-
ARC 405	Building Services II	2	C	30	-
ARC 406	Research Project/Dissertation	2	C	-	90
ARC 407	Theory and Methods of Contemporary Architecture	2	C	30	-
ARC 409	Building Economics, Quantities and Estimating	2	C	30	-
	Total Units	24			



Course Contents and Learning Outcomes

100 level

GST 111: Communication in English

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. identify possible sound patterns in English language;
2. list notable language skills;
3. classify word formation processes;
4. construct simple and fairly complex sentences in English;
5. apply logical and critical reasoning skills for meaningful presentations;
6. demonstrate an appreciable level of the art of public speaking and listening; and
7. write simple and technical reports.

Course Contents

Sound patterns in English language (vowels and consonants, phonetics and phonology). English word classes (lexical and grammatical words, definitions, forms, functions, usages, collocations). Sentences in English (types: structural and functional, simple and complex). grammar and usage (tense, mood, modality and concord, aspects of language use in everyday life). Logical and critical thinking and reasoning methods (logic and syllogism, inductive and deductive argument and reasoning methods, analogy, generalisation and explanations). Ethical considerations, copyright rules and infringements. Writing activities: (pre-writing , writing, post writing, editing and proofreading; brainstorming, outlining, paragraphing, types of writing, summary, essays, letter, curriculum vitae, report writing, note making, mechanics of writing and many others). Comprehension strategies: (reading and types of reading, comprehension skills, 3RsQ). Information and communication technology in modern language learning. Language skills for effective communication. Major word formation processes. Writing and reading comprehension strategies. Logical and critical reasoning for meaningful presentations. Art of public speaking and listening and report writing.

GST 112: Nigerian Peoples and Culture

(2 Units C; LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. analyse the historical foundation of the Nigerian culture and arts in pre-colonial times;
2. list and identify the major linguistic groups in Nigeria;
3. explain the gradual evolution of Nigeria as a political unit;
4. analyse the concepts of trade, economic and self-reliance status of the Nigerian peoples towards national development;
5. enumerate the challenges of the Nigerian state towards nation building;
6. analyse the role of the judiciary in upholding people's fundamental rights;
7. identify acceptable norms and values of the major ethnic groups in Nigeria; and
8. list and suggest possible solutions to identifiable Nigerian environmental, moral and value problems.

Course Contents

Nigerian history, culture and art up to 1800 (Yoruba, Hausa and Igbo peoples and culture; peoples and culture of the ethnic minority groups). Nigeria under colonial rule (advent of colonial rule in Nigeria; Colonial administration of Nigeria). Evolution of Nigeria as a political unit (amalgamation of Nigeria in 1914. Formation of political parties in Nigeria. Nationalist



movement and struggle for independence). Nigeria and challenges of nation building (military intervention in Nigerian politics; Nigerian Civil War). Concept of trade and economics of self-reliance (indigenous trade and market system; indigenous apprenticeship system among Nigeria people; trade, skill acquisition and self-reliance). Social justices and national development (law definition and classification. Judiciary and fundamental rights; Individual, norms and values (basic Nigeria norms and values, patterns of citizenship acquisition; citizenship and civic responsibilities; indigenous languages, usage and development; negative attitudes and conducts. Cultism, kidnapping and other related social vices). Re-orientation, moral and national values (The 3R's – Reconstruction, Rehabilitation and Re-orientation; re-orientation strategies: Operation Feed the Nation (OFN), Green Revolution, Austerity Measures, War Against Indiscipline (WAI), War Against Indiscipline and Corruption(WAIC), Mass Mobilization for Self-Reliance, Social Justice and Economic Recovery (MAMSER), National Orientation Agency (NOA) as well as current socio-political and cultural developments in Nigeria.

MTH 101: Elementary Mathematics I (Algebra and Trigonometry)(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. explain basic definition of set, subsets, union, intersection, complements and use of Venn diagrams;
2. solve quadratic equations;
3. solve trigonometric functions;
4. identify various types of numbers; and
5. solve some problems using binomial theorem.

Course Contents

Elementary set theory, subsets, union, intersection, complements, Venn diagrams. Real numbers, integers, rational and irrational numbers, mathematical induction, real sequences and series, theory of quadratic equations, binomial theorem. Complex numbers, algebra of complex numbers, the Argand diagram. De-Moivre's theorem, nth roots of unity. Circular measure, trigonometric functions of angles of any magnitude, addition and factor formulae.

MTH 103: Elementary Mathematics III (Vectors, Geometry and Dynamics) (2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. solve some vectors in addition and multiplication;
2. calculate force and momentum; and
3. solve differentiation and integration of vectors.

Course Contents

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, normal. Kinematics of a particle. Components of velocity and acceleration of a particle moving in a plane. Force, momentum, laws of motion under gravity, projectiles and resisted vertical motion. Elastic string and simple pendulum. As well as impulse, impact of two smooth spheres and a sphere on a smooth surface.



PHY 101: General Physics I (Mechanics)

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, the students should be able to:

1. identify and deduce the physical quantities and their units;
2. differentiate between vectors and scalars;
3. describe and evaluate motion of systems on the basis of the fundamental laws of mechanics;
4. apply newton's laws to describe and solve simple problems of motion;
5. evaluate work, energy, velocity, momentum, acceleration, and torque of moving or rotating objects;
6. explain and apply the principles of conservation of energy, linear and angular momentum;
7. describe the laws governing motion under gravity; and
8. explain motion under gravity and quantitatively determine behaviour of objects moving under gravity.

Course Contents

Space and time. units and dimension, vectors and scalars, differentiation of vectors: displacement, velocity and acceleration. Kinematics. Newton laws of motion (Inertial frames, impulse, force and action at a distance, momentum conservation); Relative motion; Application of Newtonian mechanics. Equations of motion. Conservation principles in physics, conservative forces, conservation of linear momentum, kinetic energy and work, potential energy, system of particles, centre of mass; rotational motion; torque, vector product, moment, rotation of coordinate axes and angular momentum. It also covers Polar coordinates; conservation of angular momentum. Circular motion; moments of inertia, gyroscopes and precession. Gravitation: Newton's law of gravitation, Kepler's laws of planetary motion, gravitational potential energy, escape velocity, satellites motion and orbits.

FAA 103: Graphics Communication I

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and use various draughting materials and instruments: paper cards, folios, sketch books; pencils (hard, soft and coloured), felt pens, technical pens, crayons; brushes and paints; dry transfer lettering, textures, tones and colours; rules, templates and compasses; drawing boards and drawing sets;
2. identify and construct/create the following visual elements: points, lines, shapes, planes, forms, textures and colours; in various media to create various effects;
3. construct simple visual images using the principles of proportion, balance, harmony and contrast, pattern, movement and rhythm, style;
4. create 2 dimensional drawings of plan section and elevations from basic geometric forms;
5. produce perspective drawings of simple geometric forms;
6. identify and draw various forms of lettering; and
7. compose renderings of simple objects in various media.

Course Contents

Drawing tools. Drawing materials. The representation of common views. Graphic presentation using various media. Sketching for design development. Descriptive geometry. Orthographic projections of simple and complex geometric solids. Isometric, axonometric. Oblique and perspective views and lettering.



FAA 104: Graphics Communication II

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the student should be able to:

1. represent building elements and materials;
2. interpret building graphics conventions on architectural drawings;
3. reproduce architectural drawings of plans, sections and elevations;
4. create basic floor plans, sections and elevations;
5. identify and use scales and properly drawn-out design- floor plans, sections elevations;
6. construct orthogonal projections of plans;
7. create axonometric and perspective views using advanced techniques in perspective drawings;
8. construct and prepare shades and shadows; and
9. prepare rendered presentation drawings using lines, tones and colour.

Course Contents

Uses of graphics in architecture. Graphic thinking and building representation. Representation of building elements and materials. Representations of building elements and materials in plans. Representations of building elements and materials in elevations and sections. Projection techniques for shade and shadow construction. 3-Dimensional drawings of building exteriors. 3-Dimensional drawings of building interiors. Oblique drawings. Isometric drawings. Axonometric drawings. Perspective drawings and rendering.

FAA 121: Introduction to Basic Computer Applications (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of the course, students should be able to:

1. discuss the development and types of computers;
2. identify the electronic principles behind the operation of computers;
3. identify, discuss and use basic hardware and software computer components;
4. perform basic installation, programming and file management tasks;
5. use word processing software in the production of their papers;
6. apply graphics software for simple design tasks;
7. use excel spreadsheet for basic computational works; and
8. create slides and use power-point for presentations.

Course Contents

Background to the development of the computer, computer components and operations. Development and types of computers. Basic electronic principles. Navigation. Hardware peripheral/plugins devices. Computing environment - Windows operating system. Software - types, license, installation, elementary programming. Documents – creation, converting and file management. It shall also expose students to basic processes and software which are useful for the preparation and presentation of works as students and professionals in today's society, commonly used applications such as word processors and their operations - page setup, margins, headers and footers, page numbers, page breaks, viewing and navigation, writing and formatting, lists, tables, graphics, tracking, table of contents and references. excel spreadsheet; power-point; graphics software such as paint and CorelDraw. Navigating the internet, web browsers and search engines, as well as on-line resources.



FAA 126: Introduction to Sustainable Built Environment (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define sustainability, and sustainable built environment;
2. identify and explain associated concepts with sustainable built form;
3. describe what is sustainable infrastructure;
4. demonstrate an understanding of values and societal importance of the built environment, and the influence on a sustainable development;
5. conduct a simple environmental assessment;
6. define climate change and discuss how it influences the built environment; and
7. demonstrate the usefulness of environmental impact assessments as a tool for design, construction and management of a sustainable built environment.

Course Contents

Definition of sustainability. Definition of sustainable environment. Definitions of concepts associated with sustainability e.g., climate change. The built environment and sustainable built environment. Sustainable infrastructure (buildings, structures, plants and networks for communication and transport, water and wastewater treatment, production and distribution of energy). Relations between infrastructure and sustainable development. Sustainable regulations and standards. Indicators of sustainability. Consequences of climate change on the built environment. Vulnerability and safety of infrastructure. Materials and technology for construction and management. Service life and life cycle assessments.

ARC 101: Introduction to Architecture I (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define and explain what architecture is, where it started from and who is an architect;
2. discuss the nature of architecture as a discipline, a profession and a practice;
3. distinguish between the terms; profession, discipline and practice;
4. describe what architects do, how they do their work and the scales at which they work;
5. describe the relationship between architects and the society;
6. discuss what the building industry is and the role of the architect in the building industry;
7. demonstrate the importance of history to the architect;
8. discuss what design is and why it is important to our lives; and
9. demonstrate an understanding of key concepts learnt in short essays.

Course Contents

Definitions and nature of architecture as a discipline. Nature of architecture as a profession. Context of architecture. The building industry. The architect and the society; the organization of the profession; changing nature of the discipline and profession and likely future trends. The cultural origins of architecture. Architecture and the city. The scales of architectural concern from building to the city. Architects approaches to design. Precedence in architecture. The significance of history, theory and criticism.



200 Level

GST 212: Philosophy, Logic and Human Existence

(2 Units C: LH 30)

Learning Outcomes

A student who has successfully gone through this course should be able to:

1. know the basic features of philosophy as an academic discipline;
2. identify the main branches of philosophy & the centrality of logic in philosophical discourse;
3. know the elementary rules of reasoning;
4. distinguish between valid and invalid arguments;
5. think critically and assess arguments in texts, conversations and day-to-day discussions;
6. critically assess the rationality or otherwise of human conduct under different existential conditions;
7. develop the capacity to extrapolate and deploy expertise in logic to other areas of knowledge, and
8. guide his or her actions, using the knowledge and expertise acquired in philosophy and logic.

Course Contents

Scope of philosophy; notions, meanings, branches and problems of philosophy. Logic as an indispensable tool of philosophy. Elements of syllogism, symbolic logic— the first nine rules of inference. Informal fallacies, laws of thought, nature of arguments. Valid and invalid arguments, logic of form and logic of content — deduction, induction and inferences. Creative and critical thinking. Impact of philosophy on human existence. Philosophy and politics, philosophy and human conduct, philosophy and religion, philosophy and human values, philosophy and character moulding.

ENT 211: Entrepreneurship and Innovation

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. explain the concepts and theories of entrepreneurship, intrapreneurship, opportunity seeking, new value creation, and risk taking;
2. state the characteristics of an entrepreneur;
3. analyse the importance of micro and small businesses in wealth creation, employment, and financial independence;
4. engage in entrepreneurial thinking;
5. identify key elements in innovation;
6. describe stages in enterprise formation, partnership and networking including business planning;
7. describe contemporary entrepreneurial issues in Nigeria, Africa and the rest of the world; and
8. state the basic principles of e-commerce.

Course Contents

Concept of entrepreneurship (entrepreneurship, intrapreneurship/corporate entrepreneurship); theories, rationale and relevance of entrepreneurship (schumpeterian and other perspectives, risk-taking, necessity and opportunity-based entrepreneurship and creative destruction); characteristics of entrepreneurs (opportunity seeker, risk taker, natural and nurtured, problem solver and change agent, innovator and creative thinker); entrepreneurial thinking (critical thinking, reflective thinking, and creative thinking); innovation (concept of innovation, dimensions of innovation, change and innovation, knowledge and innovation); enterprise formation, partnership and networking (basics of



business plan, forms of business ownership, business registration and forming alliances and joint ventures); contemporary entrepreneurship issues (knowledge, skills and technology, intellectual property, virtual office, networking). Entrepreneurship in Nigeria (biography of inspirational entrepreneurs, youth and women entrepreneurship, entrepreneurship support institutions, youth enterprise networks and environmental and cultural barriers to entrepreneurship); and basic principles of e-commerce.

FAA 221: Introduction to Computer-Aided Design

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate mastery of basic concepts of the AutoCAD software;
2. apply basic concepts to develop construction (drawing) techniques;
3. manipulate drawings through editing and plotting techniques;
4. make geometric construction;
5. produce template drawings;
6. produce 2D orthographic projections; and
7. demonstrate skills in dimensioning concepts and techniques, section and auxiliary views.

Course Contents

Use of modern CAD software to produce two-dimensional drawings for architectural design. Coordinating systems. Proper dimensioning. Use of sectioning and projections for visualization, symbol libraries, file management, and collaborative techniques. Basic principles of Computer Aided Design (CAD).

ARC 201: Architectural Design Studio I

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. create ergonomically effective spaces with appropriate relationships with human dimensions;
2. interpret the relationship between enclosure and form;
3. integrate passive design principles to design projects given;
4. make presentation drawings in 2D CAD format and in freehand; and
5. demonstrate familiarity with residential building typologies.

Course Contents

Basic characteristics of space and place. Spatial and formal qualities of places. Exercises on the exploration of space and form through measured drawings and sketches. Exercises on spaces as a place as activity and function. The role of anthropometrics/ergonomics. Spatial composition. Climatic considerations. Understanding of aesthetics and typology demonstrated in relevant projects and the design process of analysis, synthesis and evaluation.

ARC 202: Architectural Design Studio II

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. create spaces using appropriate human body dimensions and in response to simple functional needs;
2. integrate passive design principles in design projects;
3. analyse sites in relation to basic climatic factors;
4. think conceptually for small design problems;



5. analyse design problems, as a basis for developing ideas;
6. interpret the relationship between enclosure and form;
7. demonstrate familiarity with residential, and educational building typologies; and
8. make presentation drawings in 2d cad format and in freehand.

Course Contents

Advanced characteristics of space and place. Spatial and formal qualities of places. Relationship between anthropometrics/ergonomics and space; exercises in spatial composition. Exercises in space planning. Climatic considerations. Aesthetics demonstrated through relevant projects. Design process of analysis, synthesis and evaluation.

ARC 203: Building Components and Methods I

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. describe the various types, designs and methods of construction of foundations;
2. identify the conditions/rationale for choosing each type or design of foundation;
3. describe the characteristics and properties of materials used in the construction of foundations;
4. identify sustainable issues in substructure materials and construction;
5. create, draw and label different foundation plans and sections in 2D;
6. demonstrate the use of software packages for taking measurements on site/spaces such as level, sun seeker, my measures, and magic plan;
7. set-out a simple building on site; and
8. demonstrate understanding and recall the major building codes (local and global) for foundations.

Course Contents

Site preparation and the major sub-structural elements (in foundation). The types of foundations. Materials used in the construction of foundations. The different foundation designs and methods of constructing foundations. The sustainability of various types of foundations and their construction methods. Factors which influence the choice of foundations. Setting out buildings on site. Manually measured drawings of existing buildings manually. Measured drawings of existing buildings with the use of software/digital measuring apps such ARPlan 3D, easy measure, roomscan pro, archisnapper or compass. Local and international building codes and regulations associated with the materials, design and construction of foundations.

ARC 204: Building Components and Methods II

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the major structural elements of the construction of buildings; walls and roofs and the terminologies used to describe them;
2. describe the various types, designs and construction techniques associated with each of these elements;
3. identify the conditions/rationale for choosing each type or design of these elements;
4. describe the characteristics and properties of the materials used for each of these structural elements;
5. identify sustainable issues in the materials and construction of walls and roofs;
6. create and combine a variety of roof forms given a simple plan;
7. appraise the qualities of walls and roof commonly used;
8. draw and label wall and roof structures of different types; and



9. identify and state both local and international codes and regulations for the materials, design and construction of walls and roofs.

Course Contents

Walls – types and construction techniques. Walls - materials, design. Roofs - types, and construction techniques. Roofs – materials and design. Sustainability of materials and the construction of walls. Sustainability of materials and the construction of roofs. Factors that influence choice of walls types/materials. Factors that influence choice of roof types/materials. Local building codes and regulations associated with the material, design and construction of walls and roofs. International building codes and regulations associated with the material, design and construction of walls and roofs.

ARC 205: History of World and Traditional Architecture (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and classify the architecture of the earliest historical periods up to the gothic period;
2. discuss the factors which determine the built form in each of these periods;
3. identify the distinguishing characteristics of especially, Greek, Roman, Egyptian, Chinese, Japanese, early Christian and Islamic architecture;
4. discuss the role of the patrons, traditions and structural innovations on the architecture of these periods;
5. describe using technical and formal vocabulary the architectural styles of these periods and their underpinnings;
6. discuss the significance of architectural history, design, and design periods verbally and in writing;
7. distinguish significant developments in construction and design: concepts, architects and movements that shaped architecture and how their ideas affect current design;
8. interpret motivation and societal forces behind the design, and the process of creating new relevant forms;
9. apply critical thinking to theories in the history of architecture;
10. analyse the factors which determine the built form in traditional environments;
11. analyse vernacular buildings from various dimensions;
12. identify the distinguishing characteristics of domestic and non-domestic traditional architecture;
13. describe the role of colonization and other foreign influences on traditional architecture; and
14. identify the distinguishing characteristics of traditional architecture across African regions.

Course Contents

Defining traditional and vernacular architecture. Traditional building types in Africa. Identification and analyses of vernacular buildings. Introduction to vernacular architecture. Methods and skills needed to analyse traditional and vernacular architecture. Cultural influences on built form, use of space and meaning. Knowledge from this classification by type, and geographic location. The history of vernacular architecture in Nigeria. The characteristics of vernacular architecture in Nigerian. The meaning of vernacular architecture in the Nigerian context.

Buildings and architectural thought in the West from antiquity to Gothic times (i.e., from "caves to cathedrals"). Major periods of architectural history and relevant building types. Patrons of Greek, Roman, Egyptian, Chinese, Japanese, early Christian and Islamic Architecture. Materials and building traditions for Greek, Roman, Egyptian, Chinese, Japanese,



early Christian and Islamic Architecture. Structural innovations and other critical aspects of Greek, Roman, Egyptian, Chinese, Japanese, early Christian and Islamic Architecture. Detailed study of monuments, the historical styles from antiquity to Gothic: (their defining characteristics and the spirit of each age which produced the styles). Essays in Greek, Roman, Egyptian, Chinese, Japanese, early Christian and Islamic Architecture.

ARC 206: Building Materials and Workshop Practice (2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the basic masonry and carpentry tools used in small scale construction;
2. lay masonry blocks and tiles using different techniques and in different patterns;
3. construct simple roof forms using timber on a small scale;
4. build simple building components such as window, and cabinets;
5. construct on a small scale simple electrical and plumbing systems;
6. demonstrate an understanding of the use of basic building tools; and
7. collaborate in teams.

Course Contents

Using basic materials such as timber, masonry, aluminium and metals to design and fabricate building components. Basic masonry and carpentry tools. Simple block laying projects. Simple concreting projects. Simple cabinetry and joinery projects. Simple tiling and plumbing projects. Metal works, stone works, panelling, and general building repairs. Exercises in working with plumbing materials, electrical materials and other materials such as aluminium and metals to design and fabricate plumbing systems and other building components.

ARC 207: Building Structures I (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and explain basic structural concepts;
2. distinguish between the roles and relationship of the architect and the structural engineer;
3. distinguish between different types of loads;
4. identify different structural materials in construction and their properties; and
5. describe the relationship between structure, form and aesthetics.

Course Contents

History of structures. Basic structural concepts. Fundamental structural theories. The roles and relationship between the architect and the engineer. Reasons for building failure. The purpose of structures. Loads in buildings. The relationship between loads and structural materials. The relationships between structures and architectural design. Structural design goals and principles.

ARC 208: Building Structures II (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. describe the basic structural concepts and basic structural theories;
2. itemize basic structural design principles;
3. identify the role of different materials, economy and aesthetics in the choice of structural systems; and
4. describe the relationship between structure, form and aesthetics.



Course Contents

Basic structural requirements. Basic concepts and issues of stress and tension in buildings structures Equilibrium, Stability, Strength and functionality. Tension, compression, shear; and bending. Cables and cable roof, trusses and arches. The role of building materials in building structures from the viewpoint of function, economy and aesthetics. Relationships between structures and architectural design with focus on forces and vector components, stress, strain, loading and structural failures, structural design goals and principles.

300 Level

GST 312: Peace and Conflict Resolutions

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. analyse the concepts of peace, conflict and security;
2. list major forms, types and root causes of conflict and violence;
3. differentiate between conflict and terrorism;
4. enumerate security and peace building strategies; and
5. describe roles of international organisations, media and traditional institutions in peace building.

Course Contents

Concepts of peace, conflict and security in a multi-ethnic nation. Types and theories of conflicts: ethnic, religious, economic, geo-political conflicts. structural conflict theory, realist theory of conflict, frustration-aggression conflict theory. Root causes of conflict and violence in Africa: indigene and settlers phenomenon. Boundaries/boarder disputes; political disputes. ethnic disputes and rivalries. Economic inequalities. Social disputes. Nationalist movements and agitations. Selected conflict case studies – Tiv-Junkun; Zango Kataf, chieftaincy and land disputes and many others. Peace building, management of conflicts and security: peace and human development. Approaches to peace and conflict management - (religious, government, community leaders and many others). Elements of peace studies and conflict resolution. Conflict dynamics assessment scales. Constructive and destructive. Justice and legal framework. Concepts of social justice. The Nigeria Legal System. Insurgency and terrorism; Peace mediation and peace keeping. Peace and security council (international, national and local levels) agents of conflict resolution – conventions, treaties community policing. Evolution and imperatives. Alternative Dispute Resolution, ADR: A). Dialogue,b). Arbitration, c). Negotiation, d). Collaboration and many others. Roles of International organizations in conflict resolution: (a). The United Nations, UN and its conflict resolution organs. (b). The African Union & Peace Security Council (c). ECOWAS in peace keeping. Media and traditional institutions in peace building. Managing post-conflict situations/crisis: Refugees. Internally Displaced Persons, IDPs and the role of NGOs in Post-conflict situations/crisis.

ENT 312: Venture Creation

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students, through case study and practical approaches, should be able to:

1. describe the key steps in venture creation;
2. spot opportunities in problems and in high potential sectors regardless of geographical location;
3. state how original products, ideas, and concepts are developed;
4. develop business concept for further incubation or pitching for funding;



5. identify key sources of entrepreneurial finance;
6. implement the requirements for establishing and managing micro and small enterprises;
7. conduct entrepreneurial marketing and e-commerce;
8. apply a wide variety of emerging technological solutions to entrepreneurship; and
9. appreciate why ventures fail due to lack of planning and poor implementation.

Course Contents

Opportunity identification (sources of business opportunities in Nigeria. Environmental scanning. Demand and supply gap/unmet needs/market gaps/Market Research. Unutilised resources. Social and climate conditions and technology adoption gap). New business development (business planning, market research). Entrepreneurial finance (Venture capital, equity finance, micro finance, personal savings, small business investment organizations and business plan competition). Entrepreneurial marketing and e-commerce (Principles of marketing, customer acquisition and retention, B2B, C2C and B2C models of e-commerce, first mover advantage, E-commerce business models and successful E-Commerce Companies,). Small business management/family business. Leadership and management, basic book keeping, nature of family business and family business growth model. Negotiation and business communication (strategy and tactics of negotiation/bargaining, traditional and modern business communication methods). Opportunity discovery demonstrations (business idea generation presentations, business idea contest, brainstorming sessions, idea pitching). technological solutions (the concept of market/customer solution, customer solution and emerging technologies, business applications of new technologies - artificial intelligence (ai), virtual/mixed reality (vr), internet of things (iots), blockchain, cloud computing, renewable energy, digital business and e-commerce strategies).

FAA 313: Research Methods

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define research;
2. discuss the characteristics of research;
3. describe the various research designs and identify the tools of research;
4. discuss the various methods of data collection and simple analysis;
5. discuss the basic principles of referencing and use of referencing software; and
6. draft the outline of a thesis report.

Course Contents

Research in general. Meaning and definition of research. Why we do research. Identifying researchable problems. Formulating research topics. Types and classification of research; Reviewing literature. Research design – survey, case study and experimental, variables of study. Methods and procedures for data collection. Instruments of data collection. Population and sampling. Data presentation. Descriptive and statistical data analysis and report writing.

ARC 301: Architectural Design Studio III

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. use basic design principles like harmony, symmetry, axis, hierarchy to achieve appropriate aesthetics;
2. integrate space, function and structure to create unified wholes in design;
3. work systematically through the design process from analysis, case-studies to synthesis;



4. think conceptually;
5. apply an understanding of typological issues and visual expressionism to design;
6. develop innovative design ideas from the process of design problem analysis;
7. express design concepts verbally and graphically;
8. present design drawings in 2D and 3D formats; and
9. demonstrate familiarity with commercial and educational building typologies.

Course Contents

Project exercises involving multiple functions. Integrating space, function and structures. Dealing with multiple and contrasting functions within single buildings. Simple site considerations. Complex projects of typology in architecture. Emphasis of the design process. Improving skills on spatial composition. Environmental considerations in design. Aesthetic issues of massing and proportions, and presenting the analysis of design problems.

ARC 302: Students Industrial Work Experience Scheme (SIWES) (6 Units C: PH 270)

Learning Outcomes

Work experience aims to:

1. build self-awareness, especially students' strengths and abilities in relation to the work experience;
2. build self-confidence;
3. identify skills and competencies are required in the workplace; and
4. identify job apprenticeship opportunities.

Course Contents

This placement is undertaken in the second semester of year 3. The placement should generally be of at least 24 weeks duration and should involve full-time work within the placement organisation. Students are responsible for their travel, accommodation, and general living expense while undertaking a placement. Employability skills which will be learned will include: communication, teamwork, problem solving, self-management, planning and organizing, technology, learning, initiative and enterprise.

ARC 303: Building Components and Methods III (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the major building components in the construction of buildings such as doors, windows, ironmongery, stairs, partitions;
2. describe the various uses, types design and the fabrication and fixing for each of these components;
3. identify the conditions/rationale for choosing each type or design of these elements;
4. describe the characteristics of each of these components;
5. draw and label simple working drawings which emphasize these components;
6. identify sustainable issues in choosing and fixing components;
7. create innovations with components given a problematic situation;
8. appraise the qualities of components commonly used;
9. recall the major building codes for each of the components; and
10. use more technical vocabulary for materials and the construction process.

Course Contents



Building components - doors, windows, partitions, stairs, ironmongery uses and detailing, materials, fixing, installation and handling. Factors affecting choices of building components. Design and fabrication of components; joinery detailing. Panelling, windows, doors and their functional requirements. Walls and other forms of partitions. Sustainability materials and their construction. Local and international building codes and regulations associated with the materials, design and construction of building components.

ARC 304: Entrepreneurship for Architects

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to acquire:

1. special skills in construction materials fabrication and related building trades such as in wood works, masonry, cladding shells, roof members, aluminium based finishes, tiles, door and window finishes;
2. problem solving skills in architecture using information technology such as augmented and virtual realities in artificial intelligence (AI), machine learning (ml) 3D printing and fabrication;
3. skills in real estate marketing including landscape photography, environmental simulation, architectural journalism and architectural products and services marketing; and
4. skills in furnishing and interior accessories, arts, crafts and craftsmanship in building ornamentation.

Course Contents

Learning is both in person and online, and product development; attachment to recognized private sector entrepreneur as role model; full business proposal submission; and presentation of product sample for grading after 3 months. Architectural entrepreneurship programme sees universities as important engines of knowledge economy, sources of highly skilled experts and centres of technological innovation. It is structured to compliment and energize the 3 months Students Industrial Work Experience Scheme (SIWES) schedule for 300 level second semester. Students are expected to have developed interest in an entrepreneurship project idea after GST 211 (Entrepreneurship) and studio exercises.

ARC 305: Building Structures III

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and draw different types of beam and frame structures;
2. demonstrate the basic principles in the design of beam and frame structures;
3. identify the effect of materials on the design of these structures; and
4. describe the relationship between types of beam and frame structures, form and aesthetics.

Course Contents

Structural analysis and effective design decisions. Structural design in timber. Structural design in concrete and steel of beams. Structural design in frames and arches. Structural systems in relation to architectural design and form. The fundamental principles of structural principles in cantilevered beams. The fundamental principles of structural principles in supported beams, posts and lintels. The fundamental principles of structural principles in gable, frames and arches. The fundamental principles of structural principles in multiple frames, and arched roofs, as well as Structural selection and choice.



ARC 307: Building Services I

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the component parts of a water supply system; sources, supply, distribution and fixtures;
2. describe water distribution of hot and cold water within a domestic building and the piping materials;
3. design a simple waste (sewage and solid waste) distribution in a residential building as well as identify the piping materials;
4. describe the treatments and recycling methods for sewage and solid wastes in residential/large buildings;
5. identify various plumbing fixtures; their uses, designs, types, materials fixing and handling;
6. identify the major building codes (local and international) associated with water supply and distribution, sewage and solid waste disposal and treatment;
7. design, draw, label with specifications plumbing layouts and fixtures plan for a simple residential building; and
8. collaborate to carry out work in groups.

Course Contents

The utility and environmental services in domestic buildings: water, sanitary, and waste. Water supply and sources. Water production and distribution, drainage, rainfall and storm water disposal. Sanitation appliances and types. Domestic and industrial waste disposal. Materials for plumbing. Pipe work details. Sewage disposal and treatment. Septic tanks and central sewage treatment. Local and international building codes and regulations associated with the building services. Practical work with plumbing materials and other materials (such as aluminium and metals). Design and fabrication of simple plumbing systems and other building components.

ARC 309: Building Information Modelling

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. define and discuss what BIM is;
2. evaluate the historical issues within the construction industry which is driving BIM adoption;
3. demonstrate skills in the use of simple BIM software components;
4. explore the global drivers which have led to BIM adoption;
5. develop a global perspective of what BIM is; and
6. discuss the future of BIM.

Course Contents

What and the nature of BIM. The role of BIM in the construction industry. BIM in the design and construction to maintenance and operation. Sustainability from industry and research experts using state-of-the-art BIM software. The historical issues of BIM in the construction industry. Drivers of BIM adoption. A global perspective of BIM. How BIM helps the AEC industry to succeed. The limitations of BIM. The key case studies on BIM adoption, and the future of BIM.



400 Level

FAA 484: Professional Practice

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate knowledge of the scope of professional practice;
2. demonstrate knowledge of the stages of a project procurement; from client engagement, design and documentation, tendering work, superintendence and construction administration through to post-construction;
3. demonstrate knowledge of the ethical obligations of the architect to client, other architects and profession;
4. identify available procurement methods and demonstrate knowledge of the selection process for appropriately qualified contractors in accordance with the procurement method and project contract;
5. discuss career paths in architecture; and
6. prepare a simple procurement plan.

Course Contents

The practice of the profession of architecture globally and in Nigeria. Ethical practice. The character and operation of firms. Administration of the business of architecture. Professional memberships and registration in Nigeria. Professional memberships and registration in other regions of the world. The project procurement process. contracts and contract administration. Alternative and innovative pathways through the profession. Career planning in architecture. The procurement act and professional practice.

ARC 401: Design Studio IV

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. design with non-conventional materials, construction methods and in attention to details;
2. integrate seemingly unrelated functions such as office and recreational functions i.e mixed-use designs;
3. think conceptually and develop conceptual projects;
4. work with sites which has complex topographies;
5. integrate building services with structure, space and form;
6. generate innovative design concepts in the design process;
7. apply accessible design principles to project design proposals;
8. cooperatively work in teams; and
9. demonstrate familiarity with office, commercial and health building typologies.

Course Contents

Complex projects in spatial composition. Complex projects in space/structures relationship. Complex projects in function/spatial relationships. Complex projects in site-planning. Projects which emphasize working with specific materials. Eco-design considerations. Projects which emphasize expressionism. Conceptual issues and typological considerations. Design process. Conceptual projects and group projects.

ARC 402: Architectural Design Studio V

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. design with non-conventional materials, construction methods and in attention to details;



2. integrate seemingly unrelated functions such as office and recreational functions i.e mixed-use designs;
3. think conceptually and develop projects conceptually;
4. integrate building services with structure, space and form;
5. generate innovative design concepts in the design process;
6. design more complex site plans and solve landscape design problems of difficult terrains;
7. develop team work abilities; and
8. demonstrate familiarity with office, commercial and health building typologies.

Course Contents

Complex projects in spatial composition. Complex projects in space/structures relationship. Complex projects in function/spatial relationships. Complex projects in site-planning. Projects which emphasize working with specific materials. Projects which emphasize eco-design considerations. Projects which emphasize expressionism. Projects which emphasize conceptual issues and typological considerations. Projects which emphasize the design process. Conceptual projects and group projects.

ARC 403: Building Components and Methods IV

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the major finishes in the construction of buildings such as exterior wall claddings, floor and ceiling finishes, and simple smart technologies;
2. describe the various types and designs of each of these finishes;
3. identify the conditions/rationale for choosing each type or design of these finishes;
4. describe the materials and methods of fixing/installation for each of these finishes;
5. write simple specifications for these finishes;
6. identify sustainable issues in the materials and construction of finishes;
7. identify the international and local codes and regulations associated with finishes;
8. appraise the qualities of finishes commonly used; and
9. describe the building delivery process.

Course Contents

Finishes and details in building construction as well as the building delivery process. Types, materials, production, design, and installation, fixing and handling of ceiling finishes. Types, materials, production, design, and installation, fixing and handling of wall finishes. Types, materials, production, design, and installation, fixing and handling of floor finishes. Types, materials, production, design, and installation, fixing and handling of exterior claddings. Qualities, characteristic of finishes, simple specifications, working drawings for finishes. The sustainability of finishes. Local and international building codes and regulations associated with the material, design and construction of finishes.

ARC 405: Building Services II

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the component parts of the electrical and fire system; sources, supply, distribution and fixtures;
2. describe the electrical distributions within a domestic building and the electrical materials;
3. describe fire equipment, fire codes and regulations distributions within a domestic building;
4. discuss artificial lighting and daylighting, their types, qualities and measurements
5. discuss theories and principles of lighting design;



6. calculate lighting required for various facilities/tasks using simple lighting software packages such as AGi32 and DIALux;
7. identify various electrical and lighting fixtures; their uses, designs, types, materials fixing and handling;
8. state the major building codes associated with electrical/lighting installations and fixtures;
9. design, draw, label with specifications electrical layouts and lighting plan for a simple residential building; and
10. collaboratively work together.

Course Contents

Electrical systems, lighting and fire systems mainly in domestic buildings. General principles of electricity generation, transmission and domestic supply. Basic domestic wiring systems. Principles of circuit-breakers, fuses, switches, relays and safety precautions. Earthing. Lighting protectors. Wiring for industrial installation. Telephone and communication systems. Gas and its distribution for use in domestic buildings. Fire prevention. Fire codes and fire equipment in buildings. Local and international building codes and regulations associated with the building services. Design of simple wiring systems in domestic spaces. Theories, concepts and methods of lighting design in buildings and sustainable principles. Lighting fundamentals. Light sources; Lighting, comfort and performance, and Lighting design.

