GODFREY OKOYE UNIVERSITY
ENUGU, ENUGU STATE, NIGERIA
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B. SC ARCHITECTURE

Student Handbook

2023 - 2028

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:

- equip the student with advanced knowledge of the environmental, social, cultural, economic and technological contexts underlying design and construction in the built environment;
- 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;
- 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;
- 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
- provide the student with entrepreneurial knowledge and skills to enable them to be selfreliant.

Unique Features of the Programme

The unique features of architecture programme are aimed at:

- 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;

- placing emphasis on studying and understanding architecture in the local context, as in the history courses which addresses Architecture and Architects in Nigeria;
- emphasizing digital skills not only with respect to design drawings but as it relates to new digital applications; and
- preparing graduates to meet both local and international standards of practice in architecture.

Employability skills

- 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;
- imbibing digital skills and software packages knowledge to enable students perform task that were previously done manually thereby enhancing employability;
- designing to encourage some degree of independent learning thereby building the capability of the student with capacity in a variety of design related fields;
- communication and presentation skills are also emphasized to encourage team work, verbal and visual communication as well as building a strong architectural vocabulary; and
- 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:

- 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;
- critical thinking skills, problem solving, reasoning, analysis, interpretation, synthesizing information are emphasized in the design process as well as in history and theory courses;
- creativity, artistry, curiosity, imagination, innovation, personal expression;
- oral and written communication, public speaking and presenting, listening;
- leadership, teamwork, collaboration, cooperation, facility in using virtual workspaces; and
- 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.

Course Structure

100 Level

Course Code	Course Title	Units	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	-
FAA 103	Graphics Communication I	2	C	15	45
FAA 104	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	-
GOU-ARC 102	Hybrid Igbo Traditional Architecture	2	C	15	45
GOU-ARC 122	Descriptive Geometry	2	C	15	45
GOU-ARC 123	Free Hand Sketching I	2	C	15	45
GOU-ARC 124	Free Hand Sketching II	2	C	15	45
GOU-ARC 126	Photography, Image Editing and Modelling	2	C	15	45
GOU-ARC 132	Architectural	2	C	15	45

	Compositio n				
	TOTAL	32			

200 Level

Course Code	Course Title	Units	Status	LH	PH
GST 212	Philosophy, Logic and Human Existence	2	C	30	-
ENT 211	Entrepreneu rship and Innovation	2	C	15	45
FAA 221	Introduction to Computer-Aided Design	2	C	-	90
ARC 201	Architectura l Design Studio I	2	C	-	90
ARC 202	Architectura l Design Studio II	2	C	-	90
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	-
GOU-ARC 222	Revit 3-Dimensional modelling	2	C	15	45
GOU-ARC 232	Climate and Anthropology in Architecture	2	E	30	-
GOU-ARC 233	Space matrix and Morphology of Urban Systems	2	E	15	45
GOU-ARC 241	Introduction to Land Surveying	2	C	15	45
GOU-ARC 242	Site Selection, Planning and Design	2	C	15	45
GOU-ARC 272	Building Typology	2	C	30	-
	TOTAL	34			

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	2	C	-	90
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
GOU-ARC 331	Recreation and Water Architecture	2	c	15	45
GOU-ARC 345	Introduction to Landscape Design	2	c	15	45
	TOTAL	**28**			

400 Level

Course Code	**Course Title**	**Units**	**Status**	**LH**	**PH**
FAA 484	Professional Practice	2	C	30	-
ARC 401	Architectural Design Studio IV	2	C	-	90
ARC 402	Architectural Design Studio V	4	C	-	180
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	-
GOU-ARC 431	Working Drawing And Detailing	2	C	15	45
GOU-ARC 433	Problem Analysis and Design Economics for Architects	2	C	30	-
GOU-ARC 444	Maintenance, Restoration and Conservation of Building	2	C	30	-
GOU-ARC 476	Building Contracts and Arbitration	2	C	30	-
	TOTAL	**26**			

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 selfreliance (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; reorientation 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. Twodimensional 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 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. 3Dimensional 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.