ARC 406: Research Project

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. formulate a research topic, aim and objectives in architecture;
2. review relevant literature in the areas of architecture;
3. conduct simple research in any area of architecture;
4. make presentations of a research proposal and the results and findings; and
5. produce a project report.

Course Contents

Development of research instruments. Pretesting instruments. Field work. Presenting the field experience. Reporting the results of independent research. Interpreting the results of independent research. Synthesis of knowledge and skills acquired during the entire training in architecture. Oral and written presentation skills. Report writing skills and data collection skills.

ARC 407: Theory and Methods of Contemporary Architecture(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the predisposing factors of contemporary architecture;
2. discuss the characteristics of the Arts and Crafts movement, the Bauhaus movement, the Chicago school and the International Style;
3. discuss the influence of the Masters (Le Corbusier, Gropius, Mies Van der Rohe and Frank Lloyd Wright and Nigerian Architects such as Femi Majekodunmi, Godwin Aduku, Ekundayo Adeyemi on contemporary Masters) on Contemporary Architecture;
4. appraise the role of technology on Architecture in the 19th century;
5. describe the development of Modern Architecture in Nigeria;
6. describe the influence of key female architects in contemporary architectural history; and
7. describe using technical and formal vocabulary the contemporary architectural styles and their underpinnings.



Course Contents

Contemporary architecture. Buildings and building practices of the late 19th and 20th centuries. Contemporary architects and philosophies in architecture worldwide including Nigeria. Modern architecture in Europe and USA. Postmodern architecture in Europe and USA. The architecture and masters of the "modern movement". The architecture and masters of modern, postmodern architecture. The architecture and masters of contemporary architecture (such as deconstructivism) globally. Feminist architecture. Key female architects of the 21st century. The architecture and masters of contemporary architecture (such as deconstructivism) in Nigeria.

ARC 409: Building Economics, Quantities and Estimating (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define the advanced concepts in quantities and estimating;
2. explain the advanced principles and practices of measurement and estimating;
3. demonstrate the use of the standard method used in the building industry;
4. measure quantities and estimate unit rates to prepare tenders for simple buildings;
5. use software packages in measurement and estimating;
6. explain basic economic concepts in the construction of buildings;
7. demonstrate an understanding of factors and policies influencing costs in a construction project and in the construction business;
8. calculate present and future value problems;
9. assemble key financial components of a project construction and prepare a pro-forma statement;
10. convert material quantities to final estimate costs by applying current pricing techniques and methodologies;
11. describe crew assembly, and develop corresponding crew rates;
12. identify the process of final tender assembly and preparation; and
13. use software packages in analysing project competitiveness, tender documents preparation, and evaluating value.

Course Contents

Principles and practice of measurement and estimating in simple facilities and construction. Construction documentation as a critical form of information transmission. The roles and uses of bills of quantities. Builders' quantities and estimates. Measurement and billing of quantities for a wide range of construction trades and estimating of unit rates. Computer software packages for estimating. The concept of the time value of money using simple rates of return, interest rates and types, and decision criteria. Pricing techniques and methodology as part of the estimating process and bid preparation. Various forms of budget pricing, study of elemental analysis. The principles of economics and the rationalities behind the production, distribution, and consumption of goods and services.



Minimum Academic Standards

Equipment

Item	Teaching Equipment	Minimum
1.	Whiteboards	2
2.	Multimedia Speaker	1
3.	Multimedia Projector	1
4.	Multimedia Screen	1
5.	Smart LED TV	2
6.	Digital Cameras	2
7.	Tripod stands	2
8.	World Globe	2
Item	Office Equipment/Facilities	Minimum
1.	Desktops /laptops	One for each academic/technical staff/HOD; Two for the general office
2.	Printers	One for each academic/technical staff /HOD/general office
3.	Photocopy machine	One for the general office
4.	Scanner	One for the general office
5.	Filing Cabinets	One for each academic/technical staff/HOD; Three for the general office
6.	Office Chairs	One for each academic/ technical/admin staff and HOD
7.	Office tables	One for each academic/ technical/admin staff and HOD
8.	Conference room tables and chairs	One table and 30 chairs
9.	Fridge	2
10.	Electric Kettle	1
11.	Air conditioners	1 for every office including general office
12.	Calculators	2
Item No.	CADD Laboratory	Quantity
1.	Multimedia Projector	1
2.	Projector Screen and stand	1
3.	Computer systems with UPS	24
4.	A0 HP Plotter	1
5.	3D modelling machine	1
6.	3D Printer	1



Item No	Environmental Systems Equipments	Quantity
1.	Desktops with lighting, acoustic and climatic simulation software	4
2.	Digital Radiation Meter	2
3.	Digital Sound Level Meter	2
4.	Digital Luxmeter	2
5.	Digital Air Quality Monitor	1
6.	Multi-Thermo Thermometers	4
7.	Earth Globe	4
8.	World Map	2
9.	Scientific Information Chart	14

Field Studies Equipment

Infrared thermometers
 Environmental data loggers
 Heat flux sensors/meters
 Flow meters
 Tracer gas systems
 Watt hour meters
 Thermometers/digital, thermocouple
 Anemometers
 Humidity meters
 Air quality meters
 Sound meters
 Portable weather stations
 Heliodons

Controlled Environment Equipment

Sky simulator
 Boundary layer wind tunnel
 Controlled environment chamber
 Reprographics centre
 Heavy duty photocopiers
 Heavy duty batch scanners
 DV cameras
 SLR cameras
 A3 colour printers
 A3 scanners
 Large format (A0) plotters
 Large format (A0) scanners

Metallographic Testing Equipment

Shadowgraph checking machine
 Metallurgical microscope with image analyser



Requirements for Academic Staff

The qualification and experience of lecturers is an essential element of the quality of architectural education. The recommended minimum academic staff-student ratio is 1:15. The academic staff should be made up of:

- i. Graduate Assistant
- ii. Assistant Lecturer
- iii. Lecturer II
- iv. Lecturer I
- v. Senior Lecturer
- vi. Reader (Associate Professor)
- vii. Professor

Academic Support Personnel

Teaching Assistant/Demonstrators are recommended to assist lecturers in the conduct of tutorials, practical and fieldwork.

Administrative Support Personnel

The services of the administrative support staff are indispensable in the proper administration of the departments and faculty offices. These will normally include confidential secretaries, clerical officers, typists, messengers and cleaners. It is important to recruit very competent senior personnel who are technology savvy.

Technical Support Personnel

The technical support personnel shall consist of technical officers and technologists. It is important to recruit very competent senior technical staff to maintain teaching and research equipment.

Library and Information Resources

The library/Resource Centre will normally be a quick reference library stocked with reference materials and current journal and periodicals relevant to the different programmes in each faculty. Internet access and electronic materials are strongly recommended for these specialized discipline libraries.

Work stations at the minimum ratio of 1 computer to every 4 full time equivalent students.

Management Station: a set of control work stations to control access and usage of the work stations

Server(s)

Switch

UPS systems/power backup

Power voltage regulators/stabilizers

Air conditioning

Internet connectivity

Classrooms, Laboratories, Workshops, Studios, and Offices.

Item	Studios/ Workshops	Minimum	Sizes
1.	Studios; each with 40 computer/sketching tables	4 studios	2.5sqm per student
2.	Classrooms	2	0.5sqm per student
3.	Laboratories/ Workshop	2	0.9sqm per student
4.	Administrative offices	2	12sqm



5.	Technical staff offices	2	9sqm
6.	Resource/Data Room	1	20sqm
7.	Jury and Exhibition Space	2	
8.	Staff offices	1 for each member of Staff	12sqm
9.	General office	1	16sqm
10.	Administrative: HOD	1	12sqm

Workshops

The following workshop spaces are required.

Carpentry and Joinery/furniture

Masonry and concrete work

Simple electrical wiring

Plumbing and Drainage

Model Making

Painting and Decorating

Mechanical shop and Welding

Item No.	Wood Workshop	Quantity
1.	Portable Speed Sander	1
2.	Planners	6
3.	Staple Guns	4
4.	Router tables	2
5.	Electric Drills	2
6.	Clamps	10
7.	Jig Saws	6
8.	Circular Saws	2
9.	Mitre Saws	2
10.	Masonry Tool boxes	4
11.	Electric Tool boxes	4
12.	Dovetail Saws	4
13.	Panel Saws	4
14.	Punches and Pliers	10
15.	Claw hammer and Mallet	10
16.	Wire Brush	4
17.	Electric Grinder	1
18.	Spray Machine and Gun	1
19.	Electric Angle Grinder	1
20.	Electric Vacuum Blower	2



21.	Bench Vices	10
22.	Work Bench	4
Item No	Masonry/Concrete Workshop	Quantity
1.	Levels, and Tapes	4 each
2.	Trowels and Groovers	4
3.	Concrete Floats	4
4.	Power tools for concrete	2

Specialized Programme-Based Laboratory Facilities

Item No	Studio Facilities	Minimum
1.	Studio Tables and Chairs	1 for each student
2.	White board	1 for each studio
Item	Teaching Equipment	Minimum
1.	Whiteboards	2
2.	Multimedia Speaker	1
3.	Multimedia Projector	1
4.	Multimedia Screen	1
5.	Smart LED TV	2
6.	Digital Cameras	2
7.	Tripod stands	2
8.	World Globe	2
Item	Office Equipment/Facilities	Minimum
1.	Desktops /laptops	One for each academic/technical staff/HOD; Two for the general office
2.	Printers	One for each academic/technical staff /HOD/general office
3.	Photocopy machine	One for the general office
4.	Scanner	One for the general office
5.	Filing Cabinets	One for each academic/technical staff/HOD; Three for the general office
6.	Office Chairs	One for each academic/technical/admin staff and HOD
7.	Office tables	One for each academic/technical/admin staff and HOD
8.	Conference room tables and chairs	One table and 30 chairs
9.	Fridge	2
10.	Electric Kettle	1



11.	Air conditioners	1 for every office including general office
12.	Calculators	2
Item	CADD Laboratory	Quantity
1.	Multimedia Projector	1
2.	Projector Screen and stand	1
3.	Computer systems with UPS	24
4.	A0 HP Plotter	1
5.	3D modeling machine	1
Item	Environmental Systems Laboratory	Quantity
1.	Desktops with lighting, acoustic and climatic simulation software	4
2.	Digital Radiation Meter	2
3.	Digital Sound Level Meter	2
4.	Digital Luxmeter	2
5.	Digital Air Quality Monitor	1
6.	Multi-Thermo Thermometers	4
7.	Earth Globe	4
8.	World Map	2
9.	Scientific Information Chart	14



B.Sc. Tech. Architecture

Overview

The Architectural Science Technology programme focuses on the right scientific tools and methodologies required to design an environmentally sustainable building. The courses are extracted from 8 different modules which include: Architectural design, communication, history and theoretical studies, technical studies, arts and humanities, environmental studies, physical sciences and information technology, management, entrepreneurial and professional studies. The B.Sc. Tech. Architecture degree is designed to meet the requirements of the global and interdisciplinary nature of the built environment. Architectural Technologists are specialists in the science and technology of building design and construction. Their technical skills are underpinned by knowledge in construction science, building technology and digital architecture, and architectural design.

Philosophy

The Philosophy of the architectural science technology programme is to provide a solid knowledge of the science of buildings, including their assembly, environmental performance and the right tools, materials and skills required in achieving a sustainable built environment. The programme seeks to project the richness of human cultures and advance the promotion of quality living driven by and employing the finest values in style and comfortable living and technology. Excellence is the standard that informs teaching, learning, research and practical application in this programme for design conceptualisation, functionality, aesthetics, and sustainability.

Objectives

The aim of the B.Sc. Tech. Architecture programme is to form a strategic link between science and technology, and ensure compliance with relevant legislation, such as building codes and regulations through the following objectives:

1. produce young architects with the knowledge and application of tools for measuring environmental response as a basis for design;
2. appraise students with contemporary technology in building design and construction;
3. enable holistic professional education in Architectural Technology where the graduates are able to offer simple to complex design solutions in the practice world;
4. ensure that students are trained to understand and become aware of the social, cultural, physical, technical and economic activities of the Nigerian society, draw inspiration from traditional heritage unto contemporary tools and processes with a global outlook; and relate their training to contemporary construction needs;
5. inculcate in the young minds the abilities to understand and apply the elements and principles of design as well as a creative attitude in generating diverse approaches to different tasks that address both tangible and intangible products that meet the demand of various industries; and
6. produce graduates with entrepreneurial attitude in construction management for self-employment and the capacity to create jobs.

Unique Features of the Programme

The features in the Architectural Technology programme are designed to:

1. identify evolving technological change in buildings, focusing on producing graduates who can address issues concerning ease of assembly, quality and drivers for more ecologically responsible buildings;



2. produce graduates who will be able to analyse, synthesise and evaluate design factors in order to produce design solutions which will satisfy performance, production and sustainability;
3. integrate indigenous Nigerian culture, context and content in contemporary architectural design and technology which will cover areas such as restoration, renovation, remodelling, reuse, retrofitting, sustainability, social responsibility, integration and encouragement of environmentally responsive design; and
4. address issues surrounding the need for greater productivity, improved quality, improved service delivery, better value, better safety, greater adherence to standards in courses such as Entrepreneurship Practices for Architectural Technologist.

Employability Skills

The graduate of the B.Sc. Tech Architecture should be equipped with the following employability skills:

1. utilizing environmental tools in generating design data;
2. utilizing laboratory tools for programming design parameters;
3. entrepreneurial ability to generate self-employment;
4. take conceptual design through the detailed design and construction phases without losing design intent; and
5. supervise construction projects.

21st Century Skills

The programme will lead to the acquisition of the following 21st century skills through the:

1. competency in the use of Building Information Modelling (BIM) software and digital media and other digital media software;
2. critical thinking, problem solving, reasoning, analysis, interpretation, synthesizing information;
3. creativity, artistry, curiosity, imagination, innovation, personal expression;
4. oral and written communication, public speaking and presenting, listening;
5. leadership, teamwork, collaboration, cooperation, facility in using virtual workspaces;
6. economic and financial literacy, entrepreneurialism; and
7. scientific literacy and reasoning, the scientific method.

Admission and Graduation Requirements

Candidates may be admitted into the degree programme through any of the following entry modes:

- i. Unified Tertiary Matriculation Examination (UTME)
- ii. Direct Entry

UTME

In addition to UTME score, the candidate should possess five credit passes in School Certificate to include English Language, Mathematics, Physics and at least two other subjects from the following: Fine Art, Technical Drawing, Building Construction and Geography. UTME subjects should be a combination of Mathematics, Physics and Chemistry or Geography at not more than two sittings in the following subjects.

Direct Entry

A candidate must possess a minimum of five SSC credit passes including two advanced level passes, ND certificate in Architecture. The subjects taken at this level must include Physics, Technical Drawing, English Language and Mathematics.



Graduation Requirements

The duration of Architectural Technology training is four (4) years. Graduates are expected to prove the mastery of architectural technology profession through design projects, thesis, media communication and people centred entrepreneurial knowledge.

UTME

For a UTME student to graduate from B. Tech. (Hons) Architectural Technology programme students must take and pass minimum of 120 credit units or as may be determined by level of entry including all compulsory courses.

Direct Entry

For a student to graduate from B. Tech. (Hons) Architectural Technology programme, the student must take and pass a minimum of 90 units or as may be determined by level of entry including all compulsory courses.

Global Course Structure

100 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST111	Communication in English	2	C	15	45
GST 112	Nigerian Peoples and Culture	2	C	30	-
MTH 101	Elementary Mathematics I (Algebra and Trigonometry)	2	C	30	-
MTH 103	Elementary Mathematics III (Vectors, geometry and dynamics)	2	C	30	-
PHY 101	General Physics I (Mechanics)	2	C	30	-
PHY 103	General Physics III (Behaviour of Matter)	2	C	30	-
FAA 103	Graphic Communication I	2	C	15	45
FAA 104	Graphic Communication II	2	C	30	-
FAA 121	Introduction To Basic Computer Applications	2	C	15	45
FAA 126	Introduction to Sustainable Built Environment	2	C	30	-
ARST 111	Introduction to Architectural Science and Technology	2	C	30	-
	Total Units	22			

200 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST 212	Philosophy, Logic and Human Existence	2	C	30	-
ENT 211	Entrepreneurship and Innovation	2	C	15	45
FAA 221	Introduction To Computer Aided Design (CAD)	2	C	30	-
ARST 201	Architectural Design Technology Studio I	6	C	-	270



ARST 202	Architectural Design Technology Studio II	6	C	-	270
ARST 203	Components and Methods I	2	C	30	-
ARST 204	Components and Methods II	2	C	30	-
ARC 207	Building Structures I	2	C	30	-
ARST 206	Building Structures II	2	C	30	-
ARST 207	Materials Science and Technology I	2	C	30	-
	Total Units	28			

300 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST 312	Peace and conflict Resolutions	2	C	30	-
ENT 312	Venture Creation	2	C	15	45
FAA 313	Research Methods	2	C	30	-
ARST 301	Architectural Design Technology Studio III	6	C	-	270
ARST 303	Components and Methods III	2	C	30	-
ARST 305	Building Structures III	2	C	30	-
ARST 307	Building Services I	2	C	30	-
ARST 311	Energy Efficient Design	2	C	30	-
ARST 326	Students' Industrial Work Experience Scheme	6	C	-	270
ARST 328	Entrepreneurship Practices for Architectural Technologist	2	C	30	-
	Total Units	28			

400 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
FAA 484	Professional Practice	2	C	30	-
ARST 401	Architectural Design Technology Studio IV	6	C	-	270
ARST 402	Architectural Design Technology Studio V	6	C	-	270
ARST 407	Building Services II: Acoustics Studies	2	C	30	-
ARST 408	Building Services III: Lighting	2	C	30	-
ARST 413	BIM	2	C	15	45
ARST 415	Environmental Science Laboratory Practice	2	C	30	-
ARST 422	Independent Research Report	2	C	-	90
	Total Units	24			



Course Contents and Learning Outcomes

100 Level

GST 111: Communication in English

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this Course, students should be able to:

1. identify possible sound patterns in English language;
2. list notable language skills;
3. classify word formation processes;
4. construct simple and fairly complex sentences in English;
5. apply logical and critical reasoning skills for meaningful presentations;
6. demonstrate an appreciable level of the art of public speaking and listening; and
7. write simple and technical reports.

Course Contents

Sound patterns in English language (vowels and consonants, phonetics and phonology). English word classes (lexical and grammatical words, definitions, forms, functions, usages, collocations). Sentences in English (types: structural and functional, simple and complex). Grammar and Usage (tense, mood, modality and concord, aspects of language use in everyday life). Logical and critical thinking and reasoning methods (logic and syllogism, inductive and deductive argument and reasoning methods, analogy, generalisation and explanations). ethical considerations, copyright rules and infringements. Writing activities: (Pre-writing , writing, post writing, editing and proofreading; brainstorming, outlining, paragraphing, types of writing, summary, essays, letter, curriculum vitae, report writing, note making, mechanics of writing and many others). Comprehension strategies: (Reading and types of reading, comprehension skills, 3RsQ). Information and communication technology in modern language learning. Language skills for effective communication. Major word formation processes. Writing and reading comprehension strategies. Logical and critical reasoning for meaningful presentations. Art of public speaking and listening and report writing.

GST 112: Nigerian Peoples and Culture

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. analyse the historical foundation of the Nigerian culture and arts in pre-colonial times;
2. list and identify the major linguistic groups in Nigeria;
3. explain the gradual evolution of Nigeria as a political unit;
4. analyse the concepts of trade, economic and self-reliance status of the Nigerian peoples towards national development;
5. enumerate the challenges of the Nigerian state towards nation building;
6. analyse the role of the judiciary in upholding people's fundamental rights;
7. identify acceptable norms and values of the major ethnic groups in Nigeria; and
8. list and suggest possible solutions to identifiable Nigerian environmental, moral and value problems.

Course Contents

Nigerian history, culture and art up to 1800 (Yoruba, Hausa and Igbo peoples and culture; peoples and culture of the ethnic minority groups). Nigeria under colonial rule (advent of colonial rule in Nigeria; Colonial administration of Nigeria). Evolution of Nigeria as a political unit (amalgamation of Nigeria in 1914. Formation of political parties in Nigeria. Nationalist



movement and struggle for independence). Nigeria and challenges of nation building (military intervention in Nigerian politics; Nigerian Civil War). Concept of trade and economics of self-reliance (indigenous trade and market system; indigenous apprenticeship system among Nigeria people; trade, skill acquisition and self-reliance). Social justices and national development (law definition and classification. Judiciary and fundamental rights; Individual, norms and values (basic Nigeria norms and values, patterns of citizenship acquisition; citizenship and civic responsibilities; indigenous languages, usage and development; negative attitudes and conducts. Cultism, kidnapping and other related social vices).. Re-orientation, moral and national values (The 3R's – Reconstruction, Rehabilitation and Re-orientation; Re-orientation Strategies: Operation Feed the Nation (OFN), Green Revolution, Austerity Measures, War Against Indiscipline (WAI), War Against Indiscipline and Corruption(WAIC), Mass Mobilization for Self-Reliance, Social Justice and Economic Recovery (MAMSER), National Orientation Agency (NOA) as well as Current socio-political and cultural developments in Nigeria.

MTH 101: Elementary Mathematics I (Algebra and Trigonometry)(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. explain basic definition of set, subsets, union, intersection, complements and use of Venn diagrams;
2. solve quadratic equations;
3. solve trigonometric functions;
4. identify various types of numbers; and
5. solve some problems using binomial theorem.

Course Contents

Elementary set theory, subsets, union, intersection, complements, and Venn diagrams. Real numbers. integers, rational and irrational numbers, mathematical induction, real sequences and series, theory of quadratic equations, binomial theorem. Complex numbers. Algebra of complex numbers. The Argand diagram. De-Moivre's theorem, nth roots of unity. Circular measure, trigonometric functions of angles of any magnitude, addition and factor formulae.

MTH 103: Elementary Mathematics III (Vectors, Geometry and Dynamics) (2 Units C: LH 30)

Learning Outcomes

At the completion of the course, the students should have the basic knowledge of Mathematics which will enable them to:

1. apply mathematical principles in determining architectural proportions;
2. design proportions in buildings that look pleasing to the human eye and feel balanced and deal with the elementary geometric tools for the study of structural and architectural forms; and
3. demonstrate the ability to solve triangular, linear and conic relationships algebraically, numerically and graphically to the required degree of accuracy and unit of measurement.

Course Contents

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, normal. Kinematics of a particle. Components of velocity and acceleration of a



particle moving in a plane. Force, momentum, laws of motion under gravity, projectiles and resisted vertical motion. Elastic string and simple pendulum. As well as impulse, impact of two smooth spheres and a sphere on a smooth surface.

PHY 101: General Physics I (Mechanics)

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and deduce the physical quantities and their units;
2. differentiate between vectors and scalars;
3. describe and evaluate motion of systems on the basis of the fundamental laws of mechanics;
4. apply newton's laws to describe and solve simple problems of motion;
5. evaluate work, energy, velocity, momentum, acceleration, and torque of moving or rotating objects;
6. explain and apply the principles of conservation of energy, linear and angular momentum;
7. describe the laws governing motion under gravity; and
8. explain motion under gravity and quantitatively determine behaviour of objects moving under gravity.

Course Contents

Space and time. g units and dimension, Vectors and Scalars, differentiation of vectors: displacement, velocity and acceleration. kinematics. Newton laws of motion (Inertial frames, Impulse, force and action at a distance, momentum conservation); Relative motion; Application of Newtonian mechanics. Equations of motion. Conservation principles in physics, conservative forces, conservation of linear momentum, kinetic energy and work, potential energy, system of particles, centre of mass; rotational motion; torque, vector product, moment, rotation of coordinate axes and angular momentum. It also covers polar coordinates; conservation of angular momentum. Circular motion; moments of inertia, gyroscopes and precession. Gravitation: Newton's law of gravitation, kepler's laws of planetary motion, gravitational potential energy, escape velocity, satellites motion and orbits.

PHY 103: General Physics III (Behaviour of Matter)

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the student should be able to:

1. explain the concepts of heat and temperature and relate the temperature scales;
2. define, derive, and apply the fundamental thermodynamic relations to thermal systems;
3. describe and explain the first and second laws of thermodynamics, and the concept of entropy;
4. state the assumptions of the kinetic theory and apply techniques of describing macroscopic behaviour;
5. deduce the formalism of thermodynamics and apply it to simple systems in thermal equilibrium; and
6. describe and determine the effect of forces and deformation of materials and surfaces.



Course Contents

Heat and temperature, temperature scales. Gas laws. General gas equation. Thermal conductivity. first law of thermodynamics. heat, work and internal energy, reversibility. Thermodynamic processes: adiabatic, isothermal, isobaric. Second law of thermodynamics. heat engines and entropy, Zero's law of thermodynamics. Kinetic theory of gases. Molecular collisions and mean free path. Elasticity. Hooke's law, Young's, shear and bulk moduli. Hydrostatics. Pressure, buoyancy, Archimedes' principles. Bernoulli's equation and incompressible fluid flow. Surface tension. adhesion, cohesion, viscosity, capillarity, drops and bubbles.

FAA 103: Graphics Communication I

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and use various draughting materials and instruments: paper cards, folios, sketch books; pencils (hard, soft and coloured), felt pens, technical pens, crayons; brushes and paints; dry transfer lettering, textures, tones and colours; rules, templates and compasses; drawing boards and drawing sets;
2. identify and construct/create the following visual elements: points, lines, shapes, planes, forms, textures and colours; in various media to create various effects;
3. construct simple visual images using the principles of proportion, balance, harmony and contrast, pattern, movement and rhythm, style;
4. create 2 dimensional drawings of plan section and elevations from basic geometric forms;
5. produce perspective drawings of simple geometric forms;
6. identify and draw various forms of lettering; and
7. compose renderings of simple objects in various media.

Course Contents

Drawing tools. Drawing materials. The representation of common views. Graphic presentation using various media. Sketching for design development. Descriptive geometry. Orthographic projections of simple and complex geometric solids. Isometric, Axonometric. Oblique and perspective views and lettering.

FAA 104: Graphics Communication II

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the student should be able to:

1. represent building elements and materials;
2. interpret building graphics conceptions on architectural drawings;
3. reproduce architectural drawings of plans, sections and elevations;
4. create basic floor plans, sections and elevations;
5. identify and use scales and properly drawn-out design- floor plans, sections elevations;
6. construct orthogonal projections of plans;
7. create axonometric and perspective views using advanced techniques in perspective drawings;
8. construct and prepare shades and shadows; and
9. prepare rendered presentation drawings using lines, tones and colour.

Course Contents

Uses of graphics in architecture. Graphic thinking and building representation. Representation of building elements and materials. Representations of building elements and materials in plans. Representations of building elements and materials in elevations and sections. Projection



techniques for shade and shadow construction. 3-Dimensional drawings of building exteriors. 3-Dimensional drawings of building interiors. Oblique drawings. Isometric drawings. Axonometric drawings. Perspective drawings and Rendering.

FAA 121: Introduction to Basic Computer Applications (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of the course, students should be able to:

1. discuss the development and types of computers;
2. identify the electronic principles behind the operation of computers;
3. identify, discuss and use basic hardware and software computer components;
4. perform basic installation, programming and file management tasks;
5. use word processing software in the production of their papers;
6. apply graphics software for simple design tasks;
7. use excel spreadsheet for basic computational works; and
8. create slides and use power-point for presentations.

Course Contents

Background to the development of the computer, computer components and operations. Development and types of computers. Basic electronic principles. Navigation. Hardware peripheral/plugins devices. Computing environment - Windows operating system. software - types, license, installation, elementary programming. Documents – creation, converting and file management. It shall also expose students to basic processes and software which are useful for the preparation and presentation of works as students and professionals in today's society, commonly used applications such as word processors and their operations - page setup, margins, headers and footers, page numbers, page breaks, viewing and navigation, writing and formatting, lists, tables, graphics, tracking, table of contents and references. excel spreadsheet; power-point; graphics software such as paint and CorelDraw. Navigating the internet, web browsers and search engines, as well as on-line resources.

FAA 126: Introduction to Sustainable Built Environment (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define sustainability, and sustainable built environment;
2. identify and explain associated concepts with sustainable built form;
3. describe how what sustainable infrastructure is;
4. demonstrate an understanding of values and societal importance of the built environment, and the influence on a sustainable development;
5. conduct a simple environmental assessment;
6. define climate change and discuss how it influences the built environment; and
7. demonstrate the usefulness of environmental impact assessments as a tool for design, construction and management of a sustainable built environment.

Course Contents

Definition of sustainability. Definition of sustainable environment. Definitions of concepts associated with sustainability e.g., climate change. The built environment and sustainable built environment. Sustainable infrastructure (buildings, structures, plants and networks for communication and transport, water and wastewater treatment, production and distribution of energy). Relations between infrastructure and sustainable development. Sustainable regulations and standards. Indicators of sustainability. Consequences of climate change on



the built environment. Vulnerability and safety of infrastructure. Materials and technology for construction and management. Service life and life cycle assessments.

ARST 111: Introduction to Architectural Science & Technology (2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. identify the concept and scope of architectural science and technology;
2. enumerate the role of the architectural ethnologist in the society; identify and discuss the tools and methodologies of the architectural science technologist;
3. enumerate the origins and the development of architectural technologist over the years;
4. identify the roles of ARCON in registering and regulating the practice of architectural science technology;
5. recognize and apply architectural technologist's specific knowledge and practice to solve related design tasks;
6. develop and nurture their ability to work independently; and
7. develop capacity for team work.

Course Contents

Application of technology in the design of buildings. Origins and development of architectural technology as a distinct term of human endeavour and civilization. The definition of architectural technology and the arch technologist. National structures for the promotion and regulation of training and professional practices of arch tech in Nigeria; the roles of NIA, ARCON and the AARCHES; the sub-regional and global (international) structures for the promotion and regulation of small shops and enterprises. Bubble diagrams and functional flow diagrams (developed on the bases of field studies and case studies conducted by the students). Interpretation of the elementary concepts of form in architecture (points, lines, planes, volumes and many others). Methods of expression of form in arch tech. rigid, geometrical, organic forms and many others.

Climate, thermal environment, mechanical services, lighting, and acoustics. Making of detailed decisions about the design and construction of buildings and their immediate surroundings; new and existing buildings. Examines design details as it relates to concepts; team work and professionalism; identify common tools that are in use for generating data.

200 Level

GST 212: Philosophy, Logic and Human Existence (2 Units C: LH 30)

Learning Outcomes

A student who has successfully gone through this course should be able to:

1. know the basic features of philosophy as an academic discipline;
2. identify the main branches of philosophy & the centrality of logic in philosophical discourse;
3. know the elementary rules of reasoning;
4. distinguish between valid and invalid arguments;
5. think critically and assess arguments in texts, conversations and day-to-day discussions;
6. critically assess the rationality or otherwise of human conduct under different existential conditions;
7. develop the capacity to extrapolate and deploy expertise in logic to other areas of knowledge, and
8. guide his or her actions, using the knowledge and expertise acquired in philosophy and logic.



Course Contents

Scope of philosophy; notions, meanings, branches and problems of philosophy. Logic as an indispensable tool of philosophy. Elements of syllogism, symbolic logic— the first nine rules of inference. Informal fallacies, laws of thought, nature of arguments. Valid and invalid arguments, logic of form and logic of content — deduction, induction and inferences. Creative and critical thinking. Impact of philosophy on human existence. Philosophy and politics, philosophy and human conduct, philosophy and religion, philosophy and human values, philosophy and character molding.

ENT 211: Entrepreneurship and Innovation

(2 Units C: LH15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. explain the concepts and theories of entrepreneurship, intrapreneurship, opportunity seeking, new value creation, and risk taking;
2. state the characteristics of an entrepreneur;
3. analyse the importance of micro and small businesses in wealth creation, employment, and financial independence;
4. engage in entrepreneurial thinking;
5. identify key elements in innovation;
6. describe stages in enterprise formation, partnership and networking including business planning;
7. describe contemporary entrepreneurial issues in Nigeria, Africa and the rest of the world; and
8. state the basic principles of e-commerce.

Course Contents

Concept of Entrepreneurship (Entrepreneurship, Intrapreneurship/Corporate Entrepreneurship); Theories, rationale and relevance of entrepreneurship (Schumpeterian and other perspectives, Risk-Taking, Necessity and opportunity-based entrepreneurship and Creative destruction); Characteristics of Entrepreneurs (Opportunity seeker, Risk taker, Natural and Nurtured, Problem solver and change agent, Innovator and creative thinker); Entrepreneurial thinking (Critical thinking, Reflective thinking, and Creative thinking); Innovation (Concept of innovation, Dimensions of innovation, Change and innovation, Knowledge and innovation); Enterprise formation, partnership and networking (Basics of Business Plan, Forms of business ownership, Business registration and Forming alliances and joint ventures); Contemporary Entrepreneurship Issues (Knowledge, Skills and Technology, Intellectual property, Virtual office, Networking); Entrepreneurship in Nigeria (Biography of inspirational Entrepreneurs, Youth and women entrepreneurship, Entrepreneurship support institutions, Youth enterprise networks and Environmental and cultural barriers to entrepreneurship); and Basic principles of e-commerce.

FAA 221: Introduction to Computer-Aided Design

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate mastery of basic concepts of the AutoCAD software;
2. apply basic concepts to develop construction (drawing) techniques;
3. manipulate drawings through editing and plotting techniques;
4. make geometric construction;
5. produce template drawings;
6. produce 2D orthographic projections; and



7. demonstrate skills in dimensioning concepts and techniques, section and auxiliary views.

Course Contents

Use of modern CAD software to produce two-dimensional drawings for architectural design. Coordinating systems, proper dimensioning, use of sectioning and projections for visualization, symbol libraries, file management, and collaborative techniques. Basic principles of Computer Aided Design (CAD).

ARST 201: Architectural Science Design and Technology Studio I (6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students will be able to:

1. perform critical evaluation of design parameters;
2. explore the technical and environmental aspects associated with the built environment and building; and
3. evaluate performance requirements for medium size buildings.

Course Contents

Development of critical and analytical skills. Field trips of the course. Building design identifying quality control mechanisms. Detail analysis and distinguishing between options in the selection of building materials, structure, and construction methods and environmental services. Basic element of design; Design process and methods; Technical and environmental aspects associated with the built environment and building performance requirements for medium size buildings and quality control mechanisms.

ARST 202: Architectural Science Design and Technology Studio II (6 Units C: PH 270)

Learning Outcomes:

At the end of this course, the students should be able to:

1. evaluate design factors in order to produce design solutions which will satisfy performance, production and procurement criteria;
2. select and specify materials and components relevant to the design of a simple residential structure; and
3. establish the purpose, methods and techniques for preparing detailed design solutions.

Course Contents

Studio-based projects work, students can build on the discipline-based knowledge that they have developed in the Architectural Design and Technology Studio. It will teach and focus on detailing as a tool for developing creative solutions to very difficult technical problems; converting design intent into meaningful information that can be conveyed to the builder.

ARST 203: Components and Methods I (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the student should be able to:

1. identify basic building components and materials;
2. demonstrate the process of erecting a simple building;
3. identify basic tools and instrument used in building construction; and
4. identify modern building systems.



Course Contents

Introduction to the basic components and methods of construction. Introduction to various fundamental tools and instruments used in building construction, site clearing and setting-out, excavation and trenching, basic foundation systems and construction. Basic methods of taking measurement of building works. Upgrading modification and revision of various methods of construction, types of floors, damp-proofing systems and introduction to staircases.

ARST 204: Components and Methods II

(2 Units C: LH 30)

Learning Outcomes

At the end of this course the student should be able to:

1. identify different construction techniques in use;
2. identify different structural systems; and
3. design simple construction details.

Course Contents

Introduction to wall systems: simple structure grid systems, openings in walls, doors and windows, ceiling and simple roof systems. Introduction to various building materials and their uses in the building works. Science of building materials and their characteristics – stones, rocks, asbestos, cement products, asphalt and bituminous felt glass, steel, aluminium and other metals. Paints, plastic materials for sound and thermal insulation. Timber, veneer plywood, chipboard, particleboards. Reaction of building materials to different environmental conditions.

ARC 207: Building Structures I

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and explain basic structural concepts;
2. distinguish between the roles and relationship of the architect and the structural engineer;
3. distinguish between different types of loads;
4. identify different structural materials in construction and their properties; and
5. describe the relationship between structure, form and aesthetics.

Course Contents

The history of structures. Basic structural concepts. Fundamental structural theories. The roles and relationship between the architect and the engineer. Why buildings fall. The purpose of structures. Loads in buildings. The relationship between loads and structural materials. The relationships between structures and architectural design, and Structural design goals and principles.