GOU-ARC 102: Hybrid Igbo Traditional Architecture (2 Units; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

This course serves to educate new generation architects who understand contemporary architecture in the context of the wisdom embedded in the built environment and the built forms of our forefathers. The graduates of architecture who are trained in this field will certainly have an edge over their peers, and this is in conformity with the mission of Godfrey Okoye University which is a commitment to give quality education to students which is geared towards the promotion of cultural dialogue. This course is aimed at appropriately responding to the dictates of climate change and other Sustainable Development Goals like goal 4 which is on quality and inclusive education, goal 11 which is on sustainable cities and communities and goal 13 which revolves around climate action.

Overview

The study and understanding of Igbo traditional architecture is aimed at facilitating the students' appreciation of the evolution of contemporary architecture. It focuses the student on the permanent goal of architecture of protecting man from inclement weather in the spheres of activity of rest, work or play.

The course exposes the student to the realization that every building is a work subject to the limitations of the building materials and building techniques and technology available to the people. This course is in addition designed to meet the SDGs 4, 11, 13 – quality and inclusive education, sustainable cities and communities and climate action.

Objectives

The objectives of the course are to:a

1. Identify and explain culture as a way of life of the people.
2. Discuss architecture as a reflection of the culture, tradition and the level of technology of the people.
3. Explore the various building materials available to our forefathers.
4. Explore the Igbo housing settings and the "Obi" system.
5. List and discuss traditional paints and motifs.

6. Present case studies of selected locations.
7. Explain traditional building techniques and methods necessary to assemble traditional building materials.

Learning Outcomes

On the completion of this course, the student should be able to:

1. Explain the relationship between architecture, culture, tradition and level of technology of the people.
2. Discuss at least five properties of traditional building materials that commend them to their various applications.
3. Differentiate between traditional structural materials and components.
4. Identify four traditional paints and motifs.
5. List several characteristics of Igbo traditional Architecture
6. Explain why traditional building materials and techniques vary from locality to locality.

Course Content

The nature and essence of architecture. Architecture as a reflection of the way of life of the people. Characteristics of Igbo traditional Architecture. Precolonial traditional Architecture of the Eastern Region. Land mass coverage of the eastern region and predominant soil types. The Igbo housing settings. The Igbo "Obi system". The Igbo food storage system and farming traditions. Features of Igbo culture. The effect of polytheistic religion and belief in evil spirits on Igbo architecture. Elements of traditional Igbo Architecture. Symbolic evaluation and specific attributes. The relationship between architecture, available building materials and techniques. Igbo traditional Architecture and thermal comfort. Trends in Igbo traditional Architecture from pre-colonial to post-colonial era. Igbo culture, lifestyle and facts. Introduction to case study method of learning. Location-specific study of Igbo traditional architecture.

Minimum Academic Standard

As contained in the 70% of CCMAS.

GOU-ARC 122: Descriptive Geometry (2 Units; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

The main task of teaching Descriptive Geometry for students of Architecture at Godfrey Okoye University is to train them in three-dimensional thinking. Great efforts are required to prepare 100 Level students to designs in three-dimensional space. Abstract thinking in Descriptive Geometry is a perfect medium for this purpose. The main concern of this course is the demonstration of various didactic and methodical principles which optimize a thorough learning of projection, objects in space, their position and orientation relative to each other. This is in line with the mission of Godfrey Okoye University of imparting quality education. This is also in consonance with the Sustainable Development Goals 4 and 9 which emphasise quality education and industry, and innovation and infrastructure respectively.

Overview

Descriptive Geometry deals with manually solving problems in three-dimensional geometry through working with two-dimensional plane using basic equipment and tools. The course is a preparatory subject to enable students gain the basic knowledge for further studies in construction and Architectural designs.

The student will be presented with techniques that can be applied to orienting one point of view with objects in space in order to determine specific data from geometry. These techniques, based on the involved relationships, will be applied to attain both visual and mathematical solutions to the problem of describing three-dimensional objects in two dimensional graphic solutions. The student's understanding of these techniques of acquiring geometric data to solve problems will be evaluated through the assignments involved in this course.

Objectives

The objectives of the course are to:

1. Analyze the ability to visualize three-dimensional objects in their two-dimensional planar geometric shapes
2. Expose sequential thinking, methods of analysis and spatial problem solving.
3. Recognize how to find the point view of a line, determine the true length view of a line, determine the edge view of a plane, determine the true shape view of a plane, measure the angle between an oblique line and a plane and between two planes.

4. Represent a three-dimensional objects accurately in a two-dimensional drawing by using a specific set of procedures.
5. Prepare basic technical presentation of three-dimensional forms and architectural designs
6. Identify three-dimensional space and the spatial thinking in context of articulating elementary concepts in architecture.
7. Identify objects in space, their position and orientation relative to each other.
8. Expose the three-dimensional imagination dealing with different ways of projection.
9. Identify the most adequate and reasonable way of projection suiting the respective purpose in design.

Learning Outcomes

After completing this course, students will be able to:

1. Depict three-dimensional object on planar surfaces by projection
2. Solve geometric problems in space using planar representations and correctly produce and read technical drawings.
3. Use at least three necessary formative elements for spatial perception, as well as key information for creating architectural representations.
4. Identify geometric construction, various view selections, competency in drafting principles in plane geometry, technical sketching, orthographic projection theory and practice, auxiliary views, and competency in sectioning, dimensioning, and tolerance.
5. Reproduce the application of these techniques to solving practical problems in design, engineering, manufacturing and construction.
6. List various methods of representation and manual drawing practice, to develop their own graphical language and expression in architecture.
7. Make a link between reality and its measurable graphical model.
8. Recognize how to find the point view of a line, determine the true length view of a line, determine the edge view of a plane, determine the true shape view of a plane, measure the angle between an oblique line and a plane and between two planes.
9. Explore the piercing points and intersections between lines and planes.
10. Construct developments of geometric shapes
11. Solve typical engineering spatial problems.

Course Content

The basic concept of Descriptive Geometry. Points. Projections. Planes. Orthographic projection. Isometric projections. Auxiliary View. Parallel lines. Perpendicular lines. Triangular. Quadrilateral. Polygons. Circles. Trigonometry. Surface areas., Volume. Other elements of Geometry. Measurements - Area, lengths, angles using straight edge and compass .etc. Different methods of correctly depicting technical objects. Spatial visualization. Possibilities on how objects can be represented in a two-dimensional plane and corresponding geometric problems will be discussed. Furthermore, methods of amending and modifying simple projections, e.g. through text, dimensions, scales and line styles, to create technical drawings will be presented.

Minimum Academic Standard
As contained in the 70% of CCMAS.

GOU-ARC 123: Free Hand Sketching I (2 Units; Compulsory; LH = 15; PH = 45)

Senate –Approved Relevance

Training of high – quality graduate who are highly skilled, competent and knowledgeable in the skill of free hand sketching, which is one of the relevancies of this course, is in line with the mission of Godfrey Okoye University of imparting quality education. This aligns with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities.

Overview

This course is aimed at inclining the students to interrogate creativity and innovation towards free hand drawings. The course is geared at engaging the students of Architecture at Godfrey Okoye University to make free hand drawing without using instruments such as ruler or a pair of compasses and this will bring out the artistic potentials and traits of the students.

This course provides students with basic skills to produce drawing/designs towards effective production of architectural drawings and products.

Objective

The objectives of this course are to:

1. Demonstrate free hand drawing without using instruments such as ruler or compasses.
2. Identify drawing supplies.
3. Conduct and carry out beginners drawing exercises.
4. Execute simple perspective drawings.
5. Demonstrate to students how to keep and maintain a sketch book and its benefits.
6. Distinguish basic geometric shapes.
7. Apply different shading techniques.
8. Illustrate how to draw cylinder
9. Recognize how to draw a sphere, a cube, among others shapes in 3 dimensions.
10. Describe how to draw human figure using cylinder

Learning Outcomes

On completion of this course, the students should be able to:

1. Draw a composition without any instrument.
2. Conduct practical exercise.
3. Illustrate various shading techniques like pointillism, scrambling, line, dots, hatching, cross hatching.
4. Demonstrate free hand perspective drawing.
5. Distinguish between horizon line, vanishing point, eye level.
6. Perform a one-point perspective drawing.
7. Render a two-point perspective drawing by free hand.
8. Generate a three-point perspective drawing.