ARST 206: Building Structures II

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, the students should be able to:

1. analyse the basic building science principles and the appropriate application and performance of various construction materials, products, components, and assemblies common to the Nigerian construction industry, including their environmental impact and reuse;
2. demonstrate systematic knowledge of developing architectural forms based on structural systems;



3. demonstrate the current knowledge and the latest trends in structural systems of contemporary architecture; and
4. analyse contemporary works of architecture with regard to dependencies on the applied structural system and evaluating the correctness of choosing this system.

Course Contents

Basic knowledge of structural analysis and design for residential buildings. Historical development of structural form and the evolution of structural design knowledge, from Gothic cathedrals to long span suspension bridges. Behaviour of structural systems and elements through design exercises, case studies, and load testing of models. Design of structures using timber, masonry, steel, and concrete. Importance of structural design with an emphasis on environmental impact of large-scale construction. Introduction to wall systems, simple structure grid systems, openings in walls, doors and windows, ceiling and simple roof systems, science of building materials and their load bearing characteristics – stones, rocks, asbestos, cement products, asphalt and bituminous felt glass, steel, aluminium and other metals.

ARST 207: Materials Science and Technology I

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. distinguish and know the impact of material selection;
2. evaluate material sourcing, on the environment;
3. evaluate the qualities of different materials; and
4. identify causes of failure of materials.

Course Contents

Basic material science relating to construction materials such as timber, steel, concrete, masonry, polymers, bituminous materials and many others. Commonly used construction materials and performance of different materials with of failure types. Testing of the main properties of basic construction materials, concrete cube testing and processing; Timber properties testing and other materials through laboratory sessions. Composition of physical and chemical properties of building materials. Behaviour of materials towards environment. Prospective areas and locations of use of building materials. Advantages and disadvantages of use of various building materials. Materials in combination and use of the same in buildings. Innovative use, Variation in use and study of alternative building materials.

300 Level

GST 312: Peace and Conflict Resolutions

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. analyse the concepts of peace, conflict and security;
2. list major forms, types and root causes of conflict and violence;
3. differentiate between conflict and terrorism;
4. enumerate security and peace building strategies; and
5. describe roles of international organisations, media and traditional institutions in peace building.



Course Contents

Concepts of Peace, Conflict and Security in a multi-ethnic nation. Types and Theories of Conflicts: Ethnic, Religious, Economic, Geo-political Conflicts. Structural Conflict Theory, Realist Theory of Conflict, Frustration-Aggression Conflict Theory. Root causes of Conflict and Violence in Africa: Indigene and settlers Phenomenon. Boundaries/boarder disputes; Political disputes. Ethnic disputes and rivalries. Economic Inequalities. Social disputes. Nationalist Movements and Agitations. Selected Conflict Case Studies – Tiv-Junkun; Zango Kataf, Chieftaincy and Land disputes and many others. Peace Building, Management of Conflicts and Security: Peace and Human Development. Approaches to Peace and Conflict Management - (Religious, Government, Community Leaders and many others). Elements of Peace Studies and Conflict Resolution. Conflict dynamics assessment Scales. Constructive and Destructive. Justice and Legal framework. Concepts of Social Justice. The Nigeria Legal System. Insurgency and Terrorism; Peace Mediation and Peace Keeping. Peace and Security Council (International, National and Local levels) Agents of Conflict resolution – Conventions, Treaties Community Policing. Evolution and Imperatives. Alternative Dispute Resolution, ADR: A). Dialogue b). Arbitration, c). Negotiation d). Collaboration and many others. Roles of International Organizations in Conflict Resolution: (a). The United Nations, UN and its Conflict Resolution Organs. (b). The African Union & Peace Security Council (c). ECOWAS in Peace Keeping. Media and Traditional Institutions in Peace Building. Managing Post-Conflict Situations/Crisis: Refugees. Internally Displaced Persons, IDPs and the role of NGOs in Post-Conflict Situations/Crisis.

ENT 312: Venture Creation

(2 Units C: LH15; PH 45)

Learning Outcomes

At the end of this course, students, through case study and practical approaches, should be able to:

1. describe the key steps in venture creation;
2. spot opportunities in problems and in high potential sectors regardless of geographical location;
3. state how original products, ideas, and concepts are developed;
4. develop business concept for further incubation or pitching for funding;
5. identify key sources of entrepreneurial finance;
6. implement the requirements for establishing and managing micro and small enterprises;
7. conduct entrepreneurial marketing and e-commerce;
8. apply a wide variety of emerging technological solutions to entrepreneurship; and
9. appreciate why ventures fail due to lack of planning and poor implementation.

Course Contents

Opportunity Identification (Sources of business opportunities in Nigeria. Environmental scanning. Demand and supply gap/unmet needs/market gaps/Market Research. Unutilised resources. Social and climate conditions and Technology adoption gap). New business development (business planning, market research). Entrepreneurial Finance (Venture capital, Equity finance, Micro finance, Personal savings, Small business investment organizations and Business plan competition). Entrepreneurial marketing and e-commerce (Principles of marketing, Customer Acquisition and Retention, B2B, C2C and B2C models of e-commerce, First Mover Advantage, E-commerce business models and Successful E-Commerce Companies,). Small Business Management/Family Business. Leadership and Management, Basic book keeping, Nature of family business and Family Business Growth Model. Negotiation and Business communication (Strategy and tactics of negotiation/bargaining, Traditional and modern business communication methods). Opportunity Discovery Demonstrations (Business idea generation presentations, Business idea Contest, Brainstorming sessions, Idea pitching).



Technological Solutions (The Concept of Market/Customer Solution, Customer Solution and Emerging Technologies, Business Applications of New Technologies - Artificial Intelligence (AI), Virtual/Mixed Reality (VR), Internet of Things (IoTs), Blockchain, Cloud Computing, Renewable Energy, Digital Business and E-Commerce Strategies).

FAA 313: Research Methods

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define research;
2. discuss the characteristics of research;
3. describe the various research designs and identify the tools of research;
4. discuss the various methods of data collection and simple analysis;
5. discuss the basic principles of referencing and use referencing software; and
6. draft the outline of a thesis report.

Course Contents

Research in general. Meaning and definition of research. Why we do research. Identifying researchable problems. Formulating research topics. Types and classification of research; Reviewing literature. Research design – survey, case study and experimental, variables of study. Methods and procedures for data collection. Instruments of data collection. Population and sampling. Data presentation. Descriptive and statistical data analysis and report writing.

ARST 301: Architectural Science Technology Design Studio III(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. critically evaluate technological theories, practices and precedents for inclusion to design approaches for public buildings;
2. justify design priorities through critical interrogation and interpretation of a given project brief;
3. develop scientific design solutions for public buildings at macro and micro scales aligning conceptual frameworks with functional, environmental, technical and regulatory requirements; and
4. communicate rationale, process and design outcomes to expert and non-expert audiences through targeted narrative, graphics, drawing types and scales, media and models.

Course Contents

Studio-based projects work, students can build on the discipline-based knowledge that they have developed in the Architectural Design and Technology Studio 2.Design of public, commercial and institutional buildings. Develop architectural language and design process. Basic site analysis, sketch designs and field studies. Field trips form an integral part of the course.

ARST 303: Components and Methods III

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students are expected to:

1. demonstrate a more advanced knowledge of building systems;
2. identify material suitability for different building components; and
3. demonstrate advance knowledge the construction processes.



Course Contents

Latest trends in practice and usage of new technology/materials in construction. Advanced foundation systems such as raft, pad and pier foundations, suspended floors and flooring systems, advanced stairs, roof trusses and materials for roofing. Importance of water and damp proofing in building construction, heat and moisture in buildings.

ARST 305: Building Structures III

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. describe the effects of load distribution on structural stability;
2. define engineering terms that describe the structural characteristics of material; and
3. read and interpret structural drawings.

Course Contents

Behaviour of horizontal and vertical spanning structures. The relationships between load carrying mechanisms and various structural and architectural. Case studies of significant horizontal and vertical spanning structures in relation to architectural planning and design processes. Structural aspects of site investigation, foundations and retaining structures. Mass concrete and reinforcement concrete. Basic structural tests and procedures used in building construction (creep, slump and compaction tests, soil bearing capacity test and much more). Concrete beams; analysis of simple beams (support reactions, maximum shear, bending moment and shear, bending moment and shear force diagrams), deflection of beams and properties of their sections.

ARST 307: Building Services I (Water Supply and Sanitation) (2 Units C: LH 30)

Learning Outcomes

At the end of the course, the students should be able to:

1. identify sources of portable water supply;
2. identify simple methods of plumbing and waste (both liquid and solid) disposal and treatment systems and incorporate same in design proposals;
3. design the layout of domestic water piping systems;
4. prepare simple plumbing drawings; and
5. design domestic water distribution systems.

Course Contents

Types of sources, yield & spacing of wells, intakes, pumping and transportation, design of domestic water distribution system, overhead tanks, water demand calculations. Building service connection, layout of domestic water piping systems, joints, fittings and valves. Cold and hot water lines in buildings, Water supply to high rise buildings: problems encountered and systems adopted. Plumbing services (hot and cold water reticulation), Tee and Elbow connections and valves. Inspection chambers, surface water drainage and sewage treatment, sanitary appliances and systems, design of plumbing systems, septic tanks and soak-away in buildings, refuse collection and disposal. Principles of sanitation, collection and disposal of various kinds of refuse from buildings. Methods of carrying refuse, systems of refuse disposal, their principles, gradients used in laying of drains and sewers for various sizes, septic tank details and capacity calculation, design considerations on drainage scheme, planning of bathrooms, lavatory blocks and kitchen in domestic and multi-storeyed buildings, preparation of plumbing drawings, symbols commonly used in these drawings.



ARST 311: Energy Efficient Design

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. design an energy efficient building using established techniques and principles;
2. use established techniques and principles to improve the energy performance of buildings in retrofits;
3. participate in an integrated approach to design energy efficient buildings; and
4. apply software tools in the design of energy efficient buildings to simulate comfort and energy performance.

Course Contents

Studies in innovative technologies, analysis of energy efficient and intelligent buildings. Advances in parallel industries such as aerospace, shipbuilding and the transportation industries are studied for applicability in the building industry. Investigation of total energy systems and low environmental impact techniques. Specification of high levels of insulation (with low embodied energy rating) and adequate ventilation. Design in passive and natural ventilation systems instead of mechanical systems, specification of low energy, low pollution heating, use of low energy lighting and appliances. Employing smart technology to reduce energy consumption. Specification of renewable energy sources.

ARST 326: Students Industrial Work Experience Scheme (SIWES) (6 Units C: PH 270)

Learning Outcomes

Work experience aims to:

1. build self awareness, especially students strengths and abilities;
2. build self confidence;
3. identify skills and competencies required in the workplace; and
4. identify job apprenticeship opportunities.

Course Contents

This placement is undertaken in the second semester of year 3. The placement should generally be of at least 24 weeks duration and should involve full-time work within the placement organisation. Students are responsible for their travel, accommodation, and general living expense while undertaking a placement. Employability skills which will be learned will include: communication, teamwork, problem solving, self-management, planning and organizing, technology, learning, initiative and enterprise.

ARST 328: Entrepreneurship Practices for Architectural Technologists (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to acquire:

1. special skills in construction materials fabrication and related building trades such as in wood works, masonry, cladding shells, roof members, aluminium based finishes, tiles, door and window finishes;
2. problem solving skills in architecture using information technology such as augmented and virtual realities in artificial intelligence (AI), machine learning (ml) 3D printing and fabrication;
3. skills in real estate marketing including landscape photography, environmental simulation, architectural journalism and architectural products and services marketing; and



4. skills in furnishing and interior accessories, arts, crafts and craftsmanship in building ornamentation.

Course Contents

Product development. Attachment to recognized private sector entrepreneur as role model; full business proposal submission. presentation of product sample for grading after 3 months. Architectural entrepreneurship programme sees universities as important engines of knowledge economy, sources of highly skilled experts and centres of technological innovation. It is structured to compliment and energize the 3 months Students Industrial Work Experience Scheme (SIWES) schedule for 300 level second semester. Students are expected to have developed interest in an entrepreneurship project idea after GST 211 (Entrepreneurship) and studio exercises.

400 Level

FAA 484: Professional Practice

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate knowledge of the scope of professional practice;
2. demonstrate knowledge of the stages of a project procurement; from client engagement, design and documentation, tendering work, superintendence and construction administration through to post-construction;
3. demonstrate knowledge of the ethical obligations of the architect to client, other architects and profession;
4. identify available procurement methods and demonstrate knowledge of the selection process for appropriately qualified contractors in accordance with the procurement method and project contract;
5. discuss career paths in architecture; and
6. prepare a simple procurement plan.

Course Contents

The practice of the profession of architecture globally and in Nigeria. Ethical practice. The character and operation of firms. Running the business of architecture. Professional memberships and registration in Nigeria. Professional memberships and registration in other regions of the world. The project procurement process. Contracts and contract administration. Alternative and innovative pathways through the profession. Career planning in architecture. The procurement act and professional practice.

ARST 401: Architectural Science Design Technology Studio IV (6 Units C: PH 270)

Learning Outcomes

At the end of this course, the student should be able to:

1. apply suitable scientific parameters in sustainable building design;
2. evaluate the relationship between site and building; and
3. apply design software in evaluating the performance of building.

Course Contents

This studio course concentrates on large public buildings, equipment, and infrastructure within dense urban environments. Projects are oriented towards a complex nature both functionally and structurally in this course, through studio-based projects. Students can build on the discipline-based knowledge that they have developed in the Architectural Design and



Technology Studio 3. Design studio topics will include investigations of buildings and systems focusing on structure, enclosure, technology and performance.

ARST 407: Building Services II – Acoustics Studies

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students shall be able to:

1. identify various utility services in a building and the physical aspects of mechanical and electrical necessities in buildings;
2. deduce the needs of a building occupant in an enclosed built environment regarding; thermal comfort, indoor air quality, fire safety, electric usage and wet area usage;
3. demonstrate the technicalities of sewage and refuse disposal;
4. state fire safety requirements and regulations; and
5. provide technological solution alternatives and equipment in the market for ventilation, heating, cooling techniques, building service systems.
6. identify scientific aspects of acoustics and sound insulation;
7. explore room acoustic prediction models and design simple sound insulation system; and
8. design sound insulation systems.

Course Contents

Special services in high rise buildings. Types of lifts: passenger, capsule, hospital bed lift, good lift, working and operation of lifts, parts of lifts, industry standards and capacity calculations, provision to be made in buildings for installation. Introduction to working and design of escalator, electronic systems in buildings: telephone and communication, networks in buildings EPABX, security systems, burglar alarms, video surveillance, access control, design of computer labs, access flooring, server rooms fire safety in buildings, piped gas supply, bottled gas supply, swimming pools, pool tank design, patio, finishes, water circulation, cascades, channels, filtration and water treatment, water quality and disinfection, balancing tank, hotel services, specially services required for hospitality industry, laundry services, kitchen services, channelled music, internet alternative energy sources for buildings, hot water solar energy system, applications of photo voltaic cells, biomass digesters, wind energy. Environmental and acoustical performance of building enclosures. Component of the environmental comfort within a building. Laboratory experimental work, and simulation software demonstration sessions of a scientific approach to acoustics. Characteristics of sound insulation materials. Different sources of sound penetration for appropriate acoustic protection. Sonic environment and acoustical comfort. Sound and nature of sound. Behaviour of sound in enclosed spaces. Concept of geometric acoustics. Reflection of sound and their applications. Sound absorbing materials. Outdoor & indoor noise, means of noise control & sound insulation. Strategies for modifying room acoustics and mitigating sound transmission.

ARST 413: Building Information Modelling (BIM)

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define and discuss what BIM is;
2. evaluate the historical issues within the construction industry which is driving BIM adoption;
3. demonstrate skills in the use of simple BIM software components;
4. explore the global drivers which have led to BIM adoption;
5. develop a global perspective of what BIM is; and
6. discuss the future of BIM.



Course Contents

The nature of BIM. The role of BIM in the construction industry. BIM in the design and construction to maintenance and operation. Sustainability from industry and research experts using state-of-the-art BIM software. What BIM is. The historical issues of BIM in the construction industry. Drivers of BIM adoption. A global perspective of BIM. How BIM helps the AEC industry to succeed. The limitations of BIM. The key case studies on BIM adoption, and the future of BIM.

ARST 415: Environmental Science Laboratory

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. evaluate basic understanding of the effects of human interactions with our environment;
2. measure the energy transfer through different insulation materials in order to determine the energy efficiency of different building materials and understand the environmental impact of building choices;
3. quantify water waste and measure light output of different light bulbs in order to evaluate energy efficiency of lighting and determine ways to conserve water and energy resources;
4. explore demographic data resources in order to understand trends of human population growth, the concept of the demographic transition, and the environmental impacts of population growth;
5. explore climate records and greenhouse gas emissions data in order to better understand climate change observations, projections, and consequences; and
6. measure the concentration of common air pollutants and greenhouse gases in order to assess local air quality and carbon emissions.

Course Contents

Experience and perform laboratory work in identifying and analysing different environmental problems related with air, water pollution, and environmental degradation. Evaluating sustainability by determining and comparing ecological footprint. Testing and evaluating basic water quality - physical and chemical characteristics. Evaluating energy efficiency of building materials. Climate change observations and projections. Waste management.

ARST 402: Architectural Science Design and Technology Studio V (6 Units C: PH 270)

Learning Outcomes

At the end of this course, the student should be able to:

1. demonstrate awareness of the complexity of architectural design process and its integration with other systems;
2. explore innovative and modern methods of construction; and
3. incorporate building systems into architectural design.



Course Contents

In this module students can consolidate their architectural technology knowledge, systems thinking, and core areas they have learnt throughout the programme through the medium of an integrated design project embracing environmental sustainability characteristics. Possibilities and limitations of various constructional systems will be explored, with an eye towards seeing assembly systems as the nexus of various kinds of performance. Students are expected to produce a full set of working drawings, models, and perspectives of their design proposal, considering contextual aspects, environmental sustainability requirements and complying with regulations, for a complex building, either new-build or refurbishment. The course culminates with an assessment by an oral examination.

ARST 408: Building Services III (Advanced Lighting Design) (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students would be able to:

1. evaluate the various lighting levels expected in the spaces;
2. design appropriate lighting fittings;
3. incorporate artificial and natural lighting in building interiors; and
4. demonstrate the importance of scientific approach in the design of lighting.

Course Contents

Electromagnetic radiation. Visual task requirements. Units of Light, Vision and Buildings. Standards of lighting and visual comfort. Daylight factor, Lighting - Windows, Room proportions and other building elements. Daylight penetration. Artificial lighting – requirements; Types of Electrical fittings / equipment used in buildings; design of general lighting schemes; Study of lighting systems used in different types of buildings; Preparation of lighting layout for different types of spaces / buildings, supplementary artificial lighting for buildings, principles of electrical installation in buildings; Distribution, circuits and elements of building wiring systems. Safety methods and measures to be adopted, study of relevant I.S.; Codes, electrical load estimation, branch circuit design and electrical wiring design for different types of buildings.

ARST 422: Independent Research Report

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. use critical thinking, literacy, digital literacy, group work and problem-solving skills in conducting and presenting survey-based research;
2. apply method and appropriate technology to the study of architectural sciences by satisfactorily applying the scientific method to research;
3. produce a project report on their designed; and
4. write research papers consistent with both professional practice and the conventional principles of research ethics.
5. Core research skills (qualitative and quantitative) which will be used to plan and conduct a research project in an area of interest. The dissertation module provides the platform for students to explore a research topic using an appropriate research methodology, following academic convention.



Minimum Academic Standard

Equipment

Studio Facilities

1. Studio Tables and Chair; 1 for each student
- 2 White board; 1 for each studio

Teaching Equipment

- 1 Whiteboards 2
- 2 Multimedia Speaker 1
- 3 Multimedia Projector 1
- 4 Multimedia Screen 1
- 5 Smart LED TV 2
- 6 Digital Cameras 2
- 7 Tripod stands 2
- 8 World Globe 2

Office Equipment / Facilities

- 1 Desktops/Laptops One for each academic/technical Staff/HOD
- 2 Printers One for each academic/technical staff/HOD/gen. office
- 3 Photocopy Machine One for the general office
- 4 Scanner One for the general office
- 5 Filing Cabinets One for each academic/technical staff/HOD
- 6 Office Chairs One for each academic/technical/admin.
- 7 Office tables One for each academic/technical/admin.
- 8 Conference room tables and One table and 30 chairs
- 9 Fridge 2
- 10 Electric Kettle 1
- 11 Air conditioners 1 for every office including general office
- 12 Calculators 2

CADD Equipment

- 1 Multimedia Projects 1
- 2 Projector Screen and Stand 1
- 3 Computer Systems with UPS 24
- 4 A0 hp Plotter 1
- 5 3D modeling machine 1

Environmental Technology Laboratory Equipment

- 1 Desktops with lighting, acoustic and climatic simulation software 4
- 2 Digital Radiation Meter 2
- 3 Digital Sound Level Meter 2
- 4 Digital Luxmeter 2
- 5 Digital Air Quality Monitor 1
- 6 Eco-tech meter
- 7 Wind tunnel
- 8 Wind speed
- 9 Artificial sky
- 10 hygrometer



11	Multi-Thermo Thermometers	4
12	Earth Globe	4
13	World Map	2
14	Scientific Information Chart	14

Staffing

Academic Staff

The qualification and experience of lecturers is an essential element of the quality of architectural technology education. The recommended minimum academic staff-student ratio is 1:15. The academic staff should be made up of:

- i. Graduate Assistant
- ii. Assistant Lecturer
- iii. Lecturer II
- iv. Lecturer I
- v. Senior Lecturer
- vi. Reader (Associate Professor)
- vii. Professor

Academic Support Personnel

Teaching Assistant/Demonstrators are recommended to assist lecturers in the conduct of tutorials, practical and fieldwork.

Administrative Support Personnel

The services of the administrative support staff are indispensable in the proper administration of the departments and faculty offices. These will normally include confidential secretaries, clerical officers, typists, messengers and cleaners. It is important to recruit very competent senior personnel who are technology savvy.

Technical Support Personnel

The technical support personnel shall consist of technical officers and technologists. It is important to recruit very competent senior technical staff to maintain teaching and research equipment.

Library and Information Resources

The library/Resource Centre will normally be a quick reference library stocked with reference materials and current journal and periodicals relevant to the different programmes in each faculty. Internet access and electronic materials are strongly recommended for these specialized discipline libraries.

Work stations at the minimum ratio of 1computer to every 4 full time equivalent students.

Management Station: a set of control work stations to control access and usage of the work stations

Server(s)

Switch

UPS systems/power backup

Power voltage regulators/stabilizers

Air conditioning

Internet connectivity.



Item	Departmental Resource Room	Quantity
1.	Desktop Computers System	4
2.	HP LaserJet	1
3.	Journals	Current editions
4.	Resources/reference books	Current editions

Classrooms, Laboratories, Workshops, Studios, and Offices.

Item	Studios/ Workshops	Minimum	Sizes
1.	Studios; each with 40 computer/sketching tables	4 studios	2.5sqm per student
2.	Classrooms	2	0.5sqm per student
3.	Laboratories/ Workshop	2	0.9sqm per student
4.	Administrative offices	2	12sqm
5.	Technical staff offices	2	9sqm
6.	Resource/Data Room	1	20sqm
7.	Jury and Exhibition Space	2	
8.	Staff offices	1 for each member of Staff	12sqm
9.	General office	1	16sqm
10.	Administrative: HOD	1	12sqm

Item	Studio Facilities	Minimum
1.	Studio Tables and Chairs	1 for each student
2.	White board	1 for each studio
Item	Teaching Equipment	Minimum
1.	Whiteboards	2
2.	Multimedia Speaker	1
3.	Multimedia Projector	1
4.	Multimedia Screen	1
5.	Smart LED TV	2
6.	Digital Cameras	2
7.	Tripod stands	2
8.	World Globe	2
Item	CADD Laboratory	Quantity
1.	Multimedia Projects	1



2.	Projector Screen and Stand	1
3.	Computer Systems with UPS	24
4.	A0 hp Plotter	1
5.	3D modeling machine	1
6.	3D Printer	1

Item	Environmental Technology Laboratory	Quantity
1.	Desktops with lighting, acoustic and climatic simulation software	4
2.	Digital Radiation Meter	2
3.	Digital Sound Level Meter	2
4.	Digital Luxmeter	2
5.	Digital Air Quality Monitor	1
6.	Eco-tech meter	
7.	Wind tunnel	
8.	Wind speed	
9.	Artificial sky	
10.	Hygrometer	
11.	Multi-Thermo Thermometers	4
12.	Earth Globe	4
13.	World Map	2
14.	Scientific Information Chart	14

Item	Wood Workshop	Quantity
1.	Portable Speed Sander	1
2.	Planners	6
3.	Staple Guns	4
4.	Router tables	2
5.	Electric Drills	2
6.	Clamps	10
7.	Jip Saws	6
8.	Circular Saws	2
9.	Metre Saws	2
10.	Masonry Tool Boxes	4
11.	Electric Tool boxes	4
12.	Dovetail Saws	4



13.	Panel Saws	4
14.	Punches and Pliers	10
15.	Claw hammer and Mallet	10
16.	Wire Brush	4
17.	Electric Grinder	1
18.	Spray Machine and Gun	1
19.	Electric Angle Grinder	1
20.	Electric Vacuum Blower	2
21.	Bench Vices	10
22.	Clamps	10
23.	Work Bench	4
Item	Workspaces	Minimum
1.	Studios; each with 40 computer/sketching table	4 studios
2.	Classrooms	2
3.	Laboratories and Workshop	2
4.	Administrative offices	2
5.	Technical Staff offices	2
6.	Resources/Data Room	1
7.	Jury and Exhibition Space	2
8.	Staff offices	1 for each member of staff
9.	General office	1
10.	Administrative: HOD	1
11.	Students' office	1
12.	Students' shop	1



B. Sc. Furniture Design

Overview

Furniture design is a specialized field that provides a comprehensive education where function and fashion collide. It is characterised by emphasis on research and innovation where, through aesthetic research, a unique professional ability to interpret socio - cultural developments are provided. The course is both theoretical and practical where lectures and design activities together with practical experimentation spurred by the use of materials, the combination of technologies and skills with aesthetics, and production processes, innovative products are created.

It is a highly stimulating and fully immersive educational environment that focuses on the relationship between research and design. And exploration into the analysis of design language, to define products from a cultural, social and market – based perspective – is undertaken. The course has a strong focus on research and innovation with specific insights into project culture and the current design scene, and a unique analysis of design language. Students will learn how to define products from a cultural, social and market-based perspective. It builds on the reputation of established Furniture production companies, a combination of live projects, study visits and guest speakers will support the development of the students' design, craft, business and enterprise skills relevant to furniture designer.

A global overview reveals that Furniture design is also associated with interior design, and some school located in the school of creative arts. However, Furniture, is more than just a decorative item in the home or interior space, it is major determinant of the interior space which affect the thermal performance and indoor quality of the. Practitioners are addressed as Furniture Designers and could belong to Interior Architects or Interior Designers though they are usually registered under the same professional associations such as European Council of Interior Architect (ECIA), American Society of Interior Designers (ASID), International Interior Design Association(IIDA), and International Federation of Interior Architects/Designers (IFI). Commonly used nomenclature are: Bachelor of Furniture Design (BFA), Bachelor of Arts in Furniture Design (BFA), Bachelor of Science (B.Sc.) in Furniture Design, among others.

Philosophy

The Furniture Design programme provides a scientific and holistic approach to the study and education of furniture design professionals. It embraces technology and with innovative marketing and entrepreneurial skills to create equipment that seek to satisfy the requirements for human comfort both physical and psychological.

The training and education of furniture design takes cognizance of current trends and technological developments, especially with regards to digital media and developments in materials and construction technology, and future directions. This will culminate in the production of professionals equipped with the requisite knowledge and competencies to practice under diverse conditions while promoting the cultural, intellectual, historical, social, economic and environmental context of their practice environment. The practitioners must also be aware of their roles and responsibilities in the promotion of sustainable society.

Objectives

1. furniture design aims to produce graduates trained to focus on design and production of furniture based on practical experimentation spurred by creative, aesthetic and innovative application of materials, technologies and productive processes;



2. it enhances the ability of students to understand, interpret and to take advantage of the rich socio – cultural, economic and technical resources in the society in creating and enhancing the wellbeing of their citizens;
3. provide holistic professional education in furniture design where the graduates are able to offer different projects to solve simple to complex furniture design problems;
4. train students a to understand and become aware of the social, cultural, physical, technical and economic needs of the Nigerian society by enabling them to draw inspiration from traditional heritage and to use modern tools and processes with a global outlook to relate their training to the furniture needs of contemporary society;
5. equip students with the abilities to understand and apply the elements and principles of design as well as the creative attitude to generate diverse approaches to different tasks that address both tangible and intangible products that meet the demand of various industries; and
6. produce graduates with entrepreneurial attitude in furniture design for self-employment and the capacity to create jobs.

Unique Features of the Programme

Features in the programme are designed to:

1. focused on mass production of furniture by taking into consideration anthropometric and ergonomic principles while in-cooperating human physiological and environmental needs to the background;
2. embrace technology with innovative marketing and entrepreneurial skills to create equipment that seek to satisfy the requirements for human, physical and psychological comfort;
3. situated within the evolving furniture design market in contemporary Nigeria introducing the student to unique features such as indigenous Nigerian arts, crafts and culture, context and content in contemporary furniture design, innovative furniture design for special needs and reuse of materials for furniture design; and
4. graduate of furniture design competitively placed in the design, production and marketing of furniture in practice both locally and internationally.

Employability Skills

1. communication of design ideas through physical and digital media and models as well as written and verbal communication;
2. application of critical thinking and problem-solving skills across disciplines;
3. ability to produce details, specification and cost estimates;
4. ability to design and construct furniture and fittings; and
5. entrepreneurial ability to identify gaps and opportunities in the field and translate these into successful ventures.

21st Century Skills

1. digital skills in the use of Building Information Modelling (BIM) software and digital media and models;
2. critical thinking, problem solving, reasoning, analysis, interpretation, synthesizing information;
3. perseverance, self-direction, planning, self-discipline, adaptability, initiative;
4. leadership, teamwork, collaboration, cooperation, facility in using virtual workspaces; and
5. economic and financial literacy, entrepreneurialism.



Admission and Graduation Requirements

UTME

To be eligible for admission into the four year programme in B. Sc Furniture design, candidates must have obtain, at least, 5 credit passes at 'O' Level or its equivalent, such as Art, Technical drawing and Mathematics. A pass at 'O' Level in Chemistry and Physics will be of advantage. UTME subjects can be a combination of Mathematics, Physics and Chemistry/ Technical Drawing/Fine Arts/Metalwork/Woodwork.

Direct Entry

5 SSC- credit passes two of which must be at the advanced Level in the relevant disciplines. The courses taken at this level must include Art and Technical Drawing. A pass at 'O' Level in Chemistry and Physics will be of advantage.

Graduation Requirement

Total minimum credits required for graduation is 120 for students admitted through UTME and 90 or 60 by entry level for Direct Entry admissions.

Duration of Programme

Furniture Design shall offer a four-year degree programme. The minimum recommended duration is eight (8) academic semesters that leads to the award of a Bachelor's degree in Furniture Design. A students' Industrial Training programme of six months shall be incorporated in the programme without prejudice to the minimum academic semesters recommended above.

Global Course Structure

100 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST111	Communication in English	2	C	15	45
GST 112	Nigerians People and Culture	2	C	30	-
FAA103	Graphic Communication Skills I	2	C	15	45
FAA104	Graphic Communication Skills II	2	C	-	90
FAA121	Introduction to Basic Computer Applications	2	C	15	45
FAA126	Introduction to Sustainable Built Environment	2	C	30	-
FUD101	Introduction to Furniture Design	2	C	30	-
FUD102	Spatial Dynamics and Ergonomics and Anthropometrics in Interior Spaces	2	C	30	-
FUD107	Free Hand Drawing	2	C	15	45
	Total	18			



200 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST 212	Philosophy, Logic and Human Existence	2	C	30	-
ENT 211	Entrepreneurship and Innovation	2	C	15	45
FAA221	Introduction To Computer Aided Design CAD	2	C	15	45
FUD201	Furniture Design Studio I	6	C	30	180
FUD202	Furniture Design Studio II	6	C	-	270
FUD203	Furniture Production I	2	C	-	90
FUD206	Furniture Production II	2	C	30	-
FUD211	Basic of Joinery	2	C	15	45
FUD212	Materials, Techniques and Colour in Furniture Design	2	C	30	-
FUD215	Materials and Techniques	2	C	30	-
FUD222	Introduction to Body Physiology	2	C	30	-
	Total Units	30			

300 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST 312	Peace and conflict Resolutions	2	C	30	-
ENT 312	Venture Creation	2	C	15	45
FAA313	Research Methods	2	C	30	-
FUD300	Students' Industrial Work Experience Scheme	6	C	-	270
FUD301	Furniture Design Studio III	6	C	-	270
FUD303	Wood Product Fabrication	2	C	-	90
FUD305	Working Drawing and Detailing	2	C	15	45
FUD312	Product Marketing and Merchandising	2	C	15	45
FUD313	Plastic Product Fabrication	2	C	-	90
FUD315	Local Arts and Crafts Practices	2	C	15	45
	Total Units	28			

400 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
FAA484	Professional Practices and Ethics	2	C	2	-
FUD401	Production workshop Practice	2	C	-	90



FUD402	Product Production and Exhibition	4	C	-	180
FUD403	Law and Arbitration	2	C	30	-
FUD406	Independent Research Project and Thesis	2	C	-	90
FUD412	Outdoor Furniture	2	C	-	90
FUD413	Glass Product Fabrication	2	C	30	-
FUD415	Furniture Design for Special Needs	6	C	30	180
FUD417	Re-use Materials for Furniture Making	2	C	-	90
	Total Units	24			

Course Contents and Learning Outcomes

100 level

GST 111: Communication in English

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this Course, students should be able to:

1. identify possible sound patterns in English language;
2. list notable language skills;
3. classify word formation processes;
4. construct simple and fairly complex sentences in English;
5. apply logical and critical reasoning skills for meaningful presentations;
6. demonstrate an appreciable level of the art of public speaking and listening; and
7. write simple and technical reports.

Course Contents

Sound patterns in English Language (vowels and consonants, phonetics and phonology). English word classes (lexical and grammatical words, definitions, forms, functions, usages, collocations). Sentences in English (types: structural and functional, simple and complex). Grammar and Usage (tense, mood, modality and concord, aspects of language use in everyday life). Logical and Critical Thinking and Reasoning Methods (Logic and Syllogism, Inductive and Deductive Argument and Reasoning Methods, Analogy, Generalisation and Explanations). Ethical considerations, Copyright Rules and Infringements. Writing Activities: (Pre-writing, Writing, Post writing, Editing and Proofreading; Brainstorming, outlining, Paragraphing, Types of writing, Summary, Essays, Letter, Curriculum Vitae, Report writing, Note making, Mechanics of writing and many others). Comprehension Strategies: (Reading and types of Reading, Comprehension Skills, 3RsQ). Information and Communication Technology in modern Language Learning. Language skills for effective communication. Major word formation processes. Writing and reading comprehension strategies. Logical and critical reasoning for meaningful presentations. Art of public speaking and listening and Report writing.

GST 112: Nigerian Peoples and Culture

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. analyse the historical foundation of the Nigerian culture and arts in pre-colonial times;
2. list and identify the major linguistic groups in Nigeria;
3. explain the gradual evolution of Nigeria as a political unit;



4. analyse the concepts of trade, economic and self-reliance status of the Nigerian peoples towards national development;
5. enumerate the challenges of the Nigerian state towards nation building;
6. analyse the role of the judiciary in upholding people's fundamental rights;
7. identify acceptable norms and values of the major ethnic groups in Nigeria; and
8. list and suggest possible solutions to identifiable Nigerian environmental, moral and value problems.

Course Contents

Nigerian history, culture and art up to 1800 (Yoruba, Hausa and Igbo peoples and culture; peoples and culture of the ethnic minority groups). Nigeria under colonial rule (advent of colonial rule in Nigeria; Colonial administration of Nigeria). Evolution of Nigeria as a political unit (amalgamation of Nigeria in 1914. Formation of political parties in Nigeria. Nationalist movement and struggle for independence). Nigeria and challenges of nation building (military intervention in Nigerian politics; Nigerian Civil War). Concept of trade and economics of self-reliance (indigenous trade and market system; indigenous apprenticeship system among Nigeria people; trade, skill acquisition and self-reliance). Social justices and national development (law definition and classification. Judiciary and fundamental rights; Individual, norms and values (basic Nigeria norms and values, patterns of citizenship acquisition; citizenship and civic responsibilities; indigenous languages, usage and development; negative attitudes and conducts. Cultism, kidnapping and other related social vices).. Re-orientation, moral and national values (The 3R's – Reconstruction, Rehabilitation and Re-orientation; Re-orientation Strategies: Operation Feed the Nation (OFN), Green Revolution, Austerity Measures, War Against Indiscipline (WAI), War Against Indiscipline and Corruption(WAIC), Mass Mobilization for Self-Reliance, Social Justice and Economic Recovery (MAMSER), National Orientation Agency (NOA) as well as Current socio-political and cultural developments in Nigeria.

FAA 103: Graphics Communication I

(2 Units C: LH15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and use various draughting materials and instruments: paper cards, folios, sketch books; pencils (hard, soft and coloured), felt pens, technical pens, crayons; brushes and paints; dry transfer lettering, textures, tones and colours; rules, templates and compasses; drawing boards and drawing sets;
2. identify and construct/create the following visual elements: points, lines, shapes, planes, forms, textures and colours; in various media to create various effects;
3. construct simple visual images using the principles of proportion, balance, harmony and contrast, pattern, movement and rhythm, style;
4. create 2 dimensional drawings of plan section and elevations from basic geometric forms;
5. produce perspective drawings of simple geometric forms;
6. identify and draw various forms of lettering; and
7. compose renderings of simple objects in various media.

Course Contents

Drawing tools. Drawing materials. The representation of common views. Graphic presentation using various media. Sketching for design development. Descriptive geometry. Orthographic projections of simple and complex geometric solids. Isometric, axonometric. Oblique and perspective views and lettering.



FAA 104: Graphics Communication II

(2 Units C: LH15; PH 45)

Learning Outcomes

At the end of this course, the student should be able to:

1. represent building elements and materials;
2. interpret building graphics conventions on architectural drawings;
3. reproduce architectural drawings of plans, sections and elevations;
4. create basic floor plans, sections and elevations;
5. identify and use scales and properly drawn-out design- floor plans, sections elevations;
6. construct orthogonal projections of plans;
7. create axonometric and perspective views using advanced techniques in perspective drawings;
8. construct and prepare shades and shadows; and
9. prepare rendered presentation drawings using lines, tones and colour.

Course Contents

Use of graphics in architecture. Graphic thinking and building representation. Representation of building elements and materials. Representations of building elements and materials in plans. Representations of building elements and materials in elevations and sections. Projection techniques for shade and shadow construction. 3-Dimensional drawings of building exteriors. 3-Dimensional drawings of building interiors. Oblique drawings. Isometric drawings. Axonometric drawings. Perspective drawings and rendering.

FAA 121: Introduction to Basic Computer Applications (2 Units C: LH15; PH 45)

Learning Outcomes

At the end of the course, students should be able to:

1. discuss the development and types of computers;
2. identify the electronic principles behind the operation of computers;
3. identify, discuss and use basic hardware and software computer components;
4. perform basic installation, programming and file management tasks;
5. use word processing software in the production of their papers;
6. apply graphics software for simple design tasks;
7. use excel spreadsheet for basic computational works; and
8. create slides and use power-point for presentations.

Course Contents

Development of the computer, computer components and operations. Development and types of computers. Basic electronic principles. Navigation hardware peripheral/plugins devices. Computing environment - windows operating system. Software - types, license, installation, elementary programming. Documents – creation, converting and file management. Basic processes and software for the preparation and presentation of works. Word processors and their operations - page setup, margins, headers and footers, page numbers, page breaks, viewing and navigation, writing and formatting, lists, tables, graphics, tracking, table of contents and references. Excel spreadsheet; power-point; graphics software such as paint and CorelDraw. Navigating the internet, web browsers and search engines, on-line resources.

FAA 126: Introduction to Sustainable Built Environment (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define sustainability, and sustainable built environment;



2. identify and explain associated concepts with sustainable built form;
3. describe how what sustainable infrastructure is;
4. demonstrate an understanding of values and societal importance of the built environment, and the influence on a sustainable development;
5. conduct a simple environmental assessment;
6. define climate change and discuss how it influences the built environment; and
7. demonstrate the usefulness of environmental impact assessments as a tool for design, construction and management of a sustainable built environment.

Course Contents

Definition of sustainability. Definition of sustainable environment. Definitions of concepts associated with sustainability e.g. climate change. The built environment and sustainable built environment. Sustainable infrastructure (buildings, structures, plants and networks for communication and transport, water and wastewater treatment, production and distribution of energy). Relations between infrastructure and sustainable development. Sustainable regulations and standards. Indicators of sustainability. Consequences of climate change on the built environment. Vulnerability and safety of infrastructure. Materials and technology for construction and management. Service life and life cycle assessments.

FUD101: Introduction to Furniture Design (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should:

1. analyse the nature of materials and their impact on the design process;
2. demonstrate that design can be limited by type of material;
3. describe and identify the characteristics and components of furniture design;
4. describe and identify the variety of human body supports and their functions; and
5. identify the types of furniture for containing and defining space.

Course Contents

Introduction to furniture Design. History of furniture: Definition of furniture, furniture design, types of furniture, types of materials, selecting and understanding the nature of materials, material properties (physical, inherent qualities and how they can be manipulated), and applications, uses of furniture. Manufacturing techniques. Furniture and the interior of spaces. Local industry/ other industries. Others include: Planning wood products, furniture styles, design factors, function, and social use of furniture, including matters of comfort, performance, intended purpose, activity, structural integrity, spatial order, and aesthetics and Types of fasteners, safety rules, synthetic materials, tools for woodworking.

FUD102: Spatial Dynamics of Ergonomics and Anthropometrics in Interior Spaces(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. analyse human actions in enclosed spaces;
2. identify factors that describe different types of spaces;
3. design and adapt furniture to human needs;
4. enumerate the characteristics of the human body and use anthropometric and ergonomic terminology correctly in written and oral communications;
5. develop the ability to carry out measurement of the size and proportions of the human body based on a given percentile;



6. identify anthropometric data that would directly impact on the design of objects and furniture solutions;
7. incorporate anthropometric and ergonomic data into a basic furniture design and ensure that users can carry out their activities in a safe, efficient and satisfying manner; and
8. identify the stress factors on human systems.

Course Contents

The sociology of space. Human action & perception. Exploring (the construction of) social realities. Analysing the social (re-) production of space. Reflecting the global and the local, examining metaphors of scale. Learning human ecology and well-being. Discovering the cyberspace and its reconfiguration of space and time and of the real and the virtual. Anthropometric measurements (introduction, percentile humans, anthropometric databases, Anthropometric Resources). Common workplace postures (standing, sitting, reaching, moving). Common workplace motions (good and bad zones, repetitive motions). Office furniture guidelines for fit and function (anticipate actions, chairs, desk and work surfaces, storage and files, accessories, resources for designing ergonomic products). Universal design considerations, (wheelchairs, crutches, canes, and walkers, knobs, handles, and controls, access ramps and stairs, resources on universal design).

FUD107: Free Hand Drawing

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. distinguish the usage of different points of pencils and apply them in sketching;
2. analyse and apply the geometric patterns in nature;
3. explore the fundamentals of drawing equipment and method of presentation;
4. create, compose sheets using different drawing tools on different mediums;
5. identify and understand measurement and scaling techniques for representing furniture and landscape elements; and
6. integrate the usage of variety of forms as a medium for indoor and outdoor sketching.

Course Contents

Introduction, hand flexibility and movement exercises, pencil handling exercises, types of pencils. Principles of sketching, points, joining two points, lines, Line exercises. Horizontal, vertical, diagonal lines. Combination of lines, free forms and object drawing, 3-D drawing of different furniture, shading, light and shadow contrast, hatching, texture, finishing, object scaling.

200 Level

GST 212: Philosophy, Logic and Human Existence

(2 Units C: LH 30)

Learning Outcomes

A student who has successfully gone through this course should be able to:

1. know the basic features of philosophy as an academic discipline;
2. identify the main branches of philosophy & the centrality of logic in philosophical discourse;
3. know the elementary rules of reasoning;
4. distinguish between valid and invalid arguments;
5. think critically and assess arguments in texts, conversations and day-to-day discussions;
6. critically assess the rationality or otherwise of human conduct under different existential conditions;
7. develop the capacity to extrapolate and deploy expertise in logic to other areas of knowledge, and



8. guide his or her actions, using the knowledge and expertise acquired in philosophy and logic.

Course Contents

Scope of philosophy; notions, meanings, branches and problems of philosophy. Logic as an indispensable tool of philosophy. Elements of syllogism, symbolic logic— the first nine rules of inference. Informal fallacies, laws of thought, nature of arguments. Valid and invalid arguments, logic of form and logic of content — deduction, induction and inferences. Creative and critical thinking. Impact of philosophy on human existence. Philosophy and politics, philosophy and human conduct, philosophy and religion, philosophy and human values, philosophy and character molding.

ENT 211: Entrepreneurship and Innovation

(2 Units C: LH15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. explain the concepts and theories of entrepreneurship, intrapreneurship, opportunity seeking, new value creation, and risk taking;
2. state the characteristics of an entrepreneur;
3. analyse the importance of micro and small businesses in wealth creation, employment, and financial independence;
4. engage in entrepreneurial thinking;
5. identify key elements in innovation;
6. describe stages in enterprise formation, partnership and networking including business planning;
7. describe contemporary entrepreneurial issues in Nigeria, Africa and the rest of the world; and
8. state the basic principles of e-commerce.

Course Contents

Concept of Entrepreneurship (Entrepreneurship, Intrapreneurship/Corporate Entrepreneurship); Theories, Rationale and relevance of Entrepreneurship (Schumpeterian and other perspectives, Risk-Taking, Necessity and opportunity-based entrepreneurship and Creative destruction); Characteristics of Entrepreneurs (Opportunity seeker, Risk taker, Natural and Nurtured, Problem solver and change agent, Innovator and creative thinker); Entrepreneurial thinking (Critical thinking, Reflective thinking, and Creative thinking); Innovation (Concept of innovation, Dimensions of innovation, Change and innovation, Knowledge and innovation); Enterprise formation, partnership and networking (Basics of Business Plan, Forms of business ownership, Business registration and Forming alliances and joint ventures); Contemporary Entrepreneurship Issues (Knowledge, Skills and Technology, Intellectual property, Virtual office, Networking); Entrepreneurship in Nigeria (Biography of inspirational Entrepreneurs, Youth and women entrepreneurship, Entrepreneurship support institutions, Youth enterprise networks and Environmental and cultural barriers to entrepreneurship); and Basic principles of e-commerce.

FAA 221: Introduction to Computer-Aided Design

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate mastery of basic concepts of the AutoCAD software;
2. apply basic concepts to develop construction (drawing) techniques;
3. ability to manipulate drawings through editing and plotting techniques;



4. make geometric construction;
5. produce template drawings;
6. produce 2D orthographic projections; and
7. demonstrate skills in dimensioning concepts and techniques, section and auxiliary views.

Course Contents

Use of modern CAD software to produce two-dimensional drawings for architectural design. Coordinating systems, proper dimensioning, use of sectioning and projections for visualization, symbol libraries, file management, and collaborative techniques. Basic principles of Computer Aided Design (CAD).

FUD201: Furniture Design Studio I

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. represent objects orthographically in 2 dimensions;
2. communicate design concepts graphically manually;
3. manipulate the computer to represent concepts and ideas graphically in 2 dimensions;
4. differentiate between the functional aspects of various furniture forms;
5. identify common materials and processes used to fabricate furniture; and
6. articulate key considerations of a furniture design project using standard design vocabulary.

Course Contents

This Studio is aimed at introducing the student to 2D Drawing of Furniture. It focuses on the ways in which drawing can help generate, evaluate and communicate design concepts. Students will be introduced to the conventions and techniques of technical drawing for Furniture Design while pursuing experiments that supplement and challenge established practices. Focus will be on two drawing systems, orthographic and praline projection, working by hand and with computers.

FUD 202: Furniture Design Studio II

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. represent objects in 3 dimensions, axonometric, perspectives and many others;
2. communicate design concepts graphically manually;
3. manipulate the computer to represent concepts and ideas graphically in 3 dimensions;
4. differentiate between the functional aspects of various furniture forms;
5. identify common materials and processes used to fabricate furniture; and
6. articulate key considerations of a furniture design project using standard design vocabulary.

Course Contents

This course continues with drawing and concept development techniques, sketching with three-dimensional models, mock-ups and prototypes. Working in several scales and levels of articulation, students will expand pre-visualization and detailing skills. Basics of 3-D computer simulation will also be introduced.



FUD 203: Furniture Production I

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. use basic theories of design to develop furniture in different styles;
2. apply principles of universal design to create comfortable furniture;
3. express concepts with appropriate terms and reflect the design by developing furniture of different categories; and
4. identify seating typologies and impact of culture on them.

Course Contents

Introduction, understanding product engineering, the mechanics of furniture production (leverage, rectangular beams – strength, rigidity). Columns and cantilever beams, shear, elasticity), assemblies (strength and rigidity). Balance of forces, vectors, torque and moment. Characteristics of wood and lumber (grain, strength, rigidity, effect of temperature, effect of moisture, shrink and swell, warp, twist, gluing. Characteristics of veneer and plywood, mechanical characteristics, shrink and swell, warp, balanced construction, critical furniture parts: curved plywood. Cores and crossband: lumber core, veneer core, particleboard core, medium density fiberboard, crossbanding and outer veneer, three-ply vs five- ply construction, Faces, splices of wood, method of cutting veneer, unusual tree growth, matching (slip match, book match, geometric match), surface finishes, plastic laminates, edges, appearance and advertising, cost comparison.

FUD 206: Furniture Production II

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. use basic theories of design to develop furniture in different styles;
2. apply principles of universal design to create comfortable furniture;
3. express concepts with appropriate terms and reflect the design by developing furniture of different categories; and
4. identify seating typologies and impact of culture on them.

Course Contents

Introduction, understanding product engineering, the mechanics of furniture production (leverage, rectangular beams – strength, rigidity). Columns and cantilever beams, shear, elasticity), assemblies (strength and rigidity). Balance of forces, vectors, torque and moment; Characteristics of wood and lumber (grain, strength, rigidity, effect of temperature, effect of moisture, shrink and swell, warp, twist, gluing. Characteristics of veneer and plywood, mechanical characteristics, shrink and swell, warp, balanced construction, critical furniture parts: curved plywood. Cores and cross band: lumber core, veneer core, particleboard core, medium density fibre board, cross banding and outer veneer, three-ply vs five- ply construction, Faces, splices of wood, method of cutting veneer, unusual tree growth, matching (slip match, book match, geometric match), surface finishes, plastic laminates, edges, appearance and advertising, cost comparison.

FUD 211: Basic Joinery

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. acquire the basic skills of working with wood;
2. demonstrate the basic safety precautions of working with all kinds of materials; and



3. identify the art of joining different pieces of wood.

Course Contents

Introduction to joinery. Types of wood joints: (1. square-ended basic butt joint, 2. edge-to-edge butt joint, 3. mitered butt joint, 4. tongue-and groove joint). Types of wood joints II (5. right angle dowel frame joints, 6. edge-to-edge dowel joint, 7. biscuit joints, 8. mortise and tenon joint, 9. corner bridle joint). Types of wood joint III (10. mitred bridle joint, 11. half lap joint, 12. box joints, 13. dovetail joint, 14. half blind dovetail joint). Types of wood joints IV (16. sliding dovetail joints, 17. finger joint / comb joint, 18. dado joint, 19. rabbet joint.) cutting, and assembly of such wood pieces.

FUD 212: Materials, Techniques and Colour in Furniture Design (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. differentiate between the different categories of the materials;
2. identify the characteristics of the different materials;
3. demonstrate ability to work with various materials;
4. recognise various colours and their hues, values and intensities;
5. describe the behaviour and interrelations between light and colour in interior spaces;
6. appraise the relationship between colour choices and social and psychological well-being of interior space users; and
7. apply colour theories and principles in interior design projects.

Course Contents

Woods: solid, plywood, veneer, hardboard, particle board, composite wood. Properties, and production process. Paper / cardboard, properties and production process. Metals: Steel, aluminium, copper, brass, bronze, iron. Properties and production process. Glass properties, and production process. Plastics: Bamboo and Rattan, properties, and production process. Basic theory of colour, attributes of colours, colour temperature, psychology of colour, how we perceive colours – (hue, value, chroma). The psychology behind colour preference – (how colours mix. Colour hierarchy and colour harmony. Colour schemes and design examples - monotone schemes, monochromatic schemes, analogous scheme, complementary schemes, discordant schemes for special effects. Colour association, colour combinations and interiors.

FUD 215: Materials and Techniques I

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. differentiate between the different categories of the materials;
2. identify the characteristics of these materials; and
3. demonstrate ability to work with the various materials.



Course Contents

Woods: solid, plywood, veneer, hardboard, particle board, composite wood. Properties, and production process; paper/ cardboard, properties, and production process; Metals: steel, aluminium, copper, brass, bronze, iron. Properties, and production process; Glass, properties, and production process. Plastics: Bamboo and Rattan, Properties, and production process.

FUD 222: Introduction to body Physiology

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. describe how the human body functions;
2. identify the control mechanism of the body;
3. develop the neural and hormonal homeostatic control mechanism; and
4. describe the relationship between human body form and furniture.

Course Contents

Introduction to the human body. The chemical level of organization, cellular level of organization. The tissue level of organization; the integumentary system, bone and skeletal tissue; the axial skeleton, the appendicular skeleton, joints, muscle tissue. The muscular system; introduction to the nervous system. The anatomy of the nervous system; the somatic nervous system; the autonomic nervous system; endocrine system. Blood, The heart, blood vessel circulation. Lymphatic/immune system, respiratory system. Digestive system, metabolism/nutrition. Urinary system and reproduction/pregnancy.

300 Level

GST 312: Peace and Conflict Resolutions

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. analyse the concepts of peace, conflict and security;
2. list major forms, types and root causes of conflict and violence;
3. differentiate between conflict and terrorism;
4. enumerate security and peace building strategies; and
5. describe roles of international organisations, media and traditional institutions in peace building.

Course Contents

Concepts of Peace, Conflict and Security in a multi-ethnic nation. Types and Theories of Conflicts: Ethnic, Religious, Economic, Geo-political Conflicts. Structural Conflict Theory, Realist Theory of Conflict, Frustration-Aggression Conflict Theory. Root causes of Conflict and Violence in Africa: Indigene and settlers Phenomenon. Boundaries/boarder disputes; Political disputes. Ethnic disputes and rivalries. Economic Inequalities. Social disputes. Nationalist Movements and Agitations. Selected Conflict Case Studies – Tiv-Junkun; Zango Kataf, Chieftaincy and Land disputes and many others. Peace Building, Management of Conflicts and Security: Peace and Human Development. Approaches to Peace and Conflict Management - (Religious, Government, Community Leader and many others). Elements of Peace Studies and Conflict Resolution. Conflict dynamics assessment Scales. Constructive and Destructive. Justice and Legal framework. Concepts of Social Justice. The Nigeria Legal System. Insurgency and Terrorism; Peace Mediation and Peace Keeping. Peace and Security Council (International, National and Local levels) Agents of Conflict resolution – Conventions, Treaties Community Policing. Evolution and Imperatives. Alternative Dispute Resolution, ADR: A). Dialogue b).



Arbitration, c). Negotiation d). Collaboration and many others. Roles of International Organizations in Conflict Resolution: (a). The United Nations, UN and its Conflict Resolution Organs. (b). The African Union & Peace Security Council (c). ECOWAS in Peace Keeping. Media and Traditional Institutions in Peace Building. Managing Post-Conflict Situations/Crisis: Refugees. Internally Displaced Persons, IDPs and the role of NGOs in Post-Conflict Situations/Crisis.

ENT 312: Venture Creation

(2 Units C: LH15; PH 45)

Learning Outcomes

At the end of this course, students, through case study and practical approaches, should be able to:

1. describe the key steps in venture creation;
2. spot opportunities in problems and in high potential sectors regardless of geographical location;
3. state how original products, ideas, and concepts are developed;
4. develop business concept for further incubation or pitching for funding;
5. identify key sources of entrepreneurial finance;
6. implement the requirements for establishing and managing micro and small enterprises;
7. conduct entrepreneurial marketing and e-commerce;
8. apply a wide variety of emerging technological solutions to entrepreneurship; and
9. appreciate why ventures fail due to lack of planning and poor implementation.

Course Contents

Opportunity Identification (Sources of business opportunities in Nigeria. Environmental scanning. Demand and supply gap/unmet needs/market gaps/Market Research. Unutilised resources. Social and climate conditions and Technology adoption gap). New business development (business planning, market research). Entrepreneurial Finance (Venture capital, Equity finance, Micro finance, Personal savings, Small business investment organizations and Business plan competition). Entrepreneurial marketing and e-commerce (Principles of marketing, Customer Acquisition and Retention, B2B, C2C and B2C models of e-commerce, First Mover Advantage, E-commerce business models and Successful E-Commerce Companies,). Small Business Management/Family Business. Leadership and Management, Basic book keeping, Nature of family business and Family Business Growth Model. Negotiation and Business communication (Strategy and tactics of negotiation/bargaining, Traditional and modern business communication methods). Opportunity Discovery Demonstrations (Business idea generation presentations, Business idea Contest, Brainstorming sessions, Idea pitching). Technological Solutions (The Concept of Market/Customer Solution, Customer Solution and Emerging Technologies, Business Applications of New Technologies - Artificial Intelligence (AI), Virtual/Mixed Reality (VR), Internet of Things (IoTs), Blockchain, Cloud Computing, Renewable Energy, Digital Business and E-Commerce Strategies).

FAA 313: Research Methods

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define research;
2. discuss the characteristics of research;
3. describe the various research designs and identify the tools of research;
4. discuss the various methods of data collection and simple analysis;
5. discuss the basic principles of referencing and use referencing software; and
6. draft the outline of a thesis report.



Course Contents

Research in general. Meaning and definition of research. Why we do research. Identifying researchable problems. Formulating research topics. Types and classification of research; Reviewing literature. Research design – survey, case study and experimental, variables of study. Methods and procedures for data collection. Instruments of data collection. Population and sampling. Data presentation. Descriptive and statistical data analysis and report writing.

FUD 300: Students Industrial Work Experience Scheme (SIWES)(6 Units C: PH 270)

Learning Outcomes

Work experience aims to:

1. build self awareness, especially students strengths and abilities;
2. build self confidence;
3. identify skills and competencies required in the workplace; and
4. identify job apprenticeship opportunities.

Course Contents

This placement is undertaken in the second semester of year 3. The placement should generally be of at least 24 weeks duration and should involve full-time work within the placement organisation. Students are responsible for their travel, accommodation, and general living expense while undertaking a placement. Employability skills which will be learned will include: communication, teamwork, problem solving, self-management, planning and organizing, technology, learning, initiative and enterprise.

FUD301: Furniture Design Studio III 270)

(6 Units: PH

Learning Outcomes

At the end of this course, the students should be able to:

1. develop their capabilities in design of different type of furniture;
2. develop and refine design concepts;
3. produce sketches as well as working drawings;
4. undertake construction of a full-scale prototype;
5. demonstrate craftsmanship in different materials; and
6. communicate through exhibition and presentation.

Course Contents

This is a continuation of furniture design studio where the students are expected to develop advanced theory and practice in furniture design. Projects include experimental seating design and an introduction to upholstery techniques.

FUD 303: Wood Fabrication

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. list the intrinsic properties of wood;
2. identify necessary technical considerations and safety procedure in fabrication;
3. demonstrate use wood-working tools and machines; and
4. produce furniture in wood.



Course Contents

Types and Properties of wood. Process of manufacture of wood. Defects in wood. Wood products - plywood, laminated wood, veneer, particleboard. Woodworking techniques - cutting, polishing, laminating, assembly of parts, preservation and treatment of wood.

FUD305: Working Drawing and Detailing

(2 Units C: LH15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. design conceptualization and ideation - form, function and space requirements in interior space; and
2. draw- plans, sections and services related drawings, working drawings, views, details, presentation of design project in the form of presentation drawings and working drawings.

Course Contents

Working drawing and details of furniture systems using various materials such as wood, plywood, block boards, artificial boards, metal, glass, stone and may others in various finishes. Working drawing and related details of the following furniture designed ;dining table with chair in wood, study table, double bed with side table in wood, his and her wardrobe in plywood as basic material, wall unit / partition divider, built-in kitchen platform. Working drawing and details of commercial furniture systems using various materials such as wood, plywood, block boards, artificial boards, metal, glass, stone and many others in various finishes. Working drawing and related details of the following furniture designed by them in the previous semesters.

Working drawing of the following may be prepared:

1. Executive Desk with side / back table
2. Reception Counter
3. Conference Table
4. Shop front / Show window
5. Bank Counter
6. Bar Counter

Note – Use of CAD techniques in working drawing may be encouraged.

FUD312: Product Marketing and Merchandising

(2 Units C: LH15; PH 45)

Learning Outcomes

At the end of this course, the students should have acquired the:

1. ability to identify and respond to market forces;
2. skills to conduct marketing research and develop effective strategies;
3. expertise for product packaging for market appeal; and
4. demonstrate ability to develop adequate transport and distribution network.

Course Contents

Meaning, functions, types and uses of merchandising. Marketing rudiments of the furniture produced,(documentation, portfolio development, packaging and transportation, advertising, presentation, exhibition).



FUD 313: Plastic Product Fabrication

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. deduce the intrinsic properties of plastics and develop research and critical thinking;
2. use the computer to produce 3d drawings for furniture production;
3. demonstrate different processes in the production of plastic;
4. describe the different varieties of general plastics and their properties;
5. identify necessary technical considerations and safety procedure in fabrication of plastics;
6. effectively use plastic-working tools and machines; and
7. produce furniture in plastics.

Course Contents

This course is an intensive learning exploration of the plastic furniture production process. The Course Contents include the product development process 3D drawing, hardware mould preparation processes, and the mould injection process. Also, the course explores the different varieties of general plastics, engineering plastics and their properties. The challenges extended by the variety of plastic-working tools and machines are explored. Students of this course are also expected to develop research and critical thinking skills, learn the effective use of visual and verbal presentation medium; understand the integration process on concept, human dimension requirements, technical considerations and necessary safety procedures in fabrication.

FUD315: Local Arts and Crafts Practices I

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. express through design the richness of local art and crafts products;
2. demonstrate knowledge of the major stylistic developments in the local craft practices; and
3. develop creative and analytic approaches to enhance the quality of local crafts to global appeal.

Course Contents

Explore the richness of our local arts and craft in the production of furniture, such as bamboo, leather and many others. The course seeks to impute into the student the ability to creatively and innovatively transform local crafts into contemporary furniture.

400 Level

FAA 484: Professional Practice

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate knowledge of the scope of professional practice;
2. demonstrate knowledge of the stages of a project procurement; from client engagement, design and documentation, tendering work, superintendence and construction administration through to post-construction;
3. demonstrate knowledge of the ethical obligations of the architect to client, other architects and profession;
4. identify available procurement methods and demonstrate knowledge of the selection process for appropriately qualified contractors in accordance with the procurement method and project contract;



5. discuss career paths in architecture; and
6. prepare a simple procurement plan.

Course Contents

The practice of the profession of architecture globally and in Nigeria. Ethical practice. The character and operation of firms. Running the business of architecture. Professional memberships and registration in Nigeria. Professional memberships and registration in other regions of the world. The project procurement process. contracts and contract administration. Alternative and innovative pathways through the profession. Career planning in architecture. The procurement act and professional practice.

FUD401: Production Workshop Practice

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the hand tools and instruments,
2. demonstrate measuring skills;
3. demonstrate practical skills in the trades, and to provides the knowledge of job materials;
4. analyse the material on the basis of their properties and thus assigning different weight age to their use for technical purposes;
5. demonstrate how designers influence manufacturing schedule and cost, and cost of different components; and
6. analyse products and be able to improve their manufacturability and make the cost effectively.

Course Contents

Process, fabrication method and properties of metals, non-metals, plastics and glass. Challenges extended by the variety of working tools and machines. Development of research and critical thinking skills. Effective use of visual and verbal presentation medium. Understand the integration process on concept, human dimension requirements, technical considerations and necessary safety procedures in fabrication.

FUD402: Product Production and Exhibition

(4 Units C: PH 180)

Learning Outcomes

At the end of this course, the students should be able to:

1. apply a reflecting approach to exhibition as a medium;
2. demonstrate basic knowledge of the contents, function and design of the exhibition;
3. demonstrate basic skills in exhibition work;
4. present and discuss ideas within different fields where exhibition can be used;
5. utilise basic knowledge of handling product concerning both the aesthetics and ethics of the object; and
6. analyse and discuss the exhibition process as a whole.

Course Contents

Exhibition as a communication medium, sensory experience and educational tool; Analysis and assessment of the different purposes of exhibitions from sender and receiver perspectives; and Production of exhibitions, Financing Exhibition.



FUD 403: Law of Contract and Arbitration**(2 Units C: LH 30)****Learning Outcomes**

At the end of this course, should be able to:

1. identify the sources of law in Nigeria including the development and operation of common law, precedent and court hierarchy, and the roles of parliament and the courts, and the role of the law of contract in particular within the Nigerian legal system;
2. analyse cases with an understanding of ratio and obiter dictum, and a knowledge of the methods that can be used to apply and distinguish cases;
3. explain some basic strategies that can be used to solve legal problems;
4. analyse and apply statutes using the appropriate methods of statutory interpretation;
5. conduct basic legal research, including by using legal databases to research case law, legislation and scholarly journal articles; and
6. discuss core legal theories.

Course Contents

Introduction to the principles of criminal and civil law. Tort and principles of agency and agent. Forms of contract. Contract with and without quantities, arbitration procedure. Duties, liabilities and relationship of employer, furniture designer, contractor. Procurement act that apply to the Federation of Nigeria. Intricacies of the law and the construction industry in Nigeria.

FUD 406: Independent Research Project and Thesis**(2 Units C: PH 90)****Learning Outcomes**

At the end of this course, the students should be able to:

1. demonstrate ability to analyse project and arrive at a solution;
2. prepare a report to the given format; and
3. communicate adequately the research findings through the production of furniture.

Course Contents

Students are required to conceive a final year project that is informed by specific demand or problem. Using design research processes, the student develops a theory and practice to realise the project. In the project individuality, experimentation and innovation are considered key characteristics to be evident.

FUD 412: Outdoor Furniture Design**(2 Units C: LH 30)****Learning Outcomes**

At the end of this course, the students should be able to:

1. identify the importance of outdoor environment and its impact on materials;
2. select appropriate materials for outdoor furniture use;
3. plan and develop aesthetically and visually appealing outdoor spaces;
4. create place identity;
5. produce different types of furniture and fittings for exterior usage; and
6. design outdoor lighting.

Course Contents

Introduction, understanding the peculiarities of the outdoor environment. Selection of materials for outdoor uses. Multifunctional spaces. Stackable/modular furniture. Foldable furniture, creative outdoor lighting, fittings. Producing furniture for outdoor uses.



FUD413: Glass Product Fabrication**(2 Units C: PH 90)****Learning Outcomes**

At the end of this course, the students should be able to:

1. identify the intrinsic properties of glass;
2. demonstrate necessary technical and safety procedure in fabrication;
3. demonstrate effective use of glass-working tools and machines;
4. produce furniture in glass combined with other matters.
5. determine major glass formers and glass structures;
6. define glass forming methods;
7. demonstrate basic rules of glass formation; and
8. deduce the structural durability of glass.

Course Contents

Introduction, chemical composition of glass the process of its formation. Development research and critical thinking skills. Effective use of visual and verbal presentation medium. Integration process on concept, human dimension requirements, technical considerations. Safety procedures in the fabrication and how to use glass in combination with other material for furniture production.

**FUD415: Furniture Design for Special Needs
180)****(6 Units C: PH 30LH****Learning Outcomes**

At the end of this course, the students should be able to:

1. identify and analyse specific group users and requirement;
2. identify materials for special need furniture; and
3. design appropriate furniture for special needs.

Course Contents

Introduction, study of furniture catering to groups with special needs (children, youth, elderly, mentally challenged, visually handicapped, physically handicapped). Design of interior layouts, presentation drawings (plans and perspectives). Detailed working drawings (plans, sectional elevations, sanitary and electrical layouts and detailing). Furniture details of spaces for groups with special needs. Cost estimation.

FUD414: Re-use of Materials for Furniture Making (2 Units C: LH 15; PH 45)**Learning Outcomes**

At the end of this course, the students should be able to:

1. identify sources of waste materials for furniture production;
2. identify the benefits of reusing and recycling; and
3. explore strategies of furniture with re-useable materials.

Course Contents

Crafts making using reusable or recycled items. Reuse of old materials from scrap yard such as: plastics, glass, wood, metal and non – metal.



Minimum Academic Standard Equipment

To achieve the benchmark standards for any programme, there should be:

- i. A minimum number of well-equipped laboratories for each programme that meet the minimum space standards for the particular programme,
- ii. Well-equipped drawing and design studios in accordance with the recommended space requirements.

Power Tools

1. Dust Evacuation System
2. 3hp Table Saw
3. Sliding Compound Mitre Saw
4. Drills – 2 battery and one corded
5. Random Orbital Sander
6. Handheld Belt Sander
7. Thickness Planer
8. Benchtop Drill Press
9. Plunge router with router table attachments/accessories
10. Biscuit cutter
11. Benchtop Oscillating Spindle Sander
12. Benchtop Stationary Belt and Disc Sander
13. Scroll Saw
14. Circular Saw
15. Jig Saw
16. Jointer
17. Air compressor
18. Band Saw

Hand Tools

1. Quick Clamps
2. Pipe clamps
3. Bar clamps
4. Hand screw clamps
5. Kreg clamps
6. Screwdrivers
7. Chisel: 1-1/4" and a 1/4" mainly
8. Basic mechanics hand tools (box wrenches, pliers, Allen wrenches, ratchet and sockets and many others).
9. Centre punch
10. Hammer
11. Rubber Mallet
12. Hand saw
13. Backsaw
14. Bench Plane and Block Plane
15. Combination square
16. 3" Machinist square
17. Dial indicator
18. Digital caliper
19. 6" ruler
20. 20" ruler
21. 36" ruler
22. 6' steel ruler
23. Circle Stencils



24. Tape measurer
25. 36" level
26. Small level
27. Round, flat, and triangle wood files
28. Utility knives
29. Spokeshave

Jigs: Store-bought and Shop-made

1. Kreg pocket hole jig
2. Kreg pin-hole jig
3. Kreg Drawer Installation jig
4. Miter sled for the table saw
5. Crosscutting sled for the table saw
6. Dovetailing jig for the table saw
7. Straight-edge and tapering sled for the table saw
8. Tall auxiliary fence for the table saw
9. Tenoning jig for the table saw
10. Panel glue-up and clamping jigs
11. Picture frame clamping jig
12. Plane blade and chisel sharpening jig, and a wet stone
13. Drawer pull and knob installation jig
14. Wood shaving jig (for runners and inlay)
15. Mortising jig for the router

Work Benches and Cabinets

1. Main centre workbench with power-strip, quick-clamp hangers, and drawers
2. Tool hutch – cabinet style with large drawers
3. Heavy, solid, butcher-block style workbench/board support for the mitre saw bench
4. Mitre saw workbench with drawers
5. Hanging cabinet for glues, stains, finishes and many others.
6. Plywood-scrap vertical storage-rack on wheels
7. Torsion-box assembly table with retractable wheels – same height as the table saw; doubles as infeed table for large plywood cuts

Other Essentials

1. Zero clearance throat plate for the table saw
2. Stacked dado blade set for the table saw
3. Flush trim, straight, spiral, chamfer, round-over, bead, and cove bits for my router
4. Sanding attachment for my drill press
5. Countersink, Forstner, spade, brad points, and all standard bits for the drill press
6. A good handheld sanding block
7. Brad nailer
8. Finish nailer
9. Paint and finish sprayer

Staffing

The qualification and experience of lecturers is an essential element of the quality of Furniture designers. In order for lecturers in architecture to guide the students towards quality education, it is necessary for them to have close contact with professional practice. The recommended minimum academic staff-student ratio is 1:15. The academic staff should be made up of:

- i. Graduate Assistant
- ii. Assistant Lecturer
- iii. Lecturer II



- iv. Lecturer I
- v. Senior Lecturer
- vi. Reader (Associate Professor)
- vii. Professor

Academic Support Personnel

Teaching Assistant/Demonstrators are recommended to assist lecturers in the conduct of tutorials, practical and fieldwork.