Course Content

Free hand sketching. Types of free hand drawing. Characteristics of artist drawings. Characteristics of drawings done by technical men and skilled industrial workers. Basics of free hand drawing. Types of media used in free hand drawing. Process to achieve free hand drawing. Sketching from life. Graphic language by which an architect explains buildings and other objects to himself. Using dry media such as pencils, crayons, etc. Creating the viewed object with your head and eyes. Hand coordination and various techniques. Technique for capturing light on paper. Basic geometric shapes. Form. Textures. Values. Positive/negative outline.

Minimum Academic Standard

As contained in the 70% of CCMAS.

GOU-ARC 124: Free Hand Sketching II (2 Units; Compulsory; LH = 15; PH = 45)

Senate–Approved Relevance

Training of high – quality graduate who are highly skilled, competent and knowledgeable in the skill of free hand sketching, which is one of the relevancies of this course, is in line with the mission of Godfrey Okoye University of imparting quality education. This course provides students with basic skills to produce drawing/designs towards effective production of architectural drawings and products. This aligns with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities.

Overview

This course is the second part of GOU-ARC 124: Free Hand Sketching I. It is aimed at inclining the students to interrogate creativity and innovation towards free hand drawings. The course is geared at engaging the students of Architecture at Godfrey Okoye University to make free hand drawing without using instruments such as ruler or a pair of compasses and this will bring out the artistic potentials and traits of the students.

The focus of this second part of the course is on lines, space, shades and wet media.

Objective

The objectives of this course are to:

1. Draw more complex objects using different graphical techniques rendered in ink and colour.
2. Render application to buildings.
3. Render techniques in perspectives.
4. Sketch life drawings.
5. Express imaginative compositions on paper.
6. Architectural landscapes.

7. Identify freehand sketching techniques using wet media such as water and poster colours and inks.

Learning Outcome

On completion of this course, the students should be able to:

1. Demonstrate drawings of more complex compositions.
2. Use three different graphical techniques while drawing and rendering in ink and colour.
3. Create beautifully rendered building sketches.
4. Use four rendering techniques in perspectives.
5. Develop still life drawings and architectural landscapes.
6. Express on paper imaginative compositions.
7. Combine freehand sketching techniques using wet media such as water and poster colours, and inks.

Course Content

Characteristics of lines. Characteristics of Space. Characteristics of Direction. Characteristics of Form. Basic Steps to free Hand Drawing of - Lines. Curve. Ellipse. Triangles and polygons. Cube. Osmotic view. Transparent view. Circle. Sphere. Cylinder. Cone. Pyramid. Perspective drawing. Horizon line. Vanishing point. Circle casting shadow in shading light from one source. Different value of shading. Exercise on various complex compositions. Wet media such as water, poster colours, and inks.

Minimum Academic Standard

As contained in the 70% of CCMAS.

GOU-ARC 126: Photography, Photo Editing and Architectural Modelling (2 Units; Compulsory; LH = 15; PH = 45)

Senate–Approved Relevance

Architectural practices and products are complex and technical and can only be appreciated by a lay man when presented in a more vibrant, more realistic, fun-appealing medium. Simplifying complex products can be achieved by employing different contemporary presentation methods and tools hence the need to introduce Photography, Photo editing and Modelling in the departmental curricula. This is in line with the mission of Godfrey Okoye University of imparting quality education and making education relevant to one's environment. Furthermore, the course aligns with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities.

Overview

Most clients appreciate and understand printed products of architecture when presented either in picture edited format or in physical architectural models. Architectural model in this instance is a miniature representation of a conceived or designed architectural concept in physical form using materials that translate into reality in appreciable scale.

Due to inadequate attention given to this integral medium of presentation, the industry has been suffering a lot of setbacks in terms of quality and timely printed deigns in edited picture formats and model presentation since there are only but a few individuals rendering these services presently. Sadly, a skill which should be acquired by all architects at BSc level and rendered as normal professional services now attracts additional charges on both the architect and the client. This course is designed to effectively address these challenges by producing broad-based enterprising architects.