Administrative Support Personnel

The services of the administrative support staff are indispensable in the proper administration of the departments and faculty offices. These will normally include confidential secretaries, clerical officers, typists, messengers and cleaners. It is important to recruit very competent senior personnel who are technology savvy.

Technical Support Personnel

The technical support personnel shall consist of technical officers and technologists. It is important to recruit very competent senior technical staff to maintain teaching and research equipment.

Library and information Resources

Each Faculty/School should be provided with well-equipped library and information technology centre with computers and Internet connectivity and quick reference books, periodicals, journals and audio-visual materials. Such library and information resources will be in addition to the University central library facilities.

Item No.	Departmental Resource Room	Quantity
1.	Desktop Computers System	4
2.	HP LaserJet	1
3.	Journals	Current editions
4.	Resource/ reference books	Current editions

Classroom space, Laboratories, Workshops, Studios, Offices.

Item	Space	Use	Minimum (m ²)
	Professors Office	Academic	24
	Head of Department	Administration	24
	Senior Lecturer	Academic	20
	Lecturer	Academic	16
	Assistant lecturer	Academic	12
	Senior Technical Staff	Technical	12
	Senior Administrative Staff	Administration	12
	Junior Technical Staff	Technical	9
	Junior Administrative Staff	Administration	9
	Studio Space	Students	1.5 per student



Item	Space	Use	Minimum (m²)
	Lecturer Space	Students	0.5 per student
	Seminar Space	Students	0.5 per student
	Laboratory Space	Students	2 per student
	Library	Students	2 per student
	Social Space	Students	0.5 per student
	Storage Space	Students	0.5 per student

Workshops

1. A Large wood workshop 12m by 18m
2. A Large Painting workshop
3. A Large Metal and welding workshop
4. A Large Glass and plastic workshop.



B.Sc. Interior Architecture and Design

Overview

The Bachelor of Science (B.Sc.) in Interior Architecture and Design is a four-year programme aimed at producing professionals who are equipped with the skills necessary for the enhancement and optimization of human interaction and experience of space through the development safe, functional and aesthetically pleasing indoor environments that meet the requirements for various human activities. The programme is based on a sound philosophy that emphasizes the combination of arts and science through theoretical and practical means. It emphasizes equipping the students with the necessary 21st century skills thereby enhancing their employability. This is further enhanced with the introduction of unique features such as local Nigerian content, and exposure to best practices in the profession as well as knowledge and skills necessary for self-employment and job creation.

The admission and graduation requirements list two modes of entry into the programme are: Unified Tertiary Matriculation Examinations (UTME), Direct Entry (DE). In order to graduate, the student must have earned a stipulated minimum credit based on their entry level.

The global course structure section contains the list of compulsory courses which all institutions running the interior architecture and design programme must offer. This comprises of core courses (IAD courses), Faculty courses (FAA), General Studies courses (GST) and Entrepreneurship courses (ENT). This is followed by the Learning Outcomes and content of each of the courses. The final section of the document stipulates the minimum standards for office and learning space provision, list of equipment, and staff requirement necessary for the efficient delivery of the curriculum.

Philosophy

The training of Interior Architecture and Design practitioners should be holistic and embrace elements of arts and science. This can be done with cognizance to current trends and future directions, through theoretical and practical means for the creation of indoor environments that meet the functional and aesthetic requirements for human, physical and psychological comfort. This will culminate in the production of professionals equipped with the requisite knowledge and competencies to practice under diverse conditions while promoting the cultural, intellectual, historical, social, economic and environmental context of their practice environment.

Objectives

The program will culminate in the production of practitioners who are able to:

1. apply research, cognitive and creative skills, critical thinking and innovativeness in identifying and solving interior architecture and design problems independently or collaboratively;
2. understand design principles and the tools for implementing them to develop meaningful and coherent design propositions;
3. develop design solutions with cognizance to sustainability, social and environmental responsibility;
4. communicate design ideas through physical and digital media and models as well as written and verbal communication;
5. identify gaps and opportunities in the field and translate these into successful Interior Architecture and Design business ventures;
6. write specifications and prepare cost estimates;
7. apply technical knowledge to interior construction; and



8. execute Interior Architecture and Design projects including management, leadership, finances and their organization.

Unique Features of the Programme

Key features that differentiate the Interior Architect and Design curriculum from the previous one and from similar ones in top universities across the world are:

1. the inclusion of a design studio that focuses on indigenous Nigerian culture, context and content (materials, elements and furniture), and how these can be incorporated into the design of contemporary interior spaces;
2. introduction of a new course: Business Practices/Case Studies in Interior Architecture and Design, was introduced and will be delivered online along with SIWES; and
3. prepare graduates on developing business proposals/venture for Micro, Small and Medium-Scale Enterprises (MSME), thereby preparing them to become self-employed and employers of labour.

Employability Skills

Graduates of the programme shall be equipped with the knowledge and competencies to undertake the following:

1. conduct systematic theoretical and practical investigation of problems and challenges in interior environments and proffer solutions;
2. design functional and aesthetically pleasing interior spaces;
3. present design ideas through physical and digital media and models as well as written and verbal communication;
4. produce presentation, working drawings, and details for interior design projects;
5. write specification and prepare cost estimates for projects;
6. design and construct basic interior furniture and fittings;
7. identify gaps and opportunities in the field and translate these into successful business ventures;
8. manage interior architecture and design firms and outfits; and
9. supervise interior construction projects.

21st Century Skills

Graduates of the programme will be equipped with the following 21st Century skills:

1. use of Building Information Modelling (BIM) software and digital media for the design and management of interior architecture and design projects;
2. critical thinking, problem solving, reasoning, analysis, interpretation, synthesizing information;
3. creativity, artistry, curiosity, imagination, innovation, personal expression;
4. perseverance, self-direction, planning, self-discipline, adaptability, initiative;
5. oral and written communication, public speaking and presenting, listening;
6. leadership, teamwork, collaboration, cooperation, facility in using virtual workspaces; and
7. economic and financial literacy, entrepreneurialism.

Admission and Graduation Requirements

Candidates may be admitted into the degree programmes through any of the following entry modes:

1. Unified Tertiary Matriculation Examinations (UTME)
2. Direct Entry



UTME

In addition to the UTME score, the candidate should possess five credit pass in Physics, Mathematics, English Language, and at least two other subjects from the following: Chemistry, Geography, Economics, Technical Drawing, Fine-Arts, Woodwork, Furniture Making, and Building Construction. UTME combination includes: Maths and English Language, and any two of the following: Physics, Chemistry, Geography, Economics, Technical Drawing, and Fine-Arts.

Direct Entry

Candidates who fulfil the requirements above and who have obtained G.C.E. Advanced Level /IJMB or equivalent, with passes in Mathematics and Physics or Mathematics or Physics and any other subjects listed above, NCE in relevant subject or candidates with National Diploma (ND) in Interior Architecture or Design, Architecture, Fine Arts, or Industrial Design, with Upper Credit, may be admitted into 200 Level of the programme.

Duration of Programme

The programme is for a minimum of eight (8) academic semesters for the UTME entry mode students, six (6) academic semesters for Direct Entry admission candidates.

Graduation Requirement

Total minimum credits required for graduation for students admitted through UTME is 120, while that for Direct entry 90 or 60 depending on their entry level.

Global Course Structure

100 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST111	Communication in English	2	C	15	45
GST112	Nigerian People and Culture	2	C	30	-
FAA103	Graphic Communication I	2	C	15	45
FAA104	Graphic Communication II	2	C	15	45
FAA121	Introduction To Basic Computer Applications	2	C	15	45
FAA126	Introduction to Sustainable Built Environment	2	C	30	-
IAD101	Freehand Drawing, Visualizations and Representation in Anthropometrics and Ergonomics	2	C	-	90
IAD103	Introduction to Interior Architecture and Design	2	C	30	-
IAD104	History of Interior Architecture and Design	2	C	30	-
	Total Units	18			

200 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST212	Philosophy, Logic and Human Existence	2	C	30	-
ENT211	Entrepreneurship and Innovation	2	C	15	45



FAA221	Introduction To Computer Aided Design (CAD)	2	C	30	-
IAD201	Interior Design Studio I	6	C	-	270
IAD202	Interior Design Studio II	6	C	-	270
IAD203	Theory and Fundamentals of Interior Architecture and Design	2	C	30	
IAD204	Colour Theory and Psychology of Interior Spaces	2	C	30	-
IAD206	Building Systems and Construction	2	C	30	-
IAD207	Fabrics and Soft Furnishing	2	C	30	-
	Total Units	26			

300 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST312	Peace and conflict Resolutions	2	C	30	-
ENT312	Venture Creation	2	C	15	45
FAA313	Research Methods	2	C	30	-
IAD301	Interior Design Studio III	6	C	-	270
IAD302	Student Industrial Work Experience SIWES	6	C	-	270
IAD303	Interior Materials and Construction I	2	C	30	-
IAD304	Business Practices in Interior Architecture and Design	2	C	30	-
IAD305	Furniture Design and Production	2	C	-	90
IAD307	Indoor Thermal Comfort	2	C	30	-
IAD309	Interior Lighting	2	C	30	-
IAD311	Digital Media and BIM for Interiors	2	C	30	-
	Total Units	30			

400 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
FAA484	Professional Practice	2	C	30	-
IAD401	Interior Design Studio IV	6	C	-	270
IAD402	Interior Design Studio V	6	C	-	270
IAD403	Interior Materials and Construction II	2	C	30	-
IAD404	Renovation and Reuse of Interiors	2	C	30	-
IAD405	Acoustics	2	C	30	-
IAD406	Universal and Special Needs in Interiors	2	C	30	-



IAD408	Interior Specifications and Cost Estimation	2	C	30	
IAD409	Professional Practice for Interior Architecture and Design	2	C	30	-
IAD410	Independent Research Project	2	C	-	90
	Total Units	28			

Course Contents and Learning Outcomes

100 level

GST 111: Communication in English

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this Course, students should be able to:

1. identify possible sound patterns in English language;
2. list notable language skills;
3. classify word formation processes;
4. construct simple and fairly complex sentences in English;
5. apply logical and critical reasoning skills for meaningful presentations;
6. demonstrate an appreciable level of the art of public speaking and listening; and
7. write simple and technical reports.

Course Contents

Sound patterns in English Language (vowels and consonants, phonetics and phonology). English word classes (lexical and grammatical words, definitions, forms, functions, usages, collocations). Sentences in English (types: structural and functional, simple and complex). Grammar and Usage (tense, mood, modality and concord, aspects of language use in everyday life). Logical and Critical Thinking and Reasoning Methods (Logic and Syllogism, Inductive and Deductive Argument and Reasoning Methods, Analogy, Generalisation and Explanations). Ethical considerations, Copyright Rules and Infringements. Writing Activities: (Pre-writing , Writing, Post writing, Editing and Proofreading; Brainstorming, outlining, Paragraphing, Types of writing, Summary, Essays, Letter, Curriculum Vitae, Report writing, Note making, Mechanics of writing and many others). Comprehension Strategies: (Reading and types of Reading, Comprehension Skills, 3RsQ). Information and Communication Technology in modern Language Learning. Language skills for effective communication. Major word formation processes. Writing and reading comprehension strategies. Logical and critical reasoning for meaningful presentations. Art of public speaking and listening and Report writing.

GST 112: Nigerian Peoples and Culture

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. analyse the historical foundation of the Nigerian culture and arts in pre-colonial times;
2. list and identify the major linguistic groups in Nigeria;
3. explain the gradual evolution of Nigeria as a political unit;
4. analyse the concepts of trade, economic and self-reliance status of the Nigerian peoples towards national development;
5. enumerate the challenges of the Nigerian state towards nation building;
6. analyse the role of the judiciary in upholding people's fundamental rights;
7. identify acceptable norms and values of the major ethnic groups in Nigeria; and



- list and suggest possible solutions to identifiable Nigerian environmental, moral and value problems.

Course Contents

Nigerian history, culture and art up to 1800 (Yoruba, Hausa and Igbo peoples and culture; peoples and culture of the ethnic minority groups). Nigeria under colonial rule (advent of colonial rule in Nigeria; Colonial administration of Nigeria). Evolution of Nigeria as a political unit (amalgamation of Nigeria in 1914. Formation of political parties in Nigeria. Nationalist movement and struggle for independence). Nigeria and challenges of nation building (military intervention in Nigerian politics; Nigerian Civil War). Concept of trade and economics of self-reliance (indigenous trade and market system; indigenous apprenticeship system among Nigeria people; trade, skill acquisition and self-reliance). Social justices and national development (law definition and classification. Judiciary and fundamental rights; Individual, norms and values (basic Nigeria norms and values, patterns of citizenship acquisition; citizenship and civic responsibilities; indigenous languages, usage and development; negative attitudes and conducts. Cultism, kidnapping and other related social vices). Re-orientation, moral and national values (The 3R's – Reconstruction, Rehabilitation and Re-orientation; Re-orientation Strategies: Operation Feed the Nation (OFN), Green Revolution, Austerity Measures, War Against Indiscipline (WAI), War Against Indiscipline and Corruption(WAIC), Mass Mobilization for Self-Reliance, Social Justice and Economic Recovery (MAMSER), National Orientation Agency (NOA) as well as Current socio-political and cultural developments in Nigeria.

FAA 103: Graphics Communication I

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

- identify and use various draughting materials and instruments: paper cards, folios, sketch books; pencils (hard, soft and coloured), felt pens, technical pens, crayons; brushes and paints; dry transfer lettering, textures, tones and colours; rules, templates and compasses; drawing boards and drawing sets;
- identify and construct/create the following visual elements: points, lines, shapes, planes, forms, textures and colours; in various media to create various effects;
- construct simple visual images using the principles of proportion, balance, harmony and contrast, pattern, movement and rhythm, style;
- create 2 dimensional drawings of plan section and elevations from basic geometric forms;
- produce perspective drawings of simple geometric forms;
- identify and draw various forms of lettering; and
- compose renderings of simple objects in various media.

Course Contents

Drawing tools. Drawing materials. The representation of common views. Graphic presentation using various media. Sketching for design development. Descriptive geometry. Orthographic projections of simple and complex geometric solids. Isometric, axonometric. Oblique and perspective views and lettering.

FAA 104: Graphics Communication II

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the student should be able to:

- represent building elements and materials;
- interpret building graphics convections on architectural drawings;



3. reproduce architectural drawings of plans, sections and elevations;
4. create basic floor plans, sections and elevations;
5. identify and use scales and properly drawn-out design- floor plans, sections elevations;
6. construct orthogonal projections of plans;
7. create axonometric and perspective views using advanced techniques in perspective drawings;
8. construct and prepare shades and shadows; and
9. prepare rendered presentation drawings using lines, tones and colour.

Course Contents

Uses of graphics in architecture. Graphic thinking and building representation. Representation of building elements and materials. Representations of building elements and materials in plans. Representations of building elements and materials in elevations and sections. Projection techniques for shade and shadow construction. 3-Dimensional drawings of building exteriors. 3-Dimensional drawings of building interiors. Oblique drawings. Isometric drawings. Axonometric drawings. Perspective drawings and rendering.

FAA 121: Introduction to Basic Computer Applications (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of the course, students should be able to:

1. discuss the development and types of computers;
2. identify the electronic principles behind the operation of computers;
3. identify, discuss and use basic hardware and software computer components;
4. perform basic installation, programming and file management tasks;
5. use word processing software in the production of their papers;
6. apply graphics software for simple design tasks;
7. use excel spreadsheet for basic computational works; and
8. create slides and use power-point for presentations.

Course Contents

Development of the computer, computer components and operations. Development and types of computers. Basic electronic principles. Navigation hardware peripheral/plugins devices. Computing environment - windows operating system. Software - types, license, installation, elementary programming. Documents – creation, converting and file management. Basic processes and software for the preparation and presentation of works. Commonly used applications such as word processors and their operations - page setup, margins, headers and footers, page numbers, page breaks, viewing and navigation, writing and formatting, lists, tables, graphics, tracking, table of contents and references. Excel spreadsheet; power-point; graphics software such as paint and CorelDraw. Navigating the internet, web browsers and search engines, on-line resources.

FAA 126: Introduction to Sustainable Built Environment (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define sustainability, and sustainable built environment;
2. identify and explain associated concepts with sustainable built form;
3. describe how what sustainable infrastructure is;
4. demonstrate an understanding of values and societal importance of the built environment, and the influence on a sustainable development;
5. conduct a simple environmental assessment;



6. define climate change and discuss how it influences the built environment; and
7. demonstrate the usefulness of environmental impact assessments as a tool for design, construction and management of a sustainable built environment.

Course Contents

Definition of sustainability. Definition of sustainable environment. Definitions of concepts associated with sustainability e.g. climate change. The built environment and sustainable built environment. Sustainable infrastructure (buildings, structures, plants and networks for communication and transport, water and wastewater treatment, production and distribution of energy). Relations between infrastructure and sustainable development. Sustainable regulations and standards. Indicators of sustainability. Consequences of climate change on the built environment. Vulnerability and safety of infrastructure. Materials and technology for construction and management. Service life and life cycle assessments.

IAD101: Freehand Drawing, Visualization and Representation in Anthropometrics and Ergonomics (2 Units C: PH 90)

Learning Outcomes

At the end of this course, students should be able to:

1. produce sketches of still life, figures, and compositions in space;
2. translate ideas and concepts of interior spaces into sketches;
3. demonstrate analytical and expressive fluency in the language of the mark;
4. demonstrate creative problem-solving skills through imaginative compositions;
5. identify the physical proportions of the human body;
6. recognise physical, cognitive and organizational issues in ergonomics;
7. illustrate the relationship between human proportions, activity, and space requirement; and
8. relate the physical proportions and dimensions of the human body to furniture and equipment design.

Course Contents

Varying approaches to freehand drawing; still life drawing; figure drawing. Vitality, empathy and movement. Positive and negative space. Edges and contours. Effects of light and shadow; proportion; detail observation; geometrical figures; pieces of furniture. Decorative features to be incorporated as elements in interior spaces: (cornice, ornamented pillars, carved chair). Elevation of rooms;(one and two-point perspective of interiors).Three dimensional sketches. Reduction and enlargement of drawings. Exploration of various media. Anthropometry; Ergonomics models - physical, cognitive and organisational. Methods of measurement; physical dimensions of human body as a working machine. Human body as a system of levers. Identification and analysis of posture; anthropometric data. Space requirements; design of furniture, equipment and tools according to consumer ergonomics; Workspaces and circulation; and Arrangement and clearance.

IAD103: Introduction to Interior Architecture and Design (2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. recognize the role of the interior architect/designer in the society;
2. define the scope of the interior architecture and design profession;
3. describe the fundamental elements of interior design; and
4. review the interior design process.



Course Contents

Meaning and scope of interior architecture and design. Role of interior architects. Historical roots. Interior architecture as a profession. Professional organizations; principles of interior architecture. Space planning. Materials and elements; furniture, fabric and textiles. Lighting and acoustics; Colour. Art and accessories. Human factors; Working methods; Systems; and Professional practice.

IAD104: History of Interior Architecture and Design (2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe and trace the roots of the interior architecture and design profession;
2. distinguish the key characteristics and elements of various historical periods in interior architecture and design; and
3. identify the contributions of various historical styles in art and architecture to contemporary interior architecture and design.

Course Contents

Historical development of artefacts. Changes in technology and production systems. Impact on life style and interiors. Interiors in: ancient world, classical interiors, middle ages, romanesque and gothic, early Christian and renaissance period, islamic interiors, neoclassic period, victorian designs. The Art and craft movement, romanticism, art nouveau, and eclecticism, art-deco, cubism, modern movement, late modernism and deconstructivism, and post modern interiors.

200 Level

GST 212: Philosophy, Logic and Human Existence (2 Units C: LH 30)

Learning Outcomes

A student who has successfully gone through this course should be able to:

1. know the basic features of philosophy as an academic discipline;
2. identify the main branches of philosophy & the centrality of logic in philosophical discourse;
3. know the elementary rules of reasoning;
4. distinguish between valid and invalid arguments;
5. think critically and assess arguments in texts, conversations and day-to-day discussions;
6. critically assess the rationality or otherwise of human conduct under different existential conditions;
7. develop the capacity to extrapolate and deploy expertise in logic to other areas of knowledge, and
8. guide his or her actions, using the knowledge and expertise acquired in philosophy and logic.

Course Contents

Scope of philosophy; notions, meanings, branches and problems of philosophy. Logic as an indispensable tool of philosophy. Elements of syllogism, symbolic logic— the first nine rules of inference. Informal fallacies, laws of thought, nature of arguments. Valid and invalid arguments, logic of form and logic of content — deduction, induction and inferences. Creative and critical thinking. Impact of philosophy on human existence. Philosophy and politics, philosophy and human conduct, philosophy and religion, philosophy and human values, philosophy and character molding.



ENT 211: Entrepreneurship and Innovation

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. explain the concepts and theories of entrepreneurship, intrapreneurship, opportunity seeking, new value creation, and risk taking;
2. state the characteristics of an entrepreneur;
3. analyse the importance of micro and small businesses in wealth creation, employment, and financial independence;
4. engage in entrepreneurial thinking;
5. identify key elements in innovation;
6. describe stages in enterprise formation, partnership and networking including business planning;
7. describe contemporary entrepreneurial issues in Nigeria, Africa and the rest of the world; and
8. state the basic principles of e-commerce.

Course Contents

Concept of Entrepreneurship (Entrepreneurship, Intrapreneurship/Corporate Entrepreneurship); Theories, Rationale and relevance of Entrepreneurship (Schumpeterian and other perspectives, Risk-Taking, Necessity and opportunity-based entrepreneurship and Creative destruction); Characteristics of Entrepreneurs (Opportunity seeker, Risk taker, Natural and Nurtured, Problem solver and change agent, Innovator and creative thinker); Entrepreneurial thinking (Critical thinking, Reflective thinking, and Creative thinking); Innovation (Concept of innovation, Dimensions of innovation, Change and innovation, Knowledge and innovation); Enterprise formation, partnership and networking (Basics of Business Plan, Forms of business ownership, Business registration and Forming alliances and joint ventures); Contemporary Entrepreneurship Issues (Knowledge, Skills and Technology, Intellectual property, Virtual office, Networking); Entrepreneurship in Nigeria (Biography of inspirational Entrepreneurs, Youth and women entrepreneurship, Entrepreneurship support institutions, Youth enterprise networks and Environmental and cultural barriers to entrepreneurship); and Basic principles of e-commerce.

FAA 221: Introduction to Computer-Aided Design

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate mastery of basic concepts of the AutoCAD software;
2. apply basic concepts to develop construction (drawing) techniques;
3. ability to manipulate drawings through editing and plotting techniques;
4. make geometric construction;
5. produce template drawings;
6. produce 2D orthographic projections; and
7. demonstrate skills in dimensioning concepts and techniques, section and auxiliary views.



Course Contents

Use of modern CAD software to produce two-dimensional drawings for architectural design. Coordinating systems, proper dimensioning, use of sectioning and projections for visualization, symbol libraries, file management, and collaborative techniques. Basic principles of Computer Aided Design (CAD).

IAD201: Interior Design Studio I

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, students should be able to:

1. discuss the key spaces and activities in residential buildings;
2. identify the key functional and aesthetic requirements for residential interiors;
3. analyse user needs in residential buildings; and
4. develop conceptual design and working drawings for residential building interiors.

Course Contents

Study of residential interior function and aesthetic requirements. Analysis of client-specific requirements. Schedule of accommodation and space requirements. Current trends plan and furniture arrangement for different rooms. Sections and elevations. Illustrations of furniture; Soft furnishings. Colour palettes. Perspectives. Construction details. Materials and finishes. Model making.

IAD202: Interior Design Studio II

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, students should be able to:

1. classify commercial spaces and discuss the activities that take place within them;
2. identify the key functional and aesthetic requirements for commercial interiors;
3. analyse user needs in commercial spaces; and
4. develop conceptual design and working drawings for commercial interiors.

Course Contents

Dynamics of commercial space planning and design. Building analysis. Program analysis. Space planning. Lighting design. Colour scheme. Finishes. Furniture, fittings and accessories. Current trends. Sections and elevations. Illustrations of furniture. Perspectives. Construction details. Materials and finishes. Model making.

IAD203: Theory and Fundamentals of Interior Architecture and Design (2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe the key theoretical underpinnings of interior architecture and design;
2. identify the key principles of interior design; and
3. apply interior architecture and design theories and principles in their works.

Course Contents

Design definition and types (structural and decorative). Elements of design. Dot, line, shape, plane, space, form. Design principles. Contrast and harmony. Figure- Ground relationship and grouping of figures. Elements by spatial tension and likeness basis. Unity in diversity or variety. Balance. Movement. Proportion or scale. Rhythm. Dominance or subordination. Symmetry and asymmetry. Transformation. Chance. Module. Idea, concept and reflexivity. Light: characteristics and classification. Colours and perspective.



IAD204: Colour Theory and Psychology of Interior Spaces (2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. identify the fundamental concepts of environmental psychology;
2. discuss the key psychological factors that are relevance to interior spaces;
3. demonstrate knowledge of the effect of different interior space configurations on the psychology of users
4. recognise various colours and their hues, values and intensities;
5. describe the behaviour and interrelations between light and colour in interior spaces;
6. appraise the relationship between colour choices and social and psychological well-being of interior space users; and
7. apply colour theories and principles in interior design projects.

Course Contents

Fundamental concepts of psychology. Processes of human behaviour. Perception. Cognition. Conceptual systems. Spatial behaviour. Proxemics. Social space planning and group living. Social space planning and group living psychological principles in colour and form design. Crowding. Territoriality. Attitudes relative to personal space. Personality and definition of space and privacy.

Colour principles. Light and colour interrelationships. Perception; effects of colour on human social and psychological condition. Properties of colour. Value. Intensity. The colour wheel. Harmony; balance; proportion; rhythm; emphasis. Effect of colour on texture; and Applications of Colour on interior elements.

IAD206: Building Systems and Construction

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe the major structural and non-structural building elements;
2. identify the principal materials used in building construction and discuss their properties; and
3. identify the construction methods of the key building components and elements.

Course Contents

Introduction to various constructed assemblies. Structural elements. Non-structural elements. Construction of structural elements: columns, beams, floors, walls, door and window openings, stairs, ceilings and roof. Principal construction materials. Concrete and steel.

IAD207: Fabrics and Soft Furnishing

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. identify, classify and differentiate fabrics used in interiors based on their functional and aesthetic properties;
2. apply fabrics appropriately for interior design schemes; and
3. design and produce various soft furnishing items.



Course Contents

Origin and sources of fabrics. Types of fabrics. Properties of fabrics. Functional and aesthetic requirements. Selection criteria. Style and flair. Types of soft furnishing. Design of soft furnishings. Production of soft furnishing items, rugs, curtains, bedding, decorative textiles.

300 Level

GST 312: Peace and Conflict Resolutions

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. analyse the concepts of peace, conflict and security;
2. list major forms, types and root causes of conflict and violence;
3. differentiate between conflict and terrorism;
4. enumerate security and peace building strategies; and
5. describe roles of international organisations, media and traditional institutions in peace building.

Course Contents

Concepts of Peace, Conflict and Security in a multi-ethnic nation. Types and Theories of Conflicts: Ethnic, Religious, Economic, Geo-political Conflicts. Structural Conflict Theory, Realist Theory of Conflict, Frustration-Aggression Conflict Theory. Root causes of Conflict and Violence in Africa: Indigene and settlers Phenomenon. Boundaries/boarder disputes; Political disputes. Ethnic disputes and rivalries. Economic Inequalities. Social disputes. Nationalist Movements and Agitations. Selected Conflict Case Studies – Tiv-Junkun; Zango Kataf, Chieftaincy and Land disputes and many others. Peace Building, Management of Conflicts and Security: Peace and Human Development. Approaches to Peace and Conflict Management - (Religious, Government, Community Leaders and many others). Elements of Peace Studies and Conflict Resolution. Conflict dynamics assessment Scales. Constructive and Destructive. Justice and Legal framework. Concepts of Social Justice. The Nigeria Legal System. Insurgency and Terrorism; Peace Mediation and Peace Keeping. Peace and Security Council (International, National and Local levels) Agents of Conflict resolution – Conventions, Treaties Community Policing. Evolution and Imperatives. Alternative Dispute Resolution, ADR: A). Dialogue b). Arbitration, c). Negotiation d). Collaboration and many others. Roles of International Organizations in Conflict Resolution: (a). The United Nations, UN and its Conflict Resolution Organs. (b). The African Union & Peace Security Council (c). ECOWAS in Peace Keeping. Media and Traditional Institutions in Peace Building. Managing Post-Conflict Situations/Crisis: Refugees. Internally Displaced Persons, IDPs and the role of NGOs in Post-Conflict Situations/Crisis.

ENT 312: Venture Creation

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students, through case study and practical approaches, should be able to:

1. describe the key steps in venture creation;
2. spot opportunities in problems and in high potential sectors regardless of geographical location;
3. state how original products, ideas, and concepts are developed;
4. develop business concept for further incubation or pitching for funding;
5. identify key sources of entrepreneurial finance;
6. implement the requirements for establishing and managing micro and small enterprises;
7. conduct entrepreneurial marketing and e-commerce;



8. apply a wide variety of emerging technological solutions to entrepreneurship; and
9. appreciate why ventures fail due to lack of planning and poor implementation.

Course Contents

Opportunity Identification (Sources of business opportunities in Nigeria. Environmental scanning. Demand and supply gap/unmet needs/market gaps/Market Research. Unutilised resources. Social and climate conditions and Technology adoption gap). New business development (business planning, market research). Entrepreneurial Finance (Venture capital, Equity finance, Micro finance, Personal savings, Small business investment organizations and Business plan competition). Entrepreneurial marketing and e-commerce (Principles of marketing, Customer Acquisition and Retention, B2B, C2C and B2C models of e-commerce, First Mover Advantage, E-commerce business models and Successful E-Commerce Companies,). Small Business Management/Family Business. Leadership and Management, Basic book keeping, Nature of family business and Family Business Growth Model. Negotiation and Business communication (Strategy and tactics of negotiation/bargaining, Traditional and modern business communication methods). Opportunity Discovery Demonstrations (Business idea generation presentations, Business idea Contest, Brainstorming sessions, Idea pitching). Technological Solutions (The Concept of Market/Customer Solution, Customer Solution and Emerging Technologies, Business Applications of New Technologies - Artificial Intelligence (AI), Virtual/Mixed Reality (VR), Internet of Things (IoTs), Blockchain, Cloud Computing, Renewable Energy, Digital Business and E-Commerce Strategies).

FAA 313: Research Methods

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define research;
2. discuss the characteristics of research;
3. describe the various research designs and identify the tools of research;
4. discuss the various methods of data collection and simple analysis;
5. discuss the basic principles of referencing and use referencing software; and
6. draft the outline of a thesis report.

Course Contents

Research in general. Meaning and definition of research. Why we do research. Identifying researchable problems. Formulating research topics. Types and classification of research; Reviewing literature. Research design – survey, case study and experimental, variables of study. Methods and procedures for data collection. Instruments of data collection. Population and sampling. Data presentation. Descriptive and statistical data analysis and report writing.

IAD301: Interior Design Studio III

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, students should be able to:

1. apply socio-cultural and environmental sustainability principles in the design of hospitality environments;
2. translate tourism brand identity into interior design concept;
3. interpret and translate existing codes and star ratings into interior design; and
4. produce working drawings and details for interior of hospitality environments.



Course Contents

The studio focuses on design of interiors for the hospitality industry. This is explored through the development of schemes for hotels, resorts and restaurant projects. Students are exposed to the diverse functional, aesthetic and contextual issues relating to hospitality environments and how to arbitrate these in design. This includes sustainability requirements, brand identity, themes and grading and rating.

IAD302: Students Industrial Work Experience Scheme (SIWES) (6 Units C: PH 270)

Work experience aims to:

1. build self awareness, especially students strengths and abilities;
2. build self confidence;
3. identify skills and competencies required in the workplace; and
4. identify job apprenticeship opportunities.

Course Contents

This placement is undertaken in the second semester of year 3. The placement should generally be of at least 24 weeks duration and should involve full-time work within the placement organisation. Students are responsible for their travel, accommodation, and general living expense while undertaking a placement. Employability skills which will be learned will include: communication, teamwork, problem solving, self-management, planning and organizing, technology, learning, initiative and enterprise.

IAD303: Interior Materials and Construction I

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. identify key interior building elements;
2. produce construction drawings and details of the elements;
3. identify the materials used in their construction;
4. describe their construction process; and
5. construct simple interior building elements.

Course Contents

Standard interior building elements, materials, details and construction processes (elements include raised floors, platforms, partitions, non-load-bearing columns, arches, ceilings, stairs, openings and fittings). Properties, sizes and forms and availability of concrete, plaster of Paris, timber, glass, fibre-glass, metals, in market. Methods of working with metals, fixing and joinery in ferrous metal, finishing and treatment to metals. Different types of proprietary materials- commercial and technical names, sizes, cutting.

IAD304: Business Practices in Interior Architecture and Design (2 Units C: PH 90)

Learning Outcomes

At the end of this course, students should be able to:

1. discuss best practices in interior design businesses;
2. identify niches and demands for the interior architecture and design product;
3. develop proposals for innovative interior design products;
4. conduct feasibility studies and competitor analysis; and
5. produce a proposal for an interior design business venture.



Course Contents

Small and medium scale enterprises in the field of interior architecture and design. Case studies and industry analysis best practices. Definition of business identity, business proposals, mode of practice, feasibility studies, market survey, strategic planning and competitor analysis, niche creation. New and emerging issues in interior architecture and design.

IAD305: Furniture Design and Production

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, students should be able to:

1. design furniture that are reflective of current trends both locally and globally;
2. design and produce innovative and flexible space-saving furniture;
3. apply computer software in the development of furniture prototypes;
4. produce metal components and mouldings for furniture; and
5. apply fabric and decorative elements to furniture.

Course Contents

Furniture design and production. Innovative furniture design and solutions (issue of style taste, innovative solutions, flexibility, adaptability, convertibility and space-saving furniture). Computer-based studies of furniture and object designs. Development and prototyping of design ideas and joinery detailing. Materials and processes (such as, material manipulation, machine processes, injection moulding, investment casting, sheet metal work, die casting, blow- moulding, vacuum – forming. Fabric and upholstery. Decorative elements.

IAD307: Indoor Thermal Comfort

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe the process of heat transfer from the outdoor into interior spaces;
2. discuss the thermal performance of building components;
3. propose appropriate design features and details to enhance indoor thermal comfort;
4. apply appropriate materials to modulate heat transfer in buildings; and
5. propose appropriate mechanical aids to enhance thermal comfort in interior spaces.

Course Contents

Thermal environment and the relationships between climates. Outdoor environmental factors and indoor thermal comfort. Differences between tropical and temperate climates and climatic zones for architectural design in Nigeria and their implications to interior thermal conditions. Topics discussed include: Climatic conditions, thermal comfort, thermal performance of building materials and components, heat transfer mechanisms, passive cooling and heating strategies and an introduction to Heating, Ventilation, Air-conditioning and Cooling (HVAC) systems.

IAD309: Interior Lighting

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. discuss the nature and properties of light;
2. describe the effect of lighting on human psychology and visual comfort;
3. conduct an audit of lighting conditions in interior spaces;
4. relate lighting design to colour and texture of interior surfaces; and



5. propose appropriate natural and artificial lighting design for various activities in interior spaces.

Course Contents

Properties, perception and psychology of light and visual comfort. Technical knowledge required for natural and artificial lighting design for interior environments. Admittance and control of natural light, light sources. Effects of light on colours of different surfaces, lighting requirements for various activities. Cultural and social aspects of lighting, quantity and quality of illumination, types and lighting fixtures. Lighting systems for complex interior spaces such as theatres and museums.

IAD311: Digital Media and BIM for Interiors

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. produce 3D presentations on interior architecture and design projects;
2. apply virtual reality and motion media techniques for their presentations;
3. employ diverse digital communication formats for the presentation of form and space; and
4. deploy BIM tools for documentation and management of various components of a project.

Course Contents

Use of visualization and three-dimensional (3D) design-based software, (focusing on their applications in interiors, and introduces students to motion media techniques and execution of virtual reality). Building Information Modelling (BIM) techniques. Design tools, documentation, and management of a project (workflow strategies associated with current software technology).

400 Level

FAA 484: Professional Practice

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the student should be able to:

1. demonstrate knowledge of the scope of professional practice;
2. demonstrate knowledge of the stages of a project procurement; from client engagement, design and documentation, tendering work, superintendence and construction administration through to post-construction;
3. demonstrate knowledge of the ethical obligations of the architect to client, other architects and profession;
4. identify available procurement methods and demonstrate knowledge of the selection process for appropriately qualified contractors in accordance with the procurement method and project contract;
5. discuss career paths in architecture; and
6. prepare a simple procurement plan.

Course Contents

Practice architecture globally and in Nigeria. Ethical practice. Character and operation of firms. Running the business of architecture. Professional memberships and registration in Nigeria. Professional memberships and registration in other regions of the world. Project procurement process. contracts and contract administration. Alternative and innovative pathways through the profession. Career planning in architecture. Procurement act and professional practice.



IAD401: Interior Design Studio III

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, students should be able to:

1. identify key features and elements of interior architecture and design across the ages;
2. design interiors that are reflective of different styles and periods in history; and
3. produce working drawings and details of interior features and decorative elements reflective of these periods.

Course Contents

This studio focuses on architectural styles/periods and how these can be reflected in the interior architecture of buildings. Students are exposed to design interiors that are reflective of different styles and periods such as: Classical, Modern, Postmodern, Ecological, and Digital/High-tech/Intelligent.

IAD402: Interior Design Studio IV

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, students should be able to:

1. illustrate key characteristics and concepts of interior space in various indigenous Nigerian cultures;
2. identify key features of these cultures that can be employed for interior space design;
3. design innovative interiors that are reflective of selected Nigerian cultures; and
4. produce working drawings and details of interior features and decorative elements of their design.

Course Contents

This studio focuses on development of interior architecture themes, concepts and design which are reflective of various cultures in Nigeria. These include the exploration of local materials, elements, furniture ornaments, and decorations to develop unique interiors that meet the functional and aesthetic requirements and are of international standard.

IAD 403: Interior Materials and Construction II

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. identify finishes, ornaments and decorations used for building interiors;
2. produce details for interior finishes, ornaments and decorations;
3. discuss the various types of movable furniture and decorations used in interior design;
4. discuss the materials used for interior finishes, ornaments and decorations; and
5. produce specifications for interior finishes.

Course Contents

Finishes, ornaments and decorative aspects of interiors. Details, materials and methods for achieving workmanship. Understanding of the functional aspects of interior materials. Sustainable, intelligent and emerging materials and technology in interior design.



IAD404: Renovation and Reuse of Interiors

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe the processes involved in conservation and renovation of building interiors;
2. conduct damage assessment for both historical, cultural and contemporary interiors;
3. produce the relevant documents for the renovation of interior spaces; and
4. apply appropriate techniques for the re-functioning and redesign of interior spaces.

Course Contents

Renovation, conservation, damage assessment and restoration techniques for interior spaces. Re-functioning and redesign of interior spaces of contemporary, historical and culturally valued buildings. Relations of old and new interiors. Interior design as a facilitator for change of use, (through the concept of retrofitting, renovate and restore interior spaces while maintaining their original physical and psychological characteristics.

IAD405: Acoustics

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. discuss the principles and behaviour of sound in interior spaces;
2. investigate acoustic condition within interior spaces;
3. propose design interventions for proper acoustics in interior spaces; and
4. apply appropriate materials to achieve desired acoustic conditions.

Course Contents

Basic principles of sound transmission and behaviour within buildings. Physiological and psychological experience of sound in interior spaces. Performance metrics, and design strategies to design and modify the building fabric to enhance the acoustics. Noise control and protection, propagation of sound, noise reflection and absorption, space form and materials.

IAD406: Universal and Special Needs in Interiors

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe the key principles and considerations of universal design;
2. identify the features that relate to the needs of each category of people with special needs; and
3. apply appropriate universal design features in the design of interiors based on the differing special needs of users.

Course Contents

Basic principles and considerations involved in the design of interiors for people with special needs,(children, youth, elderly, mentally challenged, autistic, visually handicapped, and physically handicapped). Barrier-free environments. Universal design principles and the need for inclusiveness.



IAD408: Interior Specifications and Cost Estimation (2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe the purpose and principles of specification writing and cost estimation;
2. describe the materials used in interior design projects using the appropriate vocabulary;
3. identify the quality of workmanship for each item;
4. determine the quantity of materials and required labour; and
5. determine the cost of materials, labour and management required.

Course Contents

Fundamentals of specification writing and cost estimation. Cost; (price of materials, labour or wages, instruments and management costs). Aspects of specification writing; (including principles, purposes and uses, detailed description, types and quality of materials to be used, methods of installation and quality of workmanship).

IAD409: Professional Practice for Interior Architecture and Design (2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe the structure of interior architecture and design firms and outfits;
2. define the role of allied professionals and stakeholders in interior architecture and design projects;
3. prepare financial documents and calculate professional fees for projects;
4. prepare tendering and contract documents for projects; and
5. prepare project reports.

Course Contents

This course focuses on standard practices and procedures of the interior architecture and design profession. It discusses allied professions, differences in business formations, ethics, management strategies, job descriptions, legal issues, financial management, fee structures, promotional activities preparation of design contracts, marketing, relationships with trade sources, tendering and contract administration, and career options.

IAD410: Independent Research Project (2 Units C: PH 90)

Learning Outcomes

At the end of this course, students should be able to:

1. identify gaps in knowledge in the field of interior architecture and design;
2. develop research proposals;
3. conduct research using methods appropriate to interior architecture and design; and
4. prepare report of a project using appropriate technical report writing guidelines.

Course Contents

The primary purpose of the independent study is to expose the student to practices and procedures for investigating various phenomena in interior architecture and design. It enables students to focus on their own interests, collect the requisite data, analyse it, and appropriately report this. This is conducted under the supervision of an academic staff and presented before a panel.



Minimum Academic Standard

Equipment

Classroom Equipment

Chairs and tables for students

Chairs and tables for lecturer

Smart board

Waste bins

Studio Equipment

Drawing boards

Stools/chairs

White boards

Smart boards

Table and chair for instructor

Waste bins

Laboratory (ICT/BIM/Digital Media) Equipment

Smart boards

Work stations at the minimum ratio of 1 computer to every 4 full time students.

Control station: a set of control work stations to control access and usage of the work stations

Software such as AutoCAD, Adobe Photoshop, Sketchup, 3D MAX Cinema-4D, Revit, Lightscape/ V-Ray

Server(s)

Switch

UPS systems/power backup

Power voltage regulators/stabilizers

Air conditioning

Internet connectivity

Reprographics Centre

Heavy duty photocopiers

A3 colour printers

A3 scanners

Large format (A0) plotters

3D printer

Workshop (Furniture/Model-Making) Equipment

Metal tables 1.00x1.00m or 1.00x2.00m

Workshops stools

Table and chair for instructor

Metal shelves for models

Metal cabinets for tools and equipment

Bench vice/clamps

G-Clamps

Cutters for cardboard and plastics, for straight or circular cutting

Variety of saws for wood and plastics

Planes

Manual and electric drills

Lathe machine

Electric blower

Light carpentry tools: Light hammer, Keys different shapes and sizes, pliers, iron rulers, wood carving tools (different sizes)

Sanding, smoothing and polishing materials

Desktop computers

Laser cutting machine



3D printer
 White board
 Waste bins
 Fire extinguisher
 First aid box
 Office Equipment
 Table and chair
 Shelve
 Personal Computers

Staffing

Academic Staff

The qualification and experience of lecturers is an essential element of the quality of interior architecture and design education. For the lecturers to guide students towards quality education, close contact is necessary. Therefore, the recommended minimum academic staff-student ratio is 1:15.

The academic staff should be made up of:

- i. Graduate Assistant
- ii. Assistant Lecturer
- iii. Lecturer II
- iv. Lecturer I
- v. Senior Lecturer
- vi. Reader (Associate Professor)
- vii. Professor

Academic Support Personnel

Teaching Assistant/Demonstrators are recommended to assist lecturers in the conduct of tutorials, practical and fieldwork.

Administrative Support Personnel

The services of the administrative support staff are indispensable in the proper administration of the departments and faculty offices. These will normally include confidential secretaries, clerical officers, typists, messengers and cleaners. It is important to recruit very competent senior personnel who are technology savvy.

Technical Support Personnel

The technical support personnel shall consist of technical officers and technologists. It is important to recruit very competent senior technical staff to maintain teaching and research equipment.

Library and Information Resources

A library/resource centre should be provided for the programme or at faculty level for quick reference. This should be stocked with reference materials and current journal and periodicals relevant to the programme. Internet access and electronic materials are strongly recommended for the library.

Item No.	Departmental Resource Room	Quantity
1.	Desktop Computers System	4
2.	HP LaserJet	1
3.	Journals	Current editions



4.	Resource/ reference books	Current editions
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Classrooms, Laboratories, Workshops, Studios, Offices.

Item	Space	Use	Minimum (m ²)
	Professors Office	Academic	24
	Head of Department	Administration	24
	Senior Lecturer	Academic	20
	Lecturer	Academic	16
	Assistant lecturer	Academic	12
	Senior Technical Staff	Technical	12
	Senior Administrative Staff	Administration	12
	Junior Technical Staff	Technical	9
	Junior Administrative Staff	Administration	9
	Studio Space	Students	1.5 per student
	Lecture Space	Students	0.5per student
	Seminar Space	Students	0.5per student
	Laboratory Space	Students	2 per student
	Library	Students	2 per student
	Social Space	Students	0.5 per student
	Storage Space	Students	0.5 per student



B.Sc. Landscape Architecture

Overview

Landscape Architecture is the art and science of planning, designing and management of urban outdoor spaces with the goal that man and nature are in perfect harmony. Landscape Architecture is founded on an awareness of man's deep connections to the natural world and the recognition that humans are part of the web of life. Therefore, man is entitled to live within the confines of a healthy and well-tended environment, whether natural or man-made. 21st Century landscape architects situate human experience in spaces to evolve productive places through art, science and technology in ecologically sustainable, economically forthright and socially equitable communities. This is achieved through absolute reliance on integrating human cultural processes into contextual ecological processes at site, city, metropolis and regional scales for holistic growth of the people generationally. According to International Labour Office (ILO) "landscape architect plans, designs landscapes and open spaces for projects such as parks, schools, institutions, roads, external areas for commercial, industrial and residential sites, and plan and monitor their construction, maintenance, management and rehabilitation. Other tasks include:

1. Developing new or improved theories and methods and providing advice on policy related to landscape architecture;
2. Compiling and analysing site and community data about geographical and ecological features, landforms, soils, vegetation, site hydrology, visual characteristics and human-made structures, to formulate land use and development recommendations, feasibility studies and environmental impact statements;
3. Monitoring construction or rehabilitation work to ensure compliance with specifications and quality standards; maintaining technical liaison and consultancy with other relevant specialists" (International Labour Organization, 2012).

Landscape architecture demands knowledge of ecology, geography, social sciences, urban design, urban planning, art, architecture, engineering and computer-based graphics to enhance harmonious relationship between human and natural processes. Graduates of landscape architecture create job opportunities in private sector. They are retained as regulators in Government ministries and agencies and form the core of environment based Non- Governmental Organizations (NGO).

Philosophy

The philosophy of the course is hinged on the use of natural, social and economic capitals to design eco-friendly human landscapes through environmental knowledge base and professionalism. The educational process is open to diverse motivational windows for broad base intellectually inclined graduates competent in environmental solutions that will drive desired high quality of life. Opportunities are available for collaboration with students in other cognate fields including Building Architecture, Urban Architecture, Interior Architecture, Environmental Engineering, Geo-informatics, Urban and Regional Planning, Creative arts, Renewable Energy, Construction Material Development, Forestry and Agriculture departments.

Objectives

The broad objective of the course is to produce professional landscape architects that are driven by knowledge of ecosystems in providing design solutions which are locally contextual and globally responsive to our landscapes. The specific objectives include to:

1. prepare students with knowledge and skills that are performance driven for the purpose of assuming broader responsibilities in the planning and design of Nigerian landscapes;



2. propose knowledge and skills required for the understanding and practical analysis of problems related to both urban and rural Nigerian landscapes;
3. produce landscape architects who are capable of applying appropriate problem-solving principles and techniques to the enhancement of Nigerian landscapes; and
4. produce interested individuals with the necessary competencies and skills to function effectively as academics in landscape architectural studies.

Unique Features of the Programme

unique features of this programme are based on:

1. geosopic perspective in collaborative decision making. Geosophy explores the wisdom local people adopted over time and space in living harmoniously with all members of bioregion;
2. exploration of bottom –top design and planning option to creating place conscious inclusive Nigerian communities;
3. production of job creation professionals with the capacity to explore eco-enterprises in meeting livelihood needs of the people;
4. the use of information technology in data gathering, analysis and synthesis towards harmonious environmental conceptualization; and
5. aesthetic and functionality of urban interstitial spaces and create cultural and environment resilient human settlements. This is done through bottom – top design and planning options to creating place conscious inclusive Nigerian communities.

Employability Skills

1. the landscape architectural curriculum is built on knowledge economy and development of highly skilled experts that venerate technological innovation;
2. the introduction of unique landscape architectural entrepreneurship course in the third year is to inject the spirit of private investment early in the career of the graduates;
3. graduates of this programme are motivated to excel in private sector either as entrepreneurs or consultants to solve myriads of environmental challenges confronting Nigeria; and
4. they are also trained to be committed landscape design and planning regulators at the four level Government structure including Federal, State, Local Government and City level.

21st Century Skills

1. critical thinking, problem solving, reasoning, analysis, interpretation, synthesizing information;
2. research skills and practices, interrogative questioning;
3. creativity, artistry, curiosity, imagination, innovation, personal expression;
4. leadership, teamwork, collaboration, cooperation, facility in using virtual workspaces; and
5. environmental and conservation literacy, ecosystems understanding.

Admission and Graduation Requirements

UTME

1. In addition to UTME score, a Candidate seeking admission into the Department of Landscape Architecture at 100 level should obtain credits at the School Certificate or GCE Ordinary level at not more than two sittings in the following subjects: English Language, Mathematics, Physics and Geography and two other credits from Biology or Agriculture Science, Economics, Chemistry, Fine Art or Technical Drawing.
2. UTME subjects include: English Language, Mathematics, Geography and any one of these subjects: - Chemistry, Physics, and Economics. Biology or Fine Art.



Direct Admissions

Five SSC credit passes two of which must be in advanced level. (ND) Certificate in Architecture, Urban and Regional Planning, Fine Arts, Horticulture and Forestry at Upper Credits level (Mathematics, Physics/Geography, Biology and Visual Arts) may be considered for direct entry into 200 level. (Fine Arts or Technical Drawing may not be required at this level).

Duration of Courses:

The duration of the courses is either three years (six semesters) or four years (eight semesters) depending on the stipulated entry qualifications.

Graduation Requirements

The duration of Landscape Architecture training is four years. Graduates are expected to prove the mastery of landscape architecture profession through design projects, thesis, media communication and people centred entrepreneurial knowledge.

UTME Students

For a UTME student to graduate in B.Sc. (Hons.) Landscape Architecture programme, the student must take and pass a minimum of 120 units including all compulsory courses.

Direct Entry Students

For a student to graduate in B.Sc. (Hons.) Landscape Architecture programme, the student must take and pass a minimum of 90 units including all compulsory courses.

Global Course Structure

100 Level

Course Code	Course Title	Credit Unit	Course Status	LH	PH
GST 111	Communication in English	2	C	15	45
GST 112	Nigerian Peoples and Culture	2	C	30	-
FAA 103	Graphic Communication I	2	C	-	90
FAA 104	Graphic Communication II	2	C	30	-
FAA 121	Introduction to Basic Computer Applications	2	C	15	45
FAA 126	Introduction to Sustainable Built Environment	2	C	30	-
LAA 101	Introduction to Landscape Architecture	2	C	30	-
LAA 104	Interface of Human Ecosystems and Ecology	2	C	30	-
	Total Units	16			



200 Level

Course Code	Course Title	Credit Unit	Course Status	LH	PH
GST 212	Philosophy, Logic and Human Existence	2	C	30	-
ENT 211	Entrepreneurship and Innovation	2	C	15	45
FAA 221	Introduction to Computer Aided Design (CAD)	2	C	15	45
GEO 204	Introduction to Remote Sensing and GIS	2	C	30	-
LAA 201	Landscape Architecture Studio I	6	C	-	270
LAA 202	Landscape Architecture Studio II	6	C	-	270
LAA 203	Map Reading and Aerial Photo Interpretation	2	C	30	-
LAA 205	History of Landscape Architecture I	2	C	15	45
LAA 206	History of Landscape Architecture II	2	C	30	-
LAA 208	Plant Materials and design I	2	C	30	-
LAA 210	Landscape Architecture Theory	2	C	30	-
LAA 222	Computer Aided Design (CAD)	2	C	15	45
LAA 235	Introduction to Structures I	2	C	30	-
LAA 237	Landscape Components and Methods I	2	C	15	45
	Total Units	36			

300 Level

Course Code	Course Title	Credit Unit	Course Status	LH	PH
GST 312	Peace and conflict Resolutions	2	C	30	-
ENT 312	Venture Creation	2	C	15	45
FAA 313	Research Methods	2	C	30	-
GEO 308	Remote sensing and Geographical Information System I	2	C	30	-
LAA 301	Landscape Architecture Studio III	6	C	-	270
LAA303	Landscape Construction I	2	C	15	45
LAA 315	Tourism Planning and Development	2	C	30	-
LAA 382	Students Industrial Work Experience Scheme (SIWES)	6	C	-	270
LAA 381	Independent Landscape Architecture Entrepreneurship	2	C	-	90
	Total Units	26			



400 Level

Course Code	Course Title	Credit Unit	Course Status	LH	PH
FAA484	Professional Practice	2	C	30	-
LAA 401	Landscape Architecture Studio IV	6	C	-	270
LAA 402	Landscape Architecture Studio V	6	C	-	270
LAA 403	Landscape Construction II.	2	C	15	45
LAA 405	Historic/Heritage Landscapes Preservation	2	C	30	-
LAA408	Landscape Construction Drawings & Specification	2	C	15	45
LAA 414	Independent Landscape Research Project	2	C	30	-
LAA424	Landscape Cost Estimating	2	C	30	-
	Total Units	24			

Course Contents and Learning Outcomes

100 Level

GST 111: Communication in English

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this Course, students should be able to:

1. identify possible sound patterns in English language;
2. list notable language skills;
3. classify word formation processes;
4. construct simple and fairly complex sentences in English;
5. apply logical and critical reasoning skills for meaningful presentations;
6. demonstrate an appreciable level of the art of public speaking and listening; and
7. write simple and technical reports.

Course Contents

Sound patterns in English Language (vowels and consonants, phonetics and phonology). English word classes (lexical and grammatical words, definitions, forms, functions, usages, collocations). Sentences in English (types: structural and functional, simple and complex). Grammar and Usage (tense, mood, modality and concord, aspects of language use in everyday life). Logical and Critical Thinking and Reasoning Methods (Logic and Syllogism, Inductive and Deductive Argument and Reasoning Methods, Analogy, Generalisation and Explanations). Ethical considerations, Copyright Rules and Infringements. Writing Activities: (Pre-writing , Writing, Post writing, Editing and Proofreading; Brainstorming, outlining, Paragraphing, Types of writing, Summary, Essays, Letter, Curriculum Vitae, Report writing, Note making, Mechanics of writing). Comprehension Strategies: (Reading and types of Reading, Comprehension Skills, 3RsQ). Information and Communication Technology in modern Language Learning. Language skills for effective communication. Major word formation processes. Writing and reading comprehension strategies. Logical and critical reasoning for meaningful presentations. Art of public speaking and listening and Report writing.

GST 112: Nigerian Peoples and Culture

(2 Units C: LH 30)



Learning Outcomes

At the end of this course, students should be able to:

1. analyse the historical foundation of the Nigerian culture and arts in pre-colonial times;
2. list and identify the major linguistic groups in Nigeria;
3. explain the gradual evolution of Nigeria as a political unit;
4. analyse the concepts of trade, economic and self-reliance status of the Nigerian peoples towards national development;
5. enumerate the challenges of the Nigerian state towards nation building;
6. analyse the role of the judiciary in upholding people's fundamental rights;
7. identify acceptable norms and values of the major ethnic groups in Nigeria; and
8. list and suggest possible solutions to identifiable Nigerian environmental, moral and value problems.

Course Contents

Nigerian history, culture and art up to 1800 (Yoruba, Hausa and Igbo peoples and culture; peoples and culture of the ethnic minority groups). Nigeria under colonial rule (advent of colonial rule in Nigeria; Colonial administration of Nigeria). Evolution of Nigeria as a political unit (amalgamation of Nigeria in 1914. Formation of political parties in Nigeria. Nationalist movement and struggle for independence). Nigeria and challenges of nation building (military intervention in Nigerian politics; Nigerian Civil War). Concept of trade and economics of self-reliance (indigenous trade and market system; indigenous apprenticeship system among Nigeria people; trade, skill acquisition and self-reliance). Social justices and national development (law definition and classification. Judiciary and fundamental rights; Individual, norms and values (basic Nigeria norms and values, patterns of citizenship acquisition; citizenship and civic responsibilities; indigenous languages, usage and development; negative attitudes and conducts. Cultism, kidnapping and other related social vices). Re-orientation, moral and national values (The 3R's – Reconstruction, Rehabilitation and Re-orientation; Re-orientation Strategies: Operation Feed the Nation (OFN), Green Revolution, Austerity Measures, War Against Indiscipline (WAI), War Against Indiscipline and Corruption(WAIC), Mass Mobilization for Self-Reliance, Social Justice and Economic Recovery (MAMSER), National Orientation Agency (NOA) as well as Current socio-political and cultural developments in Nigeria.

FAA 103: GraphicsCommunication

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and use various draughting materials and instruments: paper cards, folios, sketch books; pencils (hard, soft and coloured), felt pens, technical pens, crayons; brushes and paints; dry transfer lettering, textures, tones and colours; rules, templates and compasses; drawing boards and drawing sets;
2. identify and construct/create the following visual elements: points, lines, shapes, planes, forms, textures and colours; in various media to create various effects;
3. construct simple visual images using the principles of proportion, balance, harmony and contrast, pattern, movement and rhythm, style;
4. create 2 dimensional drawings of plan section and elevations from basic geometric forms;
5. produce perspective drawings of simple geometric forms;
6. identify and draw various forms of lettering; and
7. compose renderings of simple objects in various media.

Course Contents



Drawing tools. Drawing materials. The representation of common views. Graphic presentation using various media. Sketching for design development. Descriptive geometry. Orthographic projections of simple and complex geometric solids. Isometric, axonometric. Oblique and perspective views and lettering.

FAA 104: Graphics Communication II

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the student should be able to:

1. represent building elements and materials;
2. interpret building graphics conceptions on architectural drawings;
3. reproduce architectural drawings of plans, sections and elevations;
4. create basic floor plans, sections and elevations;
5. identify and use scales and properly drawn-out design- floor plans, sections elevations;
6. construct orthogonal projections of plans;
7. create axonometric and perspective views using advanced techniques in perspective drawings;
8. construct and prepare shades and shadows; and
9. prepare rendered presentation drawings using lines, tones and colour.

Course Contents

Uses of graphics in architecture. Graphic thinking and building representation. Representation of building elements and materials. Representations of building elements and materials in plans. Representations of building elements and materials in elevations and sections. Projection techniques for shade and shadow construction. 3-Dimensional drawings of building exteriors. 3-Dimensional drawings of building interiors. Oblique drawings. Isometric drawings. Axonometric drawings. Perspective drawings and rendering.

FAA 121: Introduction to Basic Computer Applications (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of the course, students should be able to:

1. discuss the development and types of computers;
2. explain the electronic principles behind the operation of computers;
3. identify, discuss and use basic hardware and software computer components;
4. perform basic installation, programming and file management tasks;
5. use word processing software in the production of their papers;
6. apply graphics software for simple design tasks;
7. use excel spreadsheet for basic computational works; and
8. create slides and use power-point for presentations.

Course Contents

Development of the computer, computer components and operations. Development and types of computers. Basic electronic principles. Navigation hardware peripheral/plugins devices. Computing environment - windows operating system. Software - types, license, installation, elementary programming. Documents – creation, converting and file management. Basic processes and software for the preparation and presentation of works. Commonly used applications such as word processors and their operations - page setup, margins, headers and footers, page numbers, page breaks, viewing and navigation, writing and formatting, lists, tables, graphics, tracking, table of contents and references. Excel spreadsheet; power-point; graphics software such as paint and CorelDraw. Navigating the internet, web browsers and search engines, on-line resources.



FAA 126: Introduction to Sustainable Built Environment (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define sustainability, and sustainable built environment;
2. identify and explain associated concepts with sustainable built form;
3. explain how what sustainable infrastructure is;
4. demonstrate an understanding of values and societal importance of the built environment, and the influence on a sustainable development;
5. conduct a simple environmental assessment;
6. define climate change and discuss how it influences the built environment; and
7. demonstrate the usefulness of environmental impact assessments as a tool for design, construction and management of a sustainable built environment.

Course Contents

Definition of sustainability. Definition of sustainable environment. Definitions of concepts associated with sustainability e.g. climate change. The built environment and sustainable built environment. Sustainable infrastructure (buildings, structures, plants and networks for communication and transport, water and wastewater treatment, production and distribution of energy). Relations between infrastructure and sustainable development. Sustainable regulations and standards. Indicators of sustainability. Consequences of climate change on the built environment. Vulnerability and safety of infrastructure. Materials and technology for construction and management. Service life and life cycle assessments.

LAA101: Introduction to Landscape Architecture (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate knowledge of the components of landscape architecture;
2. recognize the constituents of landscapes including, landforms, vegetation, hydrology and structure that are manipulated in designs to meet the needs of a people; and
3. produce in a creative, imaginative and visual sensitivity natural environmental design and planning.

Course Contents

Roles of the landscape architect in the building industry. Roles in ecological restoration. Design aims. Design tools. Drawings and the various graphic communication media and reproduction materials. Various practitioners in landscape architecture. Drawing Equipment and instruments. Drawing paper sizes and their dimensions e.g. A0, A1, A2, A3, A4. Lines, letterings and dimensioning. Technical Drawing: Division of line; Construction of squares, rectangles, triangles circles ellipse and polygons. Orthographic projection: Plan elevations and sections of objects, isometric, oblique, axonometric projections and perspectives; Studio experiences and lectures in proportion, shape, rhythm visual quality of materials; and three-dimensional composition.



LAA104: Interface of Human Ecosystems and Ecology (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the student should be able to:

1. describe how man fits his cultural system into contextual ecosystem which influences productivity of the later;
2. identify nature's developmental order as foundation for societal developmental economics;
3. determine prime position of harmonious relationship between man and nature;
4. identify the interdependence of man and environment as a working system;
5. identify the characteristics of different eco types; and
6. describe the concept of natural succession as a foundation for ecological design.

200 Level

GST 212: Philosophy, Logic and Human Existence (2 Units C: LH 30)

Learning Outcomes

A student who has successfully gone through this course should be able to:

1. know the basic features of philosophy as an academic discipline;
2. identify the main branches of philosophy & the centrality of logic in philosophical discourse;
3. know the elementary rules of reasoning;
4. distinguish between valid and invalid arguments;
5. think critically and assess arguments in texts, conversations and day-to-day discussions;
6. critically assess the rationality or otherwise of human conduct under different existential conditions;
7. develop the capacity to extrapolate and deploy expertise in logic to other areas of knowledge, and
8. guide his or her actions, using the knowledge and expertise acquired in philosophy and logic.

Course Contents

Scope of philosophy; notions, meanings, branches and problems of philosophy. Logic as an indispensable tool of philosophy. Elements of syllogism, symbolic logic— the first nine rules of inference. Informal fallacies, laws of thought, nature of arguments. Valid and invalid arguments, logic of form and logic of content — deduction, induction and inferences. Creative and critical thinking. Impact of philosophy on human existence. Philosophy and politics, philosophy and human conduct, philosophy and religion, philosophy and human values, philosophy and character molding.

ENT 211: Entrepreneurship and Innovation (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. explain the concepts and theories of entrepreneurship, intrapreneurship, opportunity seeking, new value creation, and risk taking;
2. state the characteristics of an entrepreneur;
3. analyse the importance of micro and small businesses in wealth creation, employment, and financial independence;
4. engage in entrepreneurial thinking;
5. identify key elements in innovation;
6. describe stages in enterprise formation, partnership and networking including business planning;



7. describe contemporary entrepreneurial issues in Nigeria, Africa and the rest of the world; and
8. state the basic principles of e-commerce.

Course Contents

Concept of Entrepreneurship (Entrepreneurship, Intrapreneurship/Corporate Entrepreneurship). Theories, Rationale and relevance of Entrepreneurship (Schumpeterian and other perspectives, Risk-Taking, Necessity and opportunity-based entrepreneurship and Creative destruction). Characteristics of Entrepreneurs (Opportunity seeker, Risk taker, Natural and Nurtured, Problem solver and change agent, Innovator and creative thinker). Entrepreneurial thinking (Critical thinking, Reflective thinking, and Creative thinking). Innovation (Concept of innovation, Dimensions of innovation, Change and innovation, Knowledge and innovation). Enterprise formation, partnership and networking (Basics of Business Plan, Forms of business ownership, Business registration and Forming alliances and joint ventures); Contemporary Entrepreneurship Issues (Knowledge, Skills and Technology, Intellectual property, Virtual office, Networking); Entrepreneurship in Nigeria (Biography of inspirational Entrepreneurs, Youth and women entrepreneurship, Entrepreneurship support institutions, Youth enterprise networks and Environmental and cultural barriers to entrepreneurship) and Basic principles of e-commerce.

FAA 221: Introduction to Computer-Aided Design

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate mastery of basic concepts of the AutoCAD software;
2. apply basic concepts to develop construction (drawing) techniques;
3. ability to manipulate drawings through editing and plotting techniques;
4. make geometric construction;
5. produce template drawings;
6. produce 2D orthographic projections; and
7. demonstrate skills in dimensioning concepts and techniques, section and auxiliary views.

Course Contents

Use of modern CAD software to produce two-dimensional drawings for architectural design. Coordinating systems, proper dimensioning, use of sectioning and projections for visualization, symbol libraries, file management, and collaborative techniques. Basic principles of Computer Aided Design (CAD).

GEO 204: Introduction to Remote Sensing and GIS

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, the students should be able to:

1. discuss the history of remote sensing;
2. learn fundamental principles of remote sensing;
3. use applications of remote sensing to problem solving;
4. describe the history of geographic information system;
5. know the linkage between remote sensing and GIS;
6. apply satellite image processing and interpretation; and
7. applications of GIS to problem solving.



Course Contents

Fundamentals of Remote Sensing (Definition, History of Remote Sensing, components of Remote Sensing, electromagnetic radiation). Remote Sensing Process; Relationship between remote sensing and Geographic information system; Applications of remote sensing. Key contents include Remote Sensing systems, Imageries across the spectrum, Image Acquisition, Image Restoration and Enhancement, Image Processing and Interpretations, Image Storage and Retrieval Formats; Applications in Agriculture. Environmental Resources Management; Monitoring and Change detection. Urban planning and Landscape Architecture.

LAA 201: Landscape Architecture Studio I

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. appraise the importance of site analysis with environmental suitability studies in community planning;
2. demonstrate how to depend on demography in infrastructure provision;
3. identify standards for landscape design; and
4. apply the use of landscape element in land use and technical report writing.

Course Contents

Community planning and design on intermediate urban scale. Focus on neighbourhood planning. Components of services, recreation, and circulation within and without. Theory behind suitability studies and subdivision in residential landscapes. Environmental and vulnerability studies. Requirements for state government approval including building plan and design. Residential open space and garden design. Spatial configuration and use of the residential spaces. Site Inventory. Case studies. Principles behind design. Transportation and parking schemes. Services including drainage configuration. Public furniture. Power lines. Neighbourhood recreation and open space requirement influenced by population. Technical Report Writing.

LAA 202: Landscape Architecture Studio II

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, students would have been able to:

1. analyse landscape design planning schemes;
2. identify design component of landscaping; and
3. produce a schematic landscape design and planning language in productive land use technical report writing.

Course Contents

A build up from studio II dealing with a major land use problem, its study, analysis and design solutions again displaying relevant skills and requisite standards for approval. Focus may be on Civic complexes, Office complexes relative to plazas, University master plan, and industrial parks, export processing zones with related transport requirements and problems analysis and planning. Site Inventory. Case studies; Principles behind design. Transportation and parking schemes. Services including drainage configuration. Public furniture. Power lines. Telecommunication as well as Technical Report Writing.



LAA 203: Introductions to Map Reading and Aerial Photo Interpretation(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students would be able to:

1. demonstrate the art of contour interpretation;
2. organize drainage networks and drainage basin mapping; and
3. propose a watershed planning and management scheme.

Course Contents

Analysis of various geographical features on topographic and small scale maps. Morphometric. Drainage System. Analysis of man-made features. Small scale topographical map generation; includes basic elements of aerial photo interpretation. Elements geometry. Recognition of features on photographs. Simple map compilation from photographs. Application to landscape reading. Map reading in landscape planning.

LAA 205: History of Landscape Architecture

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students would have learned and be able to:

1. discuss philosophies, principles that influenced open space design and planning in various dispensations;
2. identify the political, economic, social and religious functions of these spaces on time and space; and
3. describe the relationship between natural and cultural landscapes and system.

Course Contents

Introduction to the history of garden design from prehistory to the present,(western world and Oriental nations planning and design precedent). Study of the early settlements from Summerians, Egyptians, Persian, Greek, Roman cities. Study of settlements in the medieval period, Renaissance, Baroque, Mercantile and Islamic cities, Modernism, Postmodernism. Relating the philosophical art or ornamentation to open spaces in each culture and era. Prominent artists, designers and political figures in landscape architecture.

LAA 206: History of Landscape Architecture II

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe worldview and approach to urban open space establishment and use for the diverse nations that constitute Nigeria;
2. identify the influence of western open spaces planning on landscape design in Nigeria; and
3. describe the history of open spaces with emphasis on traditional Nigerian settlement.

Course Contents

A survey of traditional architecture and open spaces planning in Nigeria,(with emphasis on spatial design appropriate to the culture of the people and available technology). Philosophy of pre-colonial indigenous urban open spaces. Open Spaces and world view. World view root in mythology. History of western open spaces in Nigeria (with emphasis on the establishment, failure and contemporary policies). Victorian garden in Nigeria. Modernism, post modernism and clash of civilization. Degradation of western open spaces in Nigeria the 21st Century Construct.



LAA 208: Plant Materials I

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. identify values that influence the choices of urban plant species;
2. identify the importance of ecosystem restoration; and
3. develop skills in plant production including trees, shrubs, ground covers and tuft grasses.

Course Contents

Study of plant materials and their uses in landscape design and plant classification (emphasis is placed on plant identification). Visual character, ecological values, plant heritage values and conceptual attitudes behind their usage, totem species, native plants in ecosystem restoration. Development of skills in arrangement of plants in various landscape design project. Planting design (with emphasis on orientation, arrangement and human needs).

LAA 210: Landscape Theory

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. apply landscape design and planning principle to environmental sustainability;
2. apply theories that will enhance design standards in landscape Architecture; and
3. develop approaches to planning management and design solutions that will transform socio-ecological systems.

Course Contents

Relevant theoretical discourse in landscape architecture and urban design. Urban theory, social and cultural theory. Environmental philosophy and environmental aesthetics. Intelligent design philosophy. Introduction of figure-ground and place theory. Driving bio-centric philosophies. Mimesis, bio mimicry, biophilia, biomorphism, geosophy. Sustainable development theoretical frame works in landscape architecture for climate change amelioration. Sustainable urban drainage system.

LAA 222: Computer Aided Design (CAD) II - Applications in Landscape Architecture **(2 Units C: LH 15; PH 45)**

Learning Outcomes

At the end of this course, the student should be able to:

1. produce a model of a small building within a residential landscape setting;
2. produce 3D sketches, working drawings and a rendered view with materials and lighting; and
3. describe the interconnectivity of internal building Architectural spatial conceptualization and external residential spaces on a 3D platform.

Course Contents

Modelling techniques of solids, surfaces & regions. Introduction to Boolean operations. Construction of a designed landscape model consisting of buildings. Structures and geomorphology. Modification tools like 3D align 3D rotate to model objects. Creation of isometric drawings together with the different 2D views. Rendering of outdoor environment.



LAA 235: Landscape Structures I

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify prime position of structural stability in resilient landscape works that entails roads, bridges, soft and hard engineering;
2. demonstrate good understanding of design detailing, and an appreciation of the significance of associated construction methods and technical specifications; and
3. deploy computer software in the analysis of structural members.