Objectives

The objectives of the course are to:

1. Describe the relevance of photography in design process.
2. List basic photographic tools and equipment.
3. Enumerate the components of photo editing.
4. Describe the process of photo editing and application to design.
5. Enumerate the tools used for photo editing and packaging.
6. Illustrate the role of architectural models in design process.
7. Discuss the various types and classifications of models.
8. Describe the various model making tools, and materials and how to create some locally.

Learning Outcomes

On completion of this course, the students should be able to:

1. List at least four relevance of the course to the building industry.
2. Enumerate the general principles of photography.
3. Explain the role of photography in design process and presentation tools.
4. Describe the use of photographic tools and equipment.
5. Identify at least five basics of photo editing.
6. Discuss various applications for photo editing in design presentation.
7. List the functions of architectural models in design process.
8. Enumerate various types of architectural models.
9. List basic model making tools and materials and how they can be sourced locally.
10. State the role of model as graphics aid.

Course Content

Photography in architecture. Photo editing. Architectural model making. Definition of architectural photography. Application, importance of photography in architecture. Image capturing. Digital photography. Digital cameras. Sensors. Light in photography. Definition of photo editing. Concept of photo editing. Basics and types of photo editing. Photo editing software and application in architectural study. Definition of model making. Types of model architectural modeling model. History of model making. Functions of model making. Basic model making tools

and materials. Model as graphics aids. Packaging and preservation techniques. Practical exercises in photography. Photo editing and model marking.

Minimum Academic Standards

Modelling Studio

Smart board or 55” to 75’’ inches smart television

Joy stick

Digital Camera

Analogue Camera.

GOU-ARC 132: Architectural Composition (2 Units; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

The course revolves around introducing the students to the triad of architecture – form, function and aesthetics – among others. This enhances the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities.

Overview

Architectural design is the culmination of all the disciplines studied in any department of architecture. The introduction of more design based courses is aimed at reinforcing the design competence of the student and preparing him for the inevitable challenge of successfully dealing with emerging architectural forms.

Architectural composition introduces the student to the interplay of primary architectural forms to produce the design of his dream.

Objectives

The objectives of this course are to:

1. Introduce the student to the triad of architecture- form, function and aesthetics
2. Explain the relationship between the three;
3. Identify primary architectural forms in complex architectural forms;
4. Generate complex architectural forms from primary geometrical forms;
5. Compose architectural forms and masses
6. Achieve visual, aesthetic and structural balance in architectural composition;
7. Generate rhythm and proportion in the composition of form;
8. Identify elements of contrast;
9. Differentiate between contrast in form and mass;
10. Develop logical composition of plan and elevation using appropriate design tools.

Learning Outcomes

On the completion of this course the students should be able to:

1. Appraise the triad of architecture- form, function and aesthetics

2. Explain the relationship between the three;
3. Identify primary architectural forms in complex architectural forms;
4. Generate complex architectural forms from primary geometrical forms;
5. Compose architectural forms and masses
6. Achieve visual, aesthetic and structural balance in architectural composition;
7. Generate rhythm and proportion in the composition of form;
8. Identify elements of contrast;
9. Differentiate between contrast in form and mass;
10. Develop logical composition of plan and elevation using appropriate design tools.

Course Content

Introduction to Architectural composition. The triad of architecture – form, function and aesthetics. Hierarchy. Symmetrical and asymmetrical composition. Primary architectural forms. Identification of primary geometrical forms in complex existing buildings. The principle of massing and balance. Visual, aesthetic and structural balance on plan, elevation and third dimension. Rhythm and proportion in composition of form. Elements of contrast. Ratio and Scale. Images and metaphors. Symbols and illusion in Architectural composition. Tone and texture. Movement in Architectural composition. Motion in Architecture. Sources of Architectural inspiration. Colours and Light. Space and human behaviour.

Minimum Academic Standard

As contained in the 70% of CCMAS.

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 asses 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 join 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 (2 Units C: PH 90)

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 (2 Units C: PH 90)

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.