Course Contents

Importance of structural stability in landscape infrastructures. General principles of structural loads. Load distribution (statically and dynamic, live, dead and wind). Historic evolution of structures. Influence of cultural, economic and resource factors. The four S's for required for landscape architectural structures: Synergy, Strength, Stiffness and Stability. Study of existing structures: synergy and load paths; Load on buildings, sculptures, play grounds and bridges; Dead - and live load, Static, Dynamic and thermal loads. Structural responses to loads. Static equilibrium as basis of analysis; strength of materials and mechanics; stress, strain, and stress-strain relations; Numeric and graphic analysis of statically determinate beams and columns. Computer analysis of statically indeterminate beams and frames and Lateral force design.

LAA 237: Landscape Components, Services and Methods (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. align mechanical and electrical services relative to the source and end points;
2. interpret mechanical and electrical services and civil engineering vocabularies and graphical representation;
3. describe basic landscape components including building foundations; properties and characteristics of retaining walls, gravity walls and drainage structures; and
4. enumerate properties and characteristics of landscape components such as building foundations; properties and characteristics of retaining walls, gravity walls, drainage structures.

Course Contents

Introduction to mechanical and electrical services in landscape architecture; (water supply and distribution, Electricity supply and distribution, Fire hydrants and fire-fighting services). Road signage. Street furniture that enhance urban legibility. Application of these services using simple design projects consisting of properly scaled drawings and appropriate symbols. Familiarization with right vocabularies and methods of assemblage and structural performance of the components. Learning the graphical representation and specification of various materials.

300 Level

GST 312: Peace and Conflict Resolutions

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. analyse the concepts of peace, conflict and security;



2. list major forms, types and root causes of conflict and violence;
3. differentiate between conflict and terrorism;
4. enumerate security and peace building strategies; and
5. describe roles of international organisations, media and traditional institutions in peace building.

Course Contents

Concepts of peace, conflict and security in a multi-ethnic nation. Types and theories of conflicts: ethnic, religious, economic, geo-political conflicts. Structural conflict theory, Realist Theory of conflict, frustration-aggression conflict theory. Root causes of conflict and violence in Africa: Indigene and settlers Phenomenon. Boundaries/border disputes; Political disputes. Ethnic disputes and rivalries. Economic inequalities. Social disputes. Nationalist movements and agitations. Selected Conflict Case Studies – Tiv-Junkun; Zango Kataf, Chieftaincy and Land disputes and many others. Peace Building, Management of Conflicts and Security: Peace and Human Development. Approaches to Peace and Conflict Management - (Religious, Government, Community Leaders and many others). Elements of Peace Studies and Conflict Resolution. Conflict dynamics assessment Scales. Constructive and Destructive. Justice and Legal framework. Concepts of Social Justice. The Nigeria Legal System. Insurgency and Terrorism; Peace Mediation and Peace Keeping. Peace and Security Council (International, National and Local levels) Agents of Conflict resolution – Conventions, Treaties Community Policing. Evolution and Imperatives. Alternative Dispute Resolution, ADR: A). Dialogue b). Arbitration, c). Negotiation d). Collaboration and many others. Roles of International Organizations in Conflict Resolution: (a). The United Nations, UN and its Conflict Resolution Organs. (b). The African Union & Peace Security Council (c). ECOWAS in Peace Keeping. Media and Traditional Institutions in Peace Building. Managing Post-Conflict Situations/Crisis: Refugees. Internally Displaced Persons, IDPs and the role of NGOs in Post-Conflict Situations/Crisis.

ENT 312: Venture Creation

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students, through case study and practical approaches, should be able to:

1. describe the key steps in venture creation;
2. spot opportunities in problems and in high potential sectors regardless of geographical location;
3. state how original products, ideas, and concepts are developed;
4. develop business concept for further incubation or pitching for funding;
5. identify key sources of entrepreneurial finance;
6. implement the requirements for establishing and managing micro and small enterprises;
7. conduct entrepreneurial marketing and e-commerce;
8. apply a wide variety of emerging technological solutions to entrepreneurship; and
9. appreciate why ventures fail due to lack of planning and poor implementation.

Course Contents

Opportunity Identification (Sources of business opportunities in Nigeria. Environmental scanning. Demand and supply gap/unmet needs/market gaps/Market Research. Unutilised resources. Social and climate conditions and Technology adoption gap). New business development (business planning, market research). Entrepreneurial Finance (Venture capital, Equity finance, Micro finance, Personal savings, Small business investment organizations and Business plan competition). Entrepreneurial marketing and e-commerce (Principles of marketing, Customer Acquisition and Retention, B2B, C2C and B2C models of e-commerce,



First Mover Advantage, E-commerce business models and Successful E-Commerce Companies,). Small Business Management/Family Business. Leadership and Management, Basic book keeping, Nature of family business and Family Business Growth Model. Negotiation and Business communication (Strategy and tactics of negotiation/bargaining, Traditional and modern business communication methods). Opportunity Discovery Demonstrations (Business idea generation presentations, Business idea Contest, Brainstorming sessions, Idea pitching). Technological Solutions (The Concept of Market/Customer Solution, Customer Solution and Emerging Technologies, Business Applications of New Technologies - Artificial Intelligence (AI), Virtual/Mixed Reality (VR), Internet of Things (IoTs), Blockchain, Cloud Computing, Renewable Energy, Digital Business and E-Commerce Strategies).

FAA 313: Research Methods

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define research;
2. discuss the characteristics of research;
3. describe the various research designs and identify the tools of research;
4. discuss the various methods of data collection and simple analysis;
5. discuss the basic principles of referencing and use Mendeley, or any other referencing software; and
6. draft the outline of a thesis report.

Course Contents

Research in general. Meaning and definition of research. Why we do research. Identifying researchable problems. Formulating research topics. Types and classification of research; Reviewing literature. Research design – survey, case study and experimental, variables of study. Methods and procedures for data collection. Instruments of data collection. Population and sampling. Data presentation. Descriptive and statistical data analysis and report writing.

GEO 308: Remote sensing and Geographical Information System I (2 Units C: LH 30)

Learning Outcomes

At the end of the course, student should be able to:

1. appreciate the significance of geographic information system in addressing complex spatial problems;
2. know how to input data, analyse and interpret data, undertake modelling of various scenarios; and
3. incorporate man made design in geo referenced ecosystem.

Course Contents

Introduction to remote sensing. Elements of remote sensing system. Techniques of remote sensing. Interpretation and analysis of Visual and Digital imageries. Remote sensing application. Integration of remote sensing and GIS in landscape architecture research. Case studies. GIS and the information age. Capabilities of GIS. Spatial data and sources for GIS analysis. Raster and vector data. Data entry GIS analysis and modelling data issues and challenges.



LAA 301 Landscape Architecture Studio III

(6 Units C: PH 270)

Learning Outcomes

At the end of the course, student should be able to;

1. apply sustainable and efficient public reality in metropolitan open spaces system;
2. design, plan and supervise large scale city open spaces; and
3. identify norms and values that drive the use of urban open spaces and much needed design insight.

Course Contents

Design process, synthesis and design refinement programs to stimulate highly creative self-motivated results in urban open spaces. Emphasis is on urban park as core of public realm. Main landscape design projects of increased complexity with site scale problems used to demonstrate complete design thoughts in urban open spaces. Additional design principles that combine natural systems (such as landform, water, vegetation, wildlife habitat, soils, climate) and man-built systems (such as roads, buildings, utilities) demonstrating harmonious relationship with nature in urban context.

LAA 303: Landscape Construction I

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course student should be able to:

1. generate scaled site grading towards flood resilient urban Nigeria;
2. describe earth calculation in volumes and areas; and
3. generate preliminary site grading cost implication for small to medium scale urban interstitial spaces.

Course Contents

Reasons for landscape grading. Aspects of land manipulation and consideration of earth-bound elements in landscape development. Review of contour principles. Slope ratio. Grading level and paved areas. Landform grading design. Drainage principles. Cut and fill computations; Contour plan area method. Earth calculation using sections and plan meter. Basic hydraulics drafting. Drainage. Co-ordinates and layout techniques. Introduction to vehicular movement as it relates to site planning and low-speed road design. Small scale outdoor recreational area site grading exercise.

LAA 312: Landscape Architectural Entrepreneurship Scheme(2 Units C: PH 90)

Learning Outcomes

At the end of the course, the student should be able to:

1. prepare full business proposal for simple landscape architectural component design and production;
2. apply values of being job providers and financial independence; and
3. package a develop product for off and online advertisement and marketing.

Course Contents

This arouses the consciousness that nation's wealth depends on the competitiveness of its companies and capacities of the entrepreneurs. The landscape architectural entrepreneurship programme is conceptualized to motivate students towards entrepreneurial careers through exposure to successful entrepreneurial models. Students are expected to have developed interest in an entrepreneurship project idea after GST 211 (Entrepreneurship) and studio exercises. Architectural entrepreneurship project idea may originate from any of the following



sectors: Problem Solving Information Technology Services in Landscape Architecture. Augmented and virtual realities in landscape architecture. Artificial intelligence (AI) in landscape architecture; Machine learning (ML) and enhanced realities. Unmanned aerial vehicles relevant to design and planning. Parametric designs; 3D printing and fabrication. Communication and Real Estate Marketing including landscape photography, environmental simulation, architectural journalism and architectural products and services marketing. Construction materials fabrication including wood works, masonry, cladding shells, roof members, aluminium based finishes, tiles, door and window finishes. Urban furniture including play equipment, street/outdoor furniture, signage, iron works, storage devices, wall paper and painting; Arts, crafts and craftsmanship. eco enterprises units. Plant materials and design highlighting standard plant nursery and cut flower. Irrigation system vendors especially sprinkler irrigation Modular units for construction including walls, interlocking pavers. Attachment to recognized private sector entrepreneur as role model. Full business proposal submission; Presentation of product sample for grading.

LAA 315: Tourism Planning and Development

(2 Units C: LH 30)

Learning Outcomes

At the end of this course students should be able to:

1. produce the physical planning of tourism destination master plan at urban, and semi regional scale;
2. identify sustainable tourism as an alternative source of foreign exchange as crude oil economy declines; and
3. identify sustainable developmental economy for the local population.

Course Contents

Tourism from the physical planning perspective. Nature of tourism development. Essentials of tourism planning. Tourism in Nigeria. National Tourism Master Plan; Tourism destination planning – types of destination, tourism resources influencing destination types, tourism products in tourism destination. Emphasis on cultural, coastal, montane resorts; sports, adventure and ecological tourism. People centred tourism destination planning; Pro poor tourism that alleviates poverty. Tourism organization. Travel agent and developers. Developing regional or local tourism master plan.

LAA 382: Students Industrial Work Experience Scheme (SIWES) (6 Units: PH 270)

Learning Outcomes

Work experience aims to:

1. build self awareness, especially students strengths and abilities;
2. build self confidence;
3. identify skills and competencies required in the workplace; and
4. identify job apprenticeship opportunities.

Course Contents

This placement is undertaken in the second semester of year 3. The placement should generally be of at least 24 weeks duration and should involve full-time work within the placement organisation. Students are responsible for their travel, accommodation, and general living expense while undertaking a placement. Employability skills which will be learned will include: communication, teamwork, problem solving, self-management, planning and organizing, technology, learning, initiative and enterprise.



400 Level

FAA 484: Professional Practice

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate knowledge of the scope of professional practice;
2. demonstrate knowledge of the stages of a project procurement; from client engagement, design and documentation, tendering work, superintendence and construction administration through to post-construction;
3. demonstrate knowledge of the ethical obligations of the architect to client, other architects and profession;
4. identify available procurement methods and demonstrate knowledge of the selection process for appropriately qualified contractors in accordance with the procurement method and project contract;
5. discuss career paths in architecture; and
6. prepare a simple procurement plan.

LAA 401: Landscape Architecture Studio IV

(6 Units C: PH 270)

Learning Outcomes

At the end of this studio, student should be able to:

1. plan, design and develop public space at urban realm as contemporary inputs to liveable cities;
2. design processes that meets international conventions, treaties and protocols; and
3. demonstrate the values of metropolitan open space system.

Course Contents

Design and planning urban landscapes. Regeneration and revitalization of urban interstitial spaces. Integrated green infrastructure regeneration. Brown fields revitalization. Linear parks and urban rivers restoration. Metropolitan open space system. Street trees program. Historic and heritage landscapes revitalization. Scientific gardens. Productive landscapes rooted in urban food security. Chosen projects are to be supported with complete programming, planning in democracy, design, project management components specification writing. All projects conceptualized to respond to 2015 SDG 11, 2016 New Urban Agenda and 2021 UN Ecosystem Restoration goals and objectives.

LAA 402: Landscape Architecture Studio V

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to build on the knowledge gained on landscape architecture IV:

1. plan, design and develop public space at regional level as contemporary inputs to liveable cities;
2. design processes that meets international conventions, treaties and protocols; and
3. demonstrate the values of regional open space system.

Course Contents

Design and planning urban landscapes. Regeneration and revitalization of urban interstitial spaces. Integrated green infrastructure regeneration. Brown fields revitalization; Linear parks and urban rivers restoration. Metropolitan open space system. Street trees program. Historic and heritage landscapes revitalization. Scientific gardens. Productive landscapes rooted in urban food security. Chosen projects are to be supported with complete programming,



planning in democracy, design, project management components specification writing. All projects conceptualized to respond to 2015 SDG 11, 2016 New Urban Agenda and 2021 UN Ecosystem Restoration goals and objectives.

LAA 403: Landscape Construction II -

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course student should be able to:

1. generate scaled construction lay out plan with layers of vehicular and pedestrian circulation routes, site grading plan, drainage plan, mechanical and electrical plans;
2. generate detail plans for playground equipment, fountains and ponds and other site furniture; and
3. apply structural stability in the design and planning urban open spaces.

Course Contents

Understanding of hard landscape materials. Hardscapes uses. Performance in hot and humid or hot and dry tropical climates. The study of construction and engineering requirements in layouts and large-scale landscape design projects. Road design. Site drainage system. Sewage and sewerage system. Wood construction Retaining wall calculations. Construction drawings and review of construction materials; Construction document preparation, working drawings. Project layout and design. Street furniture detailing. Lighting design. Play equipment design and construction.

LAA 405: Basics of Historic/Heritage Landscapes Preservation (2 Units C: LH 30)

Learning Outcomes

At the end of this course student should be able to:

1. produce an inventory and analyse heritage resources towards the design, planning and management of historic districts for urban economic development;
2. develop people centred memorabilia enterprises; and
3. demonstrate basic understanding of the values of historic landscapes, their conservation and management

Course Contents

Introduction to historic and heritage preservation. Cultural context; historic overview of global and national heritage preservation. Constituents of heritage resources. Tangible and intangible heritage resources. Degradation of heritage resources. Heritage resources conservation process. Cultural landscapes and urban morphology. Local festivals and other celebratory events. Study of inner-city indigenous core area. Developing cultural landscapes framework. Heritage tourism and Community centred memorabilia industry in heritage tourism.

LAA 408: Landscape Construction Drawings & Specification (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of the course, the student should be able to:

1. produce detailed drawings with adequate specifications;
2. identify the techniques of preparing drawings which are used for construction; and



3. appreciate produce designs that is rooted in city codes, building codes and urban environmental performing standards.

Course Contents

Introduction to specification writing covering landscape design components. Construction details in urban code, existing Nigerian Building Code and global best practice regimes. Specifications for plans. Sections, details, notations, numberings, ratings, drafting symbols. Preparing complete sets of construction documents for architecture projects. Detailed solutions of technical, expressive, analysis and application of codes regulations, standards, material review and selection, construction detailing and documentation.

LAA 414: Independent Landscape Research Project (2 Units C: PH 90)

Learning Outcomes

At the end of the course, the students are expected to:

1. proffer solutions to Nigerian landscape challenges of global interest;
2. identify the situation of landscape design and planning within pressing treaties, protocols and charters to which the nation is a signatory; and
3. produce a project report.

Course Contents

A final year project research into a major phenomenon; may be on urban, rural and regional scales. Topics to hover around 2015 SDG, 2016 New Urban Agenda, 2063 African Cities Agenda and 2021 UN Ecological Restoration agenda. Such topics must be meaningful to final year dissertation topics. All research and analysis must be satisfactorily completed and evaluated by an internal jury to enhance student's process in LAR 402.

LAA 424: Landscape Cost Estimate (2 Units C: LH 30)

Learning Outcomes

At the end of the course, the student should be able to:

1. enumerate landscape design, cost and planning are related in the built environment industry;
2. demonstrate a good understanding of factors affecting project costs, cost controls, bid strategies, project planning and budgeting; and
3. define contract responsibilities such as preparations of valuations and payment certificates amongst others.

Course Contents

Comparative analysis of actual and estimated costs as used for project control. Factors affecting landscape design and planning costs and cost controls, bid strategies, project planning, budgeting. Factors affecting project costs. Basic principles and current practices employed in estimating project costs. Approximate costing; unit costs, overhead and profit; variations and fluctuations; final accounts procedures; cost estimating software.



Minimum Academic Standard

Equipment

Item	Studio Facilities	Minimum
1.	Studio Tables and Chairs	1 for each student
2.	White board	1 for each studio
Item	Teaching Equipment	Minimum
1.	Whiteboards	2
2.	Multimedia Sneaker	1
3.	Multimedia Projector	1
4.	Multimedia Screen	1
5.	Smart LED TV	2
6.	Digital Cameras	2
7.	Tripod stands	2
8.	World Globe	2

Item	Office Equipment/Facilities	Minimum
1.	Desktops /laptops	One for each academic/technical staff/HOD
2.	Printers	One for each academic/technical staff
3.	Photocopy machine	One for the general office
4.	Scanner	One for the general office
5.	Filing Cabinets	One for each academic/technical staff/HOD
6.	Office Chairs	One for each academic/technical/admin
7.	Office tables	One for each academic/technical/admin staff and HOD
8.	Conference room tables and chairs	One table and 30 chairs
9.	Fridge	2
10.	Electric Kettle	1
11.	Air conditioners	1 for every office including general offices
12.	Calculators	2

Item	CADD Laboratory	Quantity
1.	Multimedia Projector	1
2.	Projector Screen and stand	1
3.	Computer systems with UPS	24
4.	A0 HP Plotter	1



5.	3D modeling machine	1
6.	3D Printer	1

Item	Environmental Systems	Quantity
1.	Desktops with lighting, acoustic and climatic simulation software	4
2.	Digital Radiation Meter	2
3.	Digital Sound Level Meter	2
4.	Digital Luxmeter	2
5.	Digital Air Quality Monitor	1
6.	Multi-Thermo Thermometers	4
7.	Earth Globe	4
8.	World Map	2
9.	Scientific Information Chart	14

Item	Wood Workshop	Quantity
1.	Portable Speed Sander	1
2.	Planners	6
3.	Staple Guns	4
4.	Router tables	2
5.	Electric Drills	2
6.	Clamps	10
7.	Jig Saws	6
8.	Circular Saws	2
9.	Mitre Saws	2
10.	Masonry Tool boxes	4
11.	Electric Tool boxes	4
12.	Dovetail Saws	4
13.	Panel Saws	4
14.	Punches and Pliers	10
15.	Claw hammer and Mallet	10
16.	Wire Brush	4
17.	Electric Grinder	1
18.	Spray Machine and Gun	1
19.	Electric Angle Grinder	1



20.	Electric Vacuum Blower	2
21.	Bench Vices	10
22.	Clamps	10
23.	Work Bench	4

Staffing

The qualification and experiences of lecturers is an essential element of the quality of Landscape Architectural education. The recommended minimum academic staff-student ratio is 1:15.

- i. Graduate Assistant
- ii. Assistant Lecturer
- iii. Lecturer II
- iv. Lecturer I
- v. Senior Lecturer
- vi. Reader (Associate Professor)
- vii. Professor

Technical Support Staff

Considering the technological bias of Landscape Architecture Education, availability of adequate Technical Staff is crucial. The specialization of the technical staff may vary depending on the situation of the particular faculty. Faculties that exist within institutions or colleges where technical staff from Building Architecture, Urban and Regional Planning such as Environmental/Civil Engineering, and Ecologically inclined Departments can make input, and need not recruit technical staff in all specialization required in Landscape Architectural programs. Requisite specialization include modelling, Reprographics. Landscape Architectural, Technology, Landscape Architectural illustration, Electrical installation, Mechanical (Irrigation system). The recommended minimum technical staff-student ratio is 1:50.

Library and Information Resources

A library/resource centre should be provided for the programme or at faculty level for quick reference. This should be stocked with reference materials and current journal and periodicals relevant to the programme. Internet access and electronic materials are strongly recommended for the library.

Item No.	Departmental Resource Room	Quantity
1.	Desktop Computers System	4
2.	HP LaserJet	1
3.	Journals	Current editions
4.	Resource/ reference books	Current editions

Classrooms, Laboratories, Workshops, Studios, Offices

Item	Space	Use	Minimum (m ²)
	Professors Office	Academic	24
	Head of Department	Administration	24
	Senior Lecturer	Academic	20
	Lecturer	Academic	16



Item	Space	Use	Minimum (m²)
	Assistant lecturer	Academic	12
	Senior Technical Staff	Technical	12
	Senior Administrative Staff	Administration	12
	Junior Technical Staff	Technical	9
	Junior Administrative Staff	Administration	9
	Studio Space	Students	1.5 per student
	Lecturer Space	Students	0.5 per student
	Seminar Space	Students	0.5 per student
	Laboratory Space	Students	2 per student
	Library	Students	2 per student
	Social Space	Students	0.5 per student
	Storage Space	Students	0.5 per student



B. Sc. Naval Architecture

Overview

Naval Architecture is the science of designing marine vessels such as boats, ships and hydrofoils for tasks required by the clients. These include transport vessels such as container ships and tankers, fighting vessels such as men-of-war and submarines, support vessels such as tugboats and pleasure vessels such as yachts, cruise ships and sailing boats. Naval Architecture requires sound knowledge of mechanics, hydrostatics and hydrodynamics for movement of vessels and dock yard facilities in the marine environment. Therefore, in addition to the aesthetic design of the vessels and navigation support infrastructure, it also requires the understanding of both static and dynamic forces, strength of materials, structures, engineering economics and the impact of sea vessels on the marine environment. It also requires the understanding of ship construction materials including contemporary methods of welding, estimates and predictions of the final performance of the ship and all its parts, and of initial and operating costs. Globally, practitioners are referred to as Naval Architects and belong to professional institutions such as the Royal Institution of Naval Architects (RINA) in the UK and the Society of Naval Architects and Marine Engineers (SNAME) in the US. The umbrella body in Nigeria is the Nigerian Institution of Marine Engineers and Naval Architects (NIMENA). The commonly used nomenclatures for the degrees awarded are Bachelor of Science (B.Sc.), Bachelor of Technology (B. Tech) and Bachelor of Science (B.S.) in the United States of America. The course is gradually gaining prominence in Nigeria though most of the vessels designed and built in-country are the simple rudimentary ones such as speed boats and passenger ferries. The Nigerian Navy also builds small gunboats and escort vessels. This programme includes the design of ships, boats as well as dock yard facilities. A holder of B.Sc. in Naval Architecture has an opportunity to be involved in design, quality control, repair and construction of naval vessels and has excellent opportunities to keep abreast of advancements in ship-building technology. Thus, it is a field with a lot of potential. The programme is designed as a two-tier degree structure. The first-tier leads to the award of a Bachelor's degree in Naval Architecture, while the second-tier leads to the Master's degree. The Master's degree is recognized as minimum professional qualification.

Philosophy

The philosophy of the Naval Architecture programme is combining art and science to draw inspiration from Architectural creativity in the design of sea vessels, dock yard facilities and navigation support infrastructure. Its aim is to provide a solid understanding of the science of seafaring machines including their assembly and environmental performance.

Objectives

The Bachelor of Naval Architecture programme will produce graduates who project the richness of human cultures and advance the promotion of technology driven by and employing the finest values in style and design to be able to:

1. provide holistic professional education in Naval Architecture where the graduates are able to offer simple to complex solutions in ship design;
2. train students to understand and become aware of the social, technical and economic activities of the Nigerian Maritime Society using contemporary tools for a global outlook;
3. equip students with the ability to understand and apply the elements and principles of design and creativity';
4. attain an appreciation of Dockyard Management;
5. infuse critical thinking as well as the entrepreneurial disposition in the Naval Architecture graduates; and
6. produce graduates skilled in Naval Construction Management and in sustainability.



Unique Features of the Programme

The features are aimed at emphasizing the:

1. Nigerian context and content in Ship Design and Construction;
2. local development of ship structure using traditional materials;
3. internal waterways vessels design drawing from the local fabrication industry;
4. collaboration with other disciplines such as interior architecture to bring a distinctly Nigerian cultural flair to the interior design of vessels; and
5. advancement in academic and technological excellence within the Nigerian environment in naval architecture.

Employability Skills

1. conduct systematic theoretical and practical investigations of problems and challenges and offer design solutions;
2. communicate design ideas through physical and digital media and models as well as written and verbal channels of communication;
3. be involved in design, quality control, construction and repair of naval vessels;
4. produce detailed specification and cost estimates;
5. design and offer solutions to complex naval architecture problems including health and safety;
6. identify gaps and opportunities in the field and translate these into successful ventures;
7. supervise construction projects;
8. communicate effectively and be successful working with multidisciplinary teams; and
9. potentially create job in aquaculture, coastal tourism, marine technology and ocean energy as a new frontier for economic development in Nigeria and internationally.

21st Century Skills

Naval Architecture will afford its students the opportunity to learn 21st Century skills that will enable them to fit into and take up contemporary business and employment opportunities especially in the maritime sectors. These skills will revolve around and take advantage of digital technology and will emphasize sustainability and the preservation of the marine environment by applying green solutions to design issues.

1. competence in the use of Building Information Modelling (BIM) software and digital media and models in Ship Design;
2. critical thinking, problem solving, reasoning, analysis, interpretation, synthesizing information;
3. research skills and practices, interrogative questioning;
4. creativity, artistry, curiosity, imagination, innovation, personal expression;
5. leadership, teamwork, collaboration, cooperation, facility in using virtual workspaces;
6. information and communication technology (ICT) literacy, media and internet literacy;
7. data interpretation and analysis, computer programming; and
8. scientific literacy and reasoning, the scientific method.

Admission and Graduation Requirements

To qualify for admission into B.Sc. Naval Architecture, a prospective candidate must satisfy the minimum entrance requirements captured below:

UTME

In addition to UTME score, the candidate should have five credits passes in Senior Secondary School (SSC): Physics, Mathematics, Chemistry and, at least, two other subjects from the following: Biology, Technical Drawing, Fine Art, Geography, Economics, Building Construction and Land Surveying. The UTME subject combinations are Mathematics, Physics and any and



any of the following: Chemistry, Geography, Welding, Building Construction, Technical Drawing and Biology.

Direct Entry

Direct entry candidates will normally enrol at the 200 Level. 5 SSC credit passes, two of which must be in advanced level subjects, to include Physics and Mathematics and any science subject. The passes in the two subjects must be obtained at one sitting. In addition, they must have, at least, a pass in Higher National Diploma (HND) Architecture or Mechanical Engineering, or an ND in Quantity Surveying, Civil Engineering, or Mechanical Engineering.

Duration of Programme

The course of study is expected to last a minimum of four (4) years, spanning eight (8) academic semesters for UTME entry mode students; three (3) years, spanning six (6) academic semesters for direct entry mode students and two (2) years, spanning four (4) academic semesters for special admission students.

Graduation Requirement

Total minimum credits required for graduation is 120 and 90 for students admitted through UTME and Direct Entry admissions respectively.

Global Course Structure

100 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST 111	Communication in English	2	C	15	45
GST 112	Nigerian Peoples and Culture	2	C	30	-
MTH 101	Elementary Mathematics I	2	C	30	-
MTH 103	Elementary Mathematics III	2	C	30	-
PHY 101	General Physics I (Mechanics)	2	C	30	-
PHY 103	General Physics III (Behaviour of Matter)	2	C	30	-
GET 102	Engineering Graphics and Solid Modelling I	2	C	15	45
FAA 121	Introduction to Basic Computer Applications	2	C	15	45
FAA 126	Introduction to Sustainable Built Environment	2	C	-	30
NARC 101	Introduction to Naval Architecture	2	C	30	-
NARC 103	Fluid Mechanics, Hydrostatics and Stability	2	C	30	-
	Total	22			



200 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST 212	Philosophy, Logic and Human Existence	2	C	30	-
ENT 211	Entrepreneurship and Innovation	2	C	15	45
FAA 221	Introduction to Computer Aided Design	2	C	15	45
NARC 201	Ship Design and Drawing I	6	C	-	270
NARC 202	Ship Design and Drawing II	6	C	-	270
NARC 203	Engineering Applications for Naval Architects	2	C	30	-
NARC 205	Mechanics of Ship Structure	2	C	30	-
NARC 207	Ship Construction Materials	2	C	30	-
NARC 209	Marine Engines and Fuels	2	C	30	-
NARC 213	Ship Hydrodynamics	2	C	30	-
NARC 212	Ship Building Services	2	C	30	-
	Total	30			

300 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
GST 312	Peace and Conflict Resolution	2	C	30	-
ENT 312	Venture Creation	2	C	15	45
FAA 313	Research Methods	2	C	30	-
NARC 301	Ship Design and Drawing III	6	C	-	270
NARC 305	Marine Environment and Marine Pollution	2	C	30	-
NARC 307	Mechanics of Ship Structure II	2	C	30	-
NARC 309	Dockyard Design	2	C	15	45
NARC 311	Ship Interior Design	2	C	15	45
NARC 315	Resistance and Propulsion of Ships	2	C	30	
NARC 382	Students Industrial Work Experience Scheme (SIWES)	6	C	-	360
NARC 384	Business Practices in Naval Architecture and Design	2	C	-	90
	Total Units	30			



400 Level

Course Code	Course Title	Credit Units	Course Status	LH	PH
FAA 484	Professional Practice	2	C	30	-
NARC 401	Ship Design and Construction Project	6	C	-	270
NARC 402	Marine Acoustics	2	C	30	-
NARC 403	Design of Inland Waterways Transportation Systems	2	C	30	-
NARC 404	Dredger and Dredging Technology	2	C	15	45
NARC 405	Independent Research Project	2	C	-	90
	Total Units	16			

Course Contents and Learning Outcomes

100 Level

GST 111: Communication in English

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this Course, students should be able to:

1. identify possible sound patterns in English language;
2. list notable language skills;
3. classify word formation processes;
4. construct simple and fairly complex sentences in English;
5. apply logical and critical reasoning skills for meaningful presentations;
6. demonstrate an appreciable level of the art of public speaking and listening; and
7. write simple and technical reports.

Course Contents

Sound patterns in English Language (vowels and consonants, phonetics and phonology). English word classes (lexical and grammatical words, definitions, forms, functions, usages, collocations). Sentences in English (types: structural and functional, simple and complex). Grammar and Usage (tense, mood, modality and concord, aspects of language use in everyday life). Logical and Critical Thinking and Reasoning Methods (Logic and Syllogism, Inductive and Deductive Argument and Reasoning Methods, Analogy, Generalisation and Explanations). Ethical considerations, Copyright Rules and Infringements. Writing Activities: (Pre-writing, Writing, Post writing, Editing and Proofreading; Brainstorming, outlining, Paragraphing, Types of writing, Summary, Essays, Letter, Curriculum Vitae, Report writing, Note making, Mechanics of writing). Comprehension Strategies: (Reading and types of Reading, Comprehension Skills, 3RsQ). Information and Communication Technology in modern Language Learning. Language skills for effective communication. Major word formation processes. Writing and reading comprehension strategies. Logical and critical reasoning for meaningful presentations. Art of public speaking and listening and Report writing.



GST 112: Nigerian Peoples and Culture

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. analyse the historical foundation of the Nigerian culture and arts in pre-colonial times;
2. list and identify the major linguistic groups in Nigeria;
3. explain the gradual evolution of Nigeria as a political unit;
4. analyse the concepts of trade, economic and self-reliance status of the Nigerian peoples towards national development;
5. enumerate the challenges of the Nigerian state towards nation building;
6. analyse the role of the judiciary in upholding people's fundamental rights;
7. identify acceptable norms and values of the major ethnic groups in Nigeria; and
8. list and suggest possible solutions to identifiable Nigerian environmental, moral and value problems.

Course Contents

Nigerian history, culture and art up to 1800 (Yoruba, Hausa and Igbo peoples and culture; peoples and culture of the ethnic minority groups). Nigeria under colonial rule (advent of colonial rule in Nigeria; Colonial administration of Nigeria). Evolution of Nigeria as a political unit (amalgamation of Nigeria in 1914. Formation of political parties in Nigeria. Nationalist movement and struggle for independence). Nigeria and challenges of nation building (military intervention in Nigerian politics; Nigerian Civil War). Concept of trade and economics of self-reliance (indigenous trade and market system; indigenous apprenticeship system among Nigeria people; trade, skill acquisition and self-reliance). Social justices and national development (law definition and classification. Judiciary and fundamental rights; individual, norms and values (basic Nigeria norms and values, patterns of citizenship acquisition; citizenship and civic responsibilities; indigenous languages, usage and development; negative attitudes and conducts. Cultism, kidnapping and other related social vices)-. re-orientation, moral and national values (The 3R's – Reconstruction, Rehabilitation and Re-orientation; re-orientation Strategies: Operation Feed the Nation (OFN), Green Revolution, Austerity Measures, War Against Indiscipline (WAI), War Against Indiscipline and Corruption(WAIC), Mass Mobilization for Self-Reliance, Social Justice and Economic Recovery (MAMSER), National Orientation Agency (NOA) as well as Current socio-political and cultural developments in Nigeria.

MTH 101: Elementary Mathematics I (2 Units C: LH 30) (Algebra and Trigonometry)

Learning Outcomes

At the end of the course, students should be able to:

1. explain basic definition of set, subsets, union, intersection, complements and use of Venn diagrams;
2. solve quadratic equations;
3. solve trigonometric functions;
4. identify various types of numbers; and
5. solve some problems using binomial theorem.

Course Contents

Elementary set theory, subsets, union, intersection, complements, and Venn diagrams. Real numbers. Integers, rational and irrational numbers, mathematical induction, real sequences and series, theory of quadratic equations, binomial theorem. Complex numbers. Algebra of



complex numbers. The Argand diagram. De-Moivre's theorem, n th roots of unity. and Circular measure, trigonometric functions of angles of any magnitude, addition and factor formulae.

MTH 103: Elementary Mathematics III (Vectors, Geometry and Dynamics) **(2 Units C: LH 30) Pre-requisite –MTH 101**

Learning Outcomes

At the completion of the course, the students should have the basic knowledge of Mathematics which will enable them to:

1. apply mathematical principles in determining architectural proportions;
2. design proportions in buildings that look pleasing to the human eye and feel balanced and deal with the elementary geometric tools for the study of structural and architectural forms; and
3. demonstrate the ability to solve triangular, linear and conic relationships algebraically, numerically and graphically to the required degree of accuracy and unit of measurement.

Course Contents

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, normal. Kinematics of a particle. Components of velocity and acceleration of a particle moving in a plane. Force, momentum, laws of motion under gravity, projectiles and resisted vertical motion. Elastic string and simple pendulum. As well as impulse, impact of two smooth spheres and a sphere on a smooth surface.

PHY 101: General Physics I (Mechanics)

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and deduce the physical quantities and their units;
2. differentiate between vectors and scalars;
3. describe and evaluate motion of systems on the basis of the fundamental laws of mechanics;
4. apply Newton's laws to describe and solve simple problems of motion;
5. evaluate work, energy, velocity, momentum, acceleration, and torque of moving or rotating objects;
6. explain and apply the principles of conservation of energy, linear and angular momentum;
7. describe the laws governing motion under gravity; and
8. explain motion under gravity and quantitatively determine behaviour of objects moving under gravity.

Course Contents

Space and time. G6 units and dimension, Vectors and Scalars, Differentiation of vectors: displacement, velocity and acceleration. Kinematics. Newton laws of motion (Inertial frames, Impulse, force and action at a distance, momentum conservation); Relative motion; Application of Newtonian mechanics. Equations of motion. Conservation principles in physics, Conservative forces, conservation of linear momentum, Kinetic energy and work, Potential energy, System of particles, Centre of mass; Rotational motion; Torque, vector product, moment, rotation of coordinate axes and angular momentum. It also covers Polar coordinates; conservation of angular momentum. Circular motion; Moments of inertia, gyroscopes and



precession. Gravitation: Newton's Law of Gravitation, Kepler's Laws of Planetary Motion, Gravitational Potential Energy, Escape velocity, Satellites motion and orbits.

PHY 103: General Physics III (Behaviour of Matter) (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the student should be able to:

1. explain the concepts of heat and temperature and relate the temperature scales;
2. define, derive, and apply the fundamental thermodynamic relations to thermal systems;
3. describe and explain the first and second laws of thermodynamics, and the concept of entropy;
4. state the assumptions of the kinetic theory and apply techniques of describing macroscopic behaviour;
5. deduce the formalism of thermodynamics and apply it to simple systems in thermal equilibrium; and
6. describe and determine the effect of forces and deformation of materials and surfaces.

Course Contents

Heat and Temperature, Temperature scales. Gas laws. General gas equation. Thermal conductivity. First Law of thermodynamics. Heat, work and internal energy, reversibility. Thermodynamic processes: adiabatic, isothermal, isobaric. Second law of thermodynamics. Heat engines and entropy, zero's law of thermodynamics. Kinetic theory of gases. Molecular collisions and mean free path. Elasticity. Hooke's law, Young's shear and bulk moduli. Hydrostatics. Pressure, buoyancy, Archimedes' principles. Bernoulli's equation and incompressible fluid flow. Surface tension. Adhesion, cohesion, viscosity, capillarity, drops and bubbles.

GET 102: Engineering Graphics and Solid Modelling I (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify and use various draughting materials and instruments: papers cards, folios, sketch books; pencils (hard, soft and coloured), felt pens, technical pens, crayons; brushes and paints; dry transfer lettering, textures, tones and colours; rules, templates and compasses; drawing boards and drawing sets;
2. identify and construct/create the following visual elements: points, lines, shapes, planes, forms, textures and colours; in various media to create various effects;
3. construct simple visual images using the principles of proportion, balance, harmony and contrast, pattern, movement and rhythm, style;
4. create 2 dimensional drawings of plan section and elevations from basic geometric forms;
5. produce perspective drawings of simple geometric forms;
6. identify and draw various forms of lettering;
7. compose renderings of simple objects in various media.

Course Contents

Introduction to Engineering drawing as a means of communication, drawing paper format, use of drawing instruments, descriptive geometry and geometric constructions, lettering and dimensioning; First and third angle projections; Isometric projections, sectioning, conventional practices, conic sections and development; Freehand and guided sketching – pictorial and orthographic, Overview of computer aided drawing tools (e.g. AutoCAD, solid works and many others); Introduction to design thinking and engineering graphics; Visualisation and solid modelling in design, prototyping and product-making; User interfaces in concrete terms.



Design, drawing, animation, rendering and simulation workspaces, Sketching of 2D objects; Viewports and sectioning to shop drawings in orthographic projections and perspectives; Automated viewports', sheet metal and surface modelling, Material selection and rendering; and This course will use latest professional design tools such as Fusion 360, Solid Works, solid Edge or equivalent.

FAA 121: Introduction to Basic Computer Applications (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of the course, students should be able to:

1. discuss the development and types of computers;
2. explain the electronic principles behind the operation of computers;
3. identify, discuss and use basic hardware and software computer components;
4. perform basic installation, programming and file management tasks;
5. use word processing software in the production of their papers;
6. apply graphics software for simple design tasks;
7. use excel spreadsheet for basic computational works; and
8. create slides and use power-point for presentations.

Course Contents

Development of the computer, computer components and operations. Development and types of computers. Basic electronic principles. Navigation hardware peripheral/plugins devices. Computing environment - windows operating system. Software - types, license, installation, elementary programming. Documents – creation, converting and file management. Basic processes and software for the preparation and presentation of works. Commonly used applications such as word processors and their operations - page setup, margins, headers and footers, page numbers, page breaks, viewing and navigation, writing and formatting, lists, tables, graphics, tracking, table of contents and references. Excel spreadsheet; power-point; graphics software such as paint and CorelDraw. Navigating the internet, web browsers and search engines, on-line resources.

FAA 126: Introduction to Sustainable Built Environment (2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define sustainability, and sustainable built environment;
2. identify and explain associated concepts with sustainable built form;
3. explain how what sustainable infrastructure is;
4. demonstrate an understanding of values and societal importance of the built environment, and the influence on a sustainable development;
5. conduct a simple environmental assessment;
6. define climate change and discuss how it influences the built environment; and
7. demonstrate the usefulness of environmental impact assessments as a tool for design, construction and management of a sustainable built environment.

Course Contents

Definition of sustainability. Definition of sustainable environment. Definitions of concepts associated with sustainability e.g. climate change. The built environment and sustainable built environment. Sustainable infrastructure (buildings, structures, plants and networks for communication and transport, water and wastewater treatment, production and distribution of energy). Relations between infrastructure and sustainable development. Sustainable regulations and standards. Indicators of sustainability. Consequences of climate change on



the built environment. Vulnerability and safety of infrastructure. Materials and technology for construction and management. Service life and life cycle assessments.

NARC 101: Introduction to Naval Architecture

(2 Units C: LH 30)

Learning Outcomes

1. At the end of this course, the students should be able to:
2. identify the various sectors of the shipbuilding industry in Nigeria (military, fishing, transport and recreational);
3. identify different types of ships including men of war, logistics, transport of various design and propulsion;
4. interpret naval architectural terminology, concepts and principles;
5. identify the different types of marine offshore installations;
6. distinguish mooring and anchorage systems; and
7. describe basic design concepts of naval architecture.

Course Contents

Background, terminology and concepts related to naval architecture. Importance of marine transportation to the global economy, industry and leisure industries. Applications of fundamental engineering principles related to the marine sector. Principles of naval architecture, ship geometry, hydrostatics, calculation and drawing of curves of form, intact and damage stability, hull structure strength calculations and ship resistance. Computer-aided naval ship design and analysis tools. Projects in analysis of ship lines drawings, calculation of ship hydrostatic characteristics, analysis of intact and damaged stability, ship model testing, and hull structure strength calculations.

NARC 103: Fluid Mechanics, Hydrostatics and Stability

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the student should be able to:

1. demonstrating the basic concepts of fluid mechanics;
2. work with actual examples to demonstrate the importance of fluid mechanics in ship design;
3. apply the principles learned to set engineering projects;
4. identify hydrostatic principles and apply them to calculation of equilibrium of floating bodies;
5. calculate the stability of marine vehicles;
6. identify the operation of vessels in different marine environments; and
7. produce ship lines drawings, calculation of ship hydrostatic characteristics, analysis of intact and damaged stability, ship model testing, and hull structure strength calculations.

Course Contents

Basic principles and essential concepts of fluid mechanics. Real-world engineering to demonstrate fluid mechanics application to engineering projects. Foundational physics principles will be emphasised in developing a fundamental understanding of fluid mechanics. Fluid properties, fluid statics and kinematics, continuity, energy and momentum principles, energy and hydraulic grade-lines, laminar and turbulent flows, introduction to boundary layers, drags, and wakes, friction and flow through pipes, impact of jets, dimensional analysis, principles of similitude and model testing, Aerofoil and its application. Hydraulic machines: reciprocating and centrifugal pumps, Cavitations. Definitions of basic vessel geometry and forms. Flotation, the Archimedes' Principle, static equilibrium and stability curves. Longitudinal stability and trim of ships and different types of ship stability states.



200 Level

GST 212: Philosophy, Logic and Human Existence (2 Units C: LH 30)

Learning Outcomes

A student who has successfully gone through this course should be able to:

1. know the basic features of philosophy as an academic discipline;
2. identify the main branches of philosophy & the centrality of logic in philosophical discourse;
3. know the elementary rules of reasoning;
4. distinguish between valid and invalid arguments;
5. think critically and assess arguments in texts, conversations and day-to-day discussions;
6. critically assess the rationality or otherwise of human conduct under different existential conditions;
7. develop the capacity to extrapolate and deploy expertise in logic to other areas of knowledge, and
8. guide his or her actions, using the knowledge and expertise acquired in philosophy and logic.

Course Contents

Scope of philosophy; notions, meanings, branches and problems of philosophy. Logic as an indispensable tool of philosophy. Elements of syllogism, symbolic logic— the first nine rules of inference. Informal fallacies, laws of thought, nature of arguments. Valid and invalid arguments, logic of form and logic of content — deduction, induction and inferences. Creative and critical thinking. Impact of philosophy on human existence. Philosophy and politics, philosophy and human conduct, philosophy and religion, philosophy and human values, philosophy and character molding.

ENT 211: Entrepreneurship and Innovation (2 Units; C) (LH 15; PH45)

Learning Outcomes

At the end of this course, students should be able to:

1. explain the concepts and theories of entrepreneurship, intrapreneurship, opportunity seeking, new value creation, and risk taking ;
2. state the characteristics of an entrepreneur;
3. analyse the importance of micro and small businesses in wealth creation, employment, and financial independence;
4. engage in entrepreneurial thinking;
5. identify key elements in innovation;
6. describe stages in enterprise formation, partnership and networking including business planning;
7. describe contemporary entrepreneurial issues in Nigeria, Africa and the rest of the world; and
8. state the basic principles of e-commerce.

Course Contents

Concept of Entrepreneurship (Entrepreneurship, Intrapreneurship/Corporate Entrepreneurship); Theories, Rationale and relevance of Entrepreneurship (Schumpeterian and other perspectives, Risk-Taking, Necessity and opportunity-based entrepreneurship and Creative destruction); Characteristics of Entrepreneurs (Opportunity seeker, Risk taker, Natural and Nurtured, Problem solver and change agent, Innovator and creative thinker); Entrepreneurial thinking (Critical thinking, Reflective thinking, and Creative thinking); Innovation (Concept of innovation, Dimensions of innovation, Change and innovation, Knowledge and innovation); Enterprise formation, partnership and networking (Basics of



Business Plan, Forms of business ownership, Business registration and Forming alliances and joint ventures); contemporary Entrepreneurship Issues (Knowledge, Skills and Technology, Intellectual property, Virtual office, Networking); Entrepreneurship in Nigeria (Biography of inspirational Entrepreneurs, Youth and women entrepreneurship, Entrepreneurship support institutions, Youth enterprise networks and Environmental and cultural barriers to entrepreneurship); and Basic principles of e-commerce.

Course Contents

Part A: projection of lines, auxiliary views and mixed projection. Advanced descriptive geometry. Geometric constructions and developments. Preparation of detailed working drawings for production. Semi-detailed drawings, conventional presentation methods; Machine drawing. Assembly drawing of machines, device and installation layout. Itemisations and part listing.

Part B: Computer aided drawing practice (using AutoCAD software or related software). Introduction to AutoCAD, new drawing setup. Specifying coordinates. Working with layers, managing object properties. Controlling precision. 3D geometries: drawing and viewing, selecting and editing 2D objects. Creating and editing hatches. Text creation and editing, dimensioning, plotting and printing, introduction to SolidWorks, basic SolidWorks functions and Advanced SolidWorks functions.

FAA 211: Introduction to Computer-Aided Design

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate mastery of basic concepts of the AutoCAD software;
2. apply basic concepts to develop construction (drawing) techniques;
3. ability to manipulate drawings through editing and plotting techniques;
4. make geometric construction;
5. produce template drawings;
6. produce 2D orthographic projections; and
7. demonstrate skills in dimensioning concepts and techniques, section and auxiliary views.

Course Contents

Use of modern CAD software to produce two-dimensional drawings for architectural design. Coordinating systems, proper dimensioning, use of sectioning and projections for visualization, symbol libraries, file management, and collaborative techniques. Basic principles of Computer Aided Design (CAD).

NARC 201: Ship Design and Drawing I

(6 Units C: PH 270)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate the basic concepts of fluid mechanics;
2. demonstrate the importance of fluid mechanics in ship design with actual designs; and
3. apply the principles learned to set engineering projects.

Course Contents

Development of ships and shipbuilding. Ship types. Methods of ship design. Estimation of a ship's dimensions, weights, and capacity. Computer-aided representation of hull shape and drawings; Load lines and freeboard. Tonnage. The ocean environment and sea-keeping. Practical design and layout of modern high-speed vessels. Principal characteristics of mono-



hulls and catamarans in terms of navigation, passenger accommodation, vehicles and cargo handling. Impact of safety considerations and classification society rules.

NARC 202: Ship Design and Drawing II

(6 Units C: PH 270)

Learning Outcomes

At the completion of this course, students should be able to build on the knowledge gained in Ship Design and Drawing 1 to:

1. produce advanced preliminary conceptualization and design;
2. distinguish between different design stages; and
3. engage in further work in stability calculations.

Course Contents

Hull form design. Space allocation and general arrangement (GA). Hydrostatic calculation. stability and cross curves. Checking compliance with standard stability criteria, trim calculations.

NARC 203: Engineering Applications for Naval Architects (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. identify the principles uses of marine, electrical and electronic engineering and their applications in the marine environment;
2. use CAD and CAM software for simple designs; and
3. comprehend describe the processes involved in the stages of marine design, construction and laboratory tests.

Course Contents

introduction to engineering philosophy in naval architecture and marine engineering. Practical on the use of CAD and CAM software in marine design. Design and production processes .Build and test exercise in the marine laboratory.

NARC 205: Mechanics of Ship Structure

(2 Units C: LH 30)

Learning Outcomes

At the completion of this course, students should be able to:

1. describe the concepts of the mechanical properties of materials;
2. apply relevant theoretical background for advanced structural analysis and design courses; and
3. solve basic engineering problems in solid mechanics.

Course Contents

Fundamental of stress analysis. Mechanical properties of materials. Normal, shear and combined stresses. Joint and beam analyses: continuous beam, beam on elastic foundation, curved beam. Column and buckling analyses. Thick cylinder and pressure vessel. Torsion and shaft design and; Theories of failure.

NARC 207: Ship Construction Materials

(2 Units C: LH 30)

Learning Outcomes

At the completion of this course, students should be able to:



1. describe the nature and composition of various ship building materials;
2. identify the strength and application of materials; and
3. apply appropriate materials in the design process.

Course Contents

Metals as materials of construction; Industrially significant properties of metallic materials. Production, properties and uses of Pig Iron, Cast Iron and Carbon Steels; Nonferrous alloys. Protective Coatings; Ferrous alloys: Plain carbon, alloy, tool, stainless, heat-resisting and creep-resisting steels and many others. The Fe-Fe₃C equilibrium. Different types of heat treatment operations; Case hardening of steels, Cement, Ferro-cement, Timber, Rubber, Glass and Plastics.

NARC 209: Marine Engines and Fuels

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. identify the different types of marine engines;
2. demonstrate the workings of internal combustion engines;
3. identify the composition and use of different diesel and gas fuels; and
4. describe the factors governing the choice of engines and sources of energy.

Course Contents

Study of the performance of internal combustion engines, fuels and combustion. Internal combustion engine systems; introduction to fuel oil, injection, intake, exhaust. Study of engine components such as crankshaft, bearings, connecting rods, piston, liner, ring, thrust bearing. Study of marine fuel types, grading, testing, treatment methods, blending, catalytic cracking. Study fuels such as High-Speed Diesel (HSD), intermediate Fuel Oil (IFO). Performance of gas turbines and nuclear power plants; introduction to types of combustion chambers (open and divided). Study of combustion chambers in marine diesel engines, turbo charging, principles of thermodynamics, principles, types and design limitations. Study of vessel types and engine choice. Sources of energy and introduction to renewable energy sources.

NARC 212: Ship Building Services

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. comprehend describe shipyard organization;
2. identify different components supporting ship building;
3. undertake shipbuilding project management; and
4. apply the knowledge gained to ship design projects.

Course Contents

Basic understanding of the general aspects of shipyard organization and management. History and background of modern ship building industry. Principles of plant location, layout and construction, handling of materials, production engineering and inspection. Quality, procedure and systems control; production control including time and motion study. Material control, plant safety, dry-docking and maintenance of ships. Shipbuilding project management and support services. Defining projects, organization, estimating, planning and scheduling. AHP (Analytical Hierarchy Process) and risk management. Change control, configuration management, tracking and controlling, status reporting, change management, quality management and post implementation review.



NARC 213: Ship Hydrodynamics

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. demonstrate basic understanding of the interaction of vessels with surrounding fluids;
2. identify ships' propulsion and manoeuvrability through various water states; and
3. produce the design of propulsors for different hull types for optimum efficiency.

Course Contents

Dimensional analysis applied to problems in naval architecture. Conservation of energy and momentum, Bernoulli's principle. Stream function definition and properties, application to basic flows and construction of flow fields; Potential function definition and properties, application to basic flows, and comparison with stream function. Generation of bodies with line and surface distributions of sources; thin body approximations. Tank testing for resistance, sea keeping and cavitations. Ocean waves, sea spectra, ship motions and response amplitude operators; Hydrodynamics, transport efficiency and sustentation. Resistance prediction for planning vessels. Analysis of hydrofoil lift, drag and cavitations. High-performance craft: hydrofoils, air-cushion vehicles, surface-effect ships, and many others. Ship manoeuvring and control. Equations of motion and the hydrodynamic coefficients; Standards for manoeuvrability as well as Design of rudders and steering gear.

300 Level

GST 312: Peace and Conflict Resolutions

(2 Units C: LH 30)

Learning Outcomes

At the end of the course, students should be able to:

1. analyse the concepts of peace, conflict and security;
2. list major forms, types and root causes of conflict and violence;
3. differentiate between conflict and terrorism;
4. enumerate security and peace building strategies; and
5. describe roles of international organisations, media and traditional institutions in peace building.

Course Contents

Concepts of Peace, Conflict and Security in a multi-ethnic nation. Types and Theories of Conflicts: Ethnic, Religious, Economic, Geo-political Conflicts. Structural Conflict Theory, Realist Theory of Conflict, Frustration-Aggression Conflict Theory. Root causes of Conflict and Violence in Africa: Indigene and settlers Phenomenon. Boundaries/boarder disputes; Political disputes. Ethnic disputes and rivalries. Economic Inequalities. Social disputes. Nationalist Movements and Agitations. Selected Conflict Case Studies – Tiv-Junkun; Zango Kataf, Chieftaincy and Land dispute and many others. Peace Building, Management of Conflicts and Security: Peace and Human Development. Approaches to Peace and Conflict Management - (Religious, Government, Community Leaders and many others). Elements of Peace Studies and Conflict Resolution. Conflict dynamics assessment Scales. Constructive and Destructive. Justice and Legal framework. Concepts of Social Justice. The Nigeria Legal System. Insurgency and Terrorism; Peace Mediation and Peace Keeping. Peace and Security Council (International, National and Local levels) Agents of Conflict resolution – Conventions, Treaties Community Policing. Evolution and Imperatives. Alternative Dispute Resolution, ADR: A). Dialogue b). Arbitration, c). Negotiation d). Collaboration and many others. Roles of International Organizations in Conflict Resolution: (a). The United Nations, UN and its Conflict Resolution Organs. (b). The African Union & Peace Security Council (c). ECOWAS in Peace Keeping. Media and Traditional Institutions in Peace Building. Managing Post-Conflict Situations/Crisis:



Refugees. Internally Displaced Persons, IDPs and the role of NGOs in Post-Conflict Situations/Crisis.

ENT 312: Venture Creation

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students, through case study and practical approaches, should be able to:

1. describe the key steps in venture creation;
2. spot opportunities in problems and in high potential sectors regardless of geographical location;
3. state how original products, ideas, and concepts are developed;
4. develop business concept for further incubation or pitching for funding;
5. identify key sources of entrepreneurial finance;
6. implement the requirements for establishing and managing micro and small enterprises;
7. conduct entrepreneurial marketing and e-commerce;
8. apply a wide variety of emerging technological solutions to entrepreneurship; and
9. appreciate why ventures fail due to lack of planning and poor implementation.

Course Contents

Opportunity Identification (Sources of business opportunities in Nigeria. Environmental scanning. Demand and supply gap/unmet needs/market gaps/Market Research. Unutilised resources. Social and climate conditions and Technology adoption gap). New business development (business planning, market research). Entrepreneurial Finance (Venture capital, Equity finance, Micro finance, Personal savings, Small business investment organizations and Business plan competition). Entrepreneurial marketing and e-commerce (Principles of marketing, Customer Acquisition and Retention, B2B, C2C and B2C models of e-commerce, First Mover Advantage, E-commerce business models and Successful E-Commerce Companies,). Small Business Management/Family Business. Leadership and Management, Basic book keeping, Nature of family business and Family Business Growth Model. Negotiation and Business communication (Strategy and tactics of negotiation/bargaining, Traditional and modern business communication methods). Opportunity Discovery Demonstrations (Business idea generation presentations, Business idea Contest, Brainstorming sessions, Idea pitching). Technological Solutions (The Concept of Market/Customer Solution, Customer Solution and Emerging Technologies, Business Applications of New Technologies - Artificial Intelligence (AI), Virtual/Mixed Reality (VR), Internet of Things (IoTs), Blockchain, Cloud Computing, Renewable Energy, Digital Business and E-Commerce Strategies).

FAA 313: Research Methods

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. define research;
2. discuss the characteristics of research;
3. explain the purposes of research;
4. describe the various research designs and identify the tools of research;
5. discuss the various methods of data collection and simple analysis;
6. discuss the basic principles of referencing and use referencing software; and
7. draft the outline of a thesis report.



Course Contents

Research in general. Meaning and definition of research. Why we do research. Identifying researchable problems. Formulating research topics. Types and classification of research; Reviewing literature. Research design – survey, case study and experimental, variables of study. Methods and procedures for data collection. Instruments of data collection. Population and sampling. Data presentation. Descriptive and statistical data analysis and report writing.

NARC 301: Ship Design and Drawing III

(6 Units C: PH 270)

Learning Outcomes

At the completion of this course, students should be able to build on the knowledge gained in Ship Design and Drawing 3 to:

1. undertake more advanced preliminary conceptualization and design;
2. distinguish between different design stages; and
3. undertake further work in stability calculations.

Course Contents

Introduction to scantling of structural members, mid-ship section calculations, longitudinal construction and shell expansion drawings. Drawing capacity plans to illustrate the spaces available for cargo, fuel, freshwater, water ballast. Cubic or weight capacity lists for cargo, fuel, freshwater, water ballast spaces and a scale showing the deadweight capacities at various draughts and displacements.

NARC 305: Marine Environment and Marine Pollution

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. describe the kinds and quantities of pollutants entering oceans;
2. recognize ocean dumping, the fate of pollutants and their toxic effects including nuclear waste disposal;
3. identify sources and effects of marine pollution such as oil spills;
4. describe the environmental impact of marine pollution and the public health risks and commercial damage;
5. identify plastic materials and potential plastic pollutants including the distribution and impact of plastics;
6. describe the occurrence of harmful algae bloom, their causative organisms and impact;
7. identify pollution by sewage; discharges by rivers and estuaries; piped outfalls to the sea; and
8. describe the effects of persistent organic compounds on marine organisms.

Course Contents

Study of marine pollution (theory and practice), the potential environmental impacts on people and the economy. General principles and practices and specific topics on individual pollutants that affect the marine environment. History and concept of marine pollution and its future outlook. Principles of marine pollution, (the important and sensitive areas that are most vulnerable to marine pollution). General concepts in understanding pollution and its prevention and the environmental and ecological concerns associated with marine pollution.

NARC 307: Mechanics of Ship Structure II

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:



1. define the concepts of the mechanical properties of materials;
2. demonstrate and understand the application of relevant theoretical background for advanced structural analysis and design courses; and
3. solve basic engineering problems in solid mechanics.

Course Contents

Forces on ships, ship strength calculation longitudinal and transverse strength of ship. Effects of dynamic forces on ships, structural discontinuities, stress concentration and superstructure theory. Plate and shell analyses will help with the understanding of shear on hull structures, grillages and buckling of plates. Principles of composite construction and introduction to Finite Element Methods (FEM).

NARC 309: Dockyard Design

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, students should be able to:

1. identify the basic concepts of dockyard design;
2. identify dockyard and shipyard facilities;
3. describe the procedures and planning involved in dockyard management; and
4. discuss the relationship between dockyards and offshore structures.

Course Contents

Basic concepts around dockyard and shipyard design (as part of ancillary facilities that support the shipping industry). Dry docks, slipways, dust-free warehouses and other facilities. Design of dockyards and different components that make up a dockyard. Integration of cranes, rails and graving docks. Offshore structures such as finger jetties, bollards, buoys and their installation as well as design and quality control.

NARC 311: Ship Interior Design

(2 Units C: LH 15; PH 45)

Learning Outcomes

Upon completion of the unit, students should be able to:

1. demonstrate the effective use of space in the space-challenged environment of ships;
2. describe the complex interplay of light and colour to create harmony;
3. apply the psychology to design of the interior of ships to obtain maximum wellbeing.

Course Contents

Aesthetics and functionality of ships' interiors. The impact of interiors on human moods and wellbeing in ships. Skills in aesthetically pleasing designs in spaces. The differences of the effects of light and colour at sea and on land. Psychology of interior design for maximum wellbeing at sea. Core principles of interior design in proportionality, balance and emotional symmetry. Use of space, in cramped quarters, light, ventilation, colour and texture to achieve the desired interpretation.



NARC 315: Resistance and Propulsion of Ships

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, students should be able to:

1. identify phenomena that could resist the motion of ship such as friction and waves;
2. describe appropriate hull and bow forms to counteract the phenomena; and
3. analyse the operation of propellers and their relative efficiency.

Course Contents

Introduction to phenomena resisting the motion of ships; resistance due to friction, wave making, form, appendage, wind and waves, squat, blockage and shallow water effects. This also includes estimation of powering using methodical series and statistical methods, advantageous effects of hull form change, bulbous bows and asymmetric sterns and optimum trim for ships in ballast, Screw propeller geometry. Momentum and blade element theories, propellers in open water, propeller coefficients and design charts. Hull propeller interaction comprising wake, thrust deduction and relative rotative efficiency, propeller cavitation and propeller blade strength. Screw design according to circulation theory for uniform and non-uniform wake; speed trials and service performance analysis will also be taught.

NARC 382: Students Industrial Work Experience Scheme (SIWES)(6 Units C: PH 270)

Learning Outcomes

Work experience aims to:

1. build self awareness, especially students strengths and abilities;
2. build self confidence;
3. identify skills and competencies required in the workplace; and
4. identify job apprenticeship opportunities.

Course Contents

This placement is undertaken in the second semester of year 3. The placement should generally be of at least 24 weeks duration and should involve full-time work within the placement organisation. Students are responsible for their travel, accommodation, and general living expense while undertaking a placement. Employability skills which will be learned will include: communication, teamwork, problem solving, self-management, planning and organizing, technology, learning, initiative and enterprise.

NARC 384: Business Practices in Naval Architecture and Design (2 Units C: PH 90)

Learning Outcomes

At the end of this course, students should be able to:

1. discuss best practices in naval design businesses;
2. identify niches and demands for the naval architecture and design product;
3. develop proposals for innovative naval design products; and
4. conduct feasibility studies and competitor analysis.

Course Contents

Produce a proposal for a naval design business venture. Small and medium scale enterprises in the field of naval architecture and design. Case studies, industry analysis and best practices. The course is deliberately placed in the second semester of 300 Level during which period the students are on their six-month Students Industrial Work Experience Scheme (SIWES). It is



delivered on-line thereby exposing students to virtual lectures aimed at augmenting and galvanizing the knowledge gained in the field.

400 Level

FAA 484: Professional Practice

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. demonstrate knowledge of the scope of professional practice;
2. demonstrate knowledge of the stages of a project procurement; from client engagement, design and documentation, tendering work, superintendence and construction administration through to post-construction;
3. demonstrate knowledge of the ethical obligations of the architect to client, other architects and profession;
4. identify available procurement methods and demonstrate knowledge of the selection process for appropriately qualified contractors in accordance with the procurement method and project contract;
5. discuss career paths in architecture; and
6. prepare a simple procurement plan.

Course Contents

The practice of the profession of architecture globally and in Nigeria. Ethical practice. The character and operation of firms. Running the business of architecture. Professional memberships and registration in Nigeria. Professional memberships and registration in other regions of the world. The project procurement process. Contracts and contract administration. Alternative and innovative pathways through the profession. Career planning in architecture. The procurement act and professional practice.

NARC 401: Ship Design and Construction Project

(6 Units C: PH 270)

Learning Outcomes

At the completion of this module, students should be able to build on the knowledge gained in Ship Design Project to:

1. prepare preliminary conceptualization and design;
2. distinguish between different design stages;
3. produce initial designs;
4. undertake further work in stability calculations; and
5. perform assigned design tasks for their vessel and submit the results.

Course Contents

Design of a particular ship: principal particulars, lines plan, displacement, general arrangement (GA), freeboard, volume, scantling, power, machinery, endurance, outfit, approximate trim and stability, lightweight and deadweight, design update and final design with lines, GA, midship, profile, deck and bottom construction based on Rule Book, shell expansion, hydrostatic curves, trim and cross curves of stability, power, engine selection and propeller design. Assessment of auxiliary machinery and electrical load analysis. Development of structural arrangement and supporting calculations for main structural members to code or classification society requirements in steel, aluminium or composite. Design of propeller and shafting. Final lines plan. Final general arrangement; and Final stability data.



NARC 402: Marine Acoustics

(2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. identify and categorize different types of underwater noise;
2. identify the propagation of sound in the sea;
3. distinguish between sources of noise and make provisions in the design process; and
4. distinguish the use of devices for underwater sound production and reception.

Course Contents

Types of underwater noise and the elementary characteristics of sound. Introduction to acoustic conversion efficiency and noise control. Wave equation, plane sound waves, spherical waves, transmission at media interfaces, acoustic radiation and radiation efficiency including noise level, spectra and bandwidth. Propeller noise, cavitation noise and structural noises including fluid interaction, structural resonance, acoustic control measures and hull array. Devices for underwater sound production and reception and commercial applications of underwater acoustics.

NARC 403: Design of Inland Waterways Transportation Systems (2 Units C: LH 15; PH 45)

Learning Outcomes

At the end of this course, students should be able to:

1. identify different forms of inland waterways transportation systems;
2. undertake simple designs of inland waterways transportation with particular attention to shallow draughts;
3. demonstrate knowledge of methods of maintenance such as dredging and bank protection; and
4. apply knowledge of regional inland waterways transportation systems.

Course Contents

Types of inland waterways transportation systems and their peculiarities; these include inter-modal transportation and specialised inter-modal transportation vessels, design and operational aspects of small crafts. Design of specialized inland vessels; tug-barge system, shallow draft tug, inland passenger vessels. Design of inland waterway transportation systems. Introduction to the maintenance of navigational channels; siltation bank erosion and dredging; impact of transportation systems on ways of human life; its effects on the environment and on the local and global politics. Types of regional inland waterway transportation networks and inland transportation systems as a prerequisite to local and global development.

NARC 404: Dredger and Dredging Technology

(2 Units C: LH 30)

Learning Outcomes

At the end of this course, the students should be able to:

1. identify the need for dredging;
2. identify different dredging methods;
3. describe different types of dredging equipment; and
4. demonstrate knowledge of dredging calculations.



Course Contents

Introduction to dredging methods, hydraulic and mechanical dredger types including drilling pontoon, deeper dredger, backhoe method, bucket dredger, grab dredger, cutter suction dredger, trailing suction hopper dredger, dustpan dredger, and special purpose dredger. Dredging design features, types of cutters, design of ladders, performance parameters and positioning systems. Dredging calculations including estimating discharge-head, effect of dredge material characteristics, pump performance characteristics, estimation of output of various types of dredging. Special features of dredge pumps, types of floaters and pipeline fittings.

NARC 405: Independent Research Project

(2 Units C: PH 90)

Learning Outcomes

At the end of this course, students should be able to:

1. identify gaps in knowledge in the field of naval architecture and design;
2. develop research proposal;
3. conduct research using methods appropriate to naval architecture and design; and
4. prepare reports using appropriate technical report writing guidelines.

Course Contents

Major field of project and thesis are as follows: (a) ship design (b) ship construction (c) strength of ship (d) material testing and fracture problems (e) ship motion (f) resistance and propulsion of ships (g) marine engines and ship vibration (h) marine transportation system (i) marine engineering (j) dynamics of ship/floating bodies/structures (k) Environmental impact assessment (l) Life cycle assessment (LCA) and many others.

Minimum Academic Standard

Equipment

Classroom Equipment

Chairs and tables for students.

Chair and table for lecturer.

Smart board.

Waste bins.

Studio Equipment

Drawing boards.

Stools/chairs.

White boards.

Smart boards.

Personal Computers.

Software such as AutoShip

Network Socket.

Table and Chair for instructor.

Colour Printer.

Waste Basket.

Model-Making Workshop

Metal tables 1.00x1.00m or 1.00x2.00m.

Workshop stools.

Table and Chair for instructor.



Metal shelves for models.
 Metal cabinets for tools and equipment.
 Bench vise/clamps.
 G-Clamps.
 Cutters for cardboard and plastics, for straight or circular cutting.
 Variety of saws for wood and plastics.
 Planes.
 Manual and Electric Drills.
 Light carpentry tools: Light hammer, Keys of different shapes and sizes, pliers, iron rulers, wood carving tools (different sizes).
 Sanding, smoothening and polishing materials.
 Desktop computers.
 Laser cutting machine.
 3D printer.
 White board.
 Waste bins.
 Fire extinguishers.
 First aid box.
 Laboratory (ICT/BIM/Digital Media) Equipment
 Smart boards.
 Workstations at the minimum ratio of 1computer to every 4 full time students.
 Control station: a set of control workstations to control access and usage of the work stations.
 Software such as AutoCAD, AutoShip, Adobe Photoshop, Sketchup, 3D MAXCinema-4D, Revit, Lightscape/ VRay.
 Server(s).
 Switch.
 UPS systems/power backup.
 Power voltage regulators/stabilizers.
 Air conditioning.
 Internet connectivity.
 Reprographics Centre
 Heavy duty photocopiers.
 A3 colour printers.
 A3 scanners.
 Large format (A0) plotters.
 3D printer.
 Workshop (Furniture/Model-Making) Equipment
 Metal tables 1.00x1.00m or 1.00x2.00m.
 Workshops stools.
 Table and chair for instructor.
 Metal shelves for models.
 Metal cabinets for tools and equipment.
 Bench vice/clamps.
 G-Clamps.
 Cutters for cardboard and plastics, for straight or circular cutting.
 Variety of saws for wood and plastics.
 Planes.
 Manual and electric drills.
 Lathe machine.
 Electric blower.
 Light carpentry tools: Light hammer, Keys of different shapes and sizes, pliers, iron rulers, wood carving tools (different sizes).



Sanding, smoothing and polishing materials.
Desktop computers.
Laser cutting machine.
3D printer.
Whiteboard.
Waste bins.
Fire extinguisher.
First aid box.
Office Equipment
Table and chairs.
Shelves.
Personal Computers.
Waste Basket.
ICT/Digital Media Library
Smart boards.
Personal Computers.
Software such as AutoShip, Adobe Photoshop, SketchUp, 3D MAXCinema-4D, Revit, Lightscape/VRay.
Network socket.

Staffing

a) Academic Staff

The qualification and experience of lecturers is an essential element of the quality of Naval Architects. The recommended minimum academic staff-student ratio is 1:15. The academic staff should be made up of:

- i. Graduate Assistant
- ii. Assistant Lecturer
- iii. Lecturer II
- iv. Lecturer I
- v. Senior Lecturer
- vi. Reader (Associate Professor)
- vii. Professor

Academic Support Personnel

Teaching Assistant/Demonstrators are recommended to assist lecturers in the conduct of tutorials, practical and fieldwork.

Administrative Support Personnel

The services of the administrative support staff are indispensable in the proper administration of the departments and faculty offices. These will normally include confidential secretaries, clerical officers, typists, messengers and cleaners. It is important to recruit very competent senior personnel who are technology savvy.

Technical Support Personnel

The technical support personnel shall consist of technical officers and technologists. It is important to recruit very competent senior technical staff to maintain teaching and research equipment.



Library and Information Resources

A library/resource centre should be provided for the programme or at faculty level for quick reference. This should be stocked with reference materials and current journals and periodicals relevant to the programme. Internet access and electronic materials are strongly recommended for the library.

Item No.	Departmental Resource Room	Quantity
1.	Desktop Computers System	4
2.	HP LaserJet	1
3.	Journals	Current editions
4.	Resource/ reference books	Current editions

Classrooms, Studios, Laboratories, Workshops, Offices

Item	Space	Use	Minimum (m ²)
	Professors Office	Academic	24
	Head of Department	Administration	24
	Senior Lecturer	Academic	20
	Lecturer	Academic	16
	Assistant lecturer	Academic	12
	Senior Technical Staff	Technical	12
	Senior Administrative Staff	Administration	12
	Junior Technical Staff	Technical	9
	Junior Administrative Staff	Administration	9
	Studio Space	Students	1.5 per student
	Lecturer Space	Students	0.5 per student
	Seminar Space	Students	0.5 per student
	Laboratory Space	Students	2 per student
	Library	Students	2 per student
	Social Space	Students	0.5 per student
	Storage Space	Students	0.5 per student