GOU-ARC 222: Revit 3-Dimensional Modelling (2 Units; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

The main purpose of teaching Computer Aided Design using Revit Architecture for students of Architecture at the University is to train and enable them to be able to use Revit to co-ordinate all data inputs (including CAD) and produce federated projects deliverables. This enhances the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities

Overview

The course is designed to give the students a solid understanding of Revit architecture, its features, and capabilities, from the basics through to the most advanced and complex topics. The course covers creating walls, adding site features, using massing tools and other advanced features.

The use of Autodesk Revit architecture allows students to optimize building performance and share model data with engineers and building team members. It is a software for architectural design, Mechanical Electrical Plumbing (MEP) and structural engineering, and a solution for collaborative Building Information Modelling (BIM). Its powerful tools let the students use the intelligent model-based process to plan and design.

Objectives

The objectives of the course are to:

1. Illustrate higher-quality, more accurate architectural designs.
2. Apply tools specifically built to support building Information modeling work-flows.
3. Generate custom building designs.
4. Capture, analyze and maintain their vision through design, documentation and construction.
5. Skilfully use all Revit drawing tools.
6. Create full 3D architectural project models and set them up in working drawings.
7. Relate how to achieve efficient work-flows and accurate outcomes.

Learning Outcomes

After completing this course students should be able to:

1. Develop higher-quality, more accurate architectural designs.
2. Apply tools specifically built to support building Information modeling work-flows.
3. Generate custom building designs.
4. Capture, analyze and maintain their vision through design, documentation and construction.
5. Demonstrate mastery in use of all Revit drawing tools.
6. Create full 3D architectural project models and set them up in working drawings.
7. Relate how to achieve efficient work-flows and accurate outcomes.

Course Content

Introduction to Autodesk Revit Architecture for Computer Aided Design. Features of Revit Architecture. User interface tour, browsers, bars, palettes and windows. Starting an Architectural project. Creating walls. Adding doors and windows and wall openings. Using the editing tools. Grouping elements. Retrieving information about elements. Working with Datum planes. Creating standard views. Creating floors, roofs and ceilings. Adding rooms. Shape editing tools. Working with components. Adding Stairs. Adding railings and ramps. Creating curtain walls. Adding site features. Using massing tools. Adding annotation and dimensions. Creating Project details and schedules. Creating drawings sheets and plotting. Creating a 3D view. Rendering views. Creating walk-through. Using Advanced features.

Minimum Academic Standard

As contained in the 70% of CCMAS.

GOU-ARC 232: Climate and Anthropology in Architecture (2 Units; Elective; LH = 30; PH = 0)

Senate-Approved Relevance

This course is designed to aid graduates of Architecture Department to include knowledge of Humanities (like the culture of the human person) and climate in their Designs and practices. The course situates man and his entire anthropological dimension in building designs and uses data concerned with those in architectural designs. This course aligns with the philosophy of Godfrey Okoye University which looks at human being as a social dialogue-seeking being. This is also in consonance with the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities

Overview

This course enables students to grasp the concept of man as a social being in the built environment. The themes that make man a social being include culture, kinship, marriage, cultural relativism, ethnocentrism, humanity, human origins, race, ethnicity, ethnic relations, ethnic boundaries, marginalization, minorities, local systems of governance, legal pluralism, indigenous knowledge systems, and indigenous practices and development. There is an emphasis on the historical impact of anthropology on architecture.

This course also introduces the concept of human – centric design based on information from anthropological data collected for architecture. Both architecture and anthropology study the identity of a place – what makes that place unique. Anthropology needs such an inquiry to understand the community, the phenomenon, its functioning while architecture uses its specific analysis of a place in order to make the new design part of the local context.

Objectives

The objectives of the course are to:

1. Explore how historical processes have shaped primates and led to the biological, behavioral, and cultural diversity seen in the present man and his built environment.
2. Examine how cultural systems construct reality differently for various human groups in their built environment.
3. Explain climate, culture and the built environment.

4. Describe the interplay between the three components of climate, culture and build enviroment.
5. Analyze the peculiarities and the design imperatives of the hot humid climate of Enugu.
6. Interpret different types of data collection, analysis, and synthesis then communication methods for anthropology in architecture.
7. Introduce the concept of human – centric design in the production of buildings in the Nigerian building design.
8. Express the four sub-fields of anthropology (archaeology, biological anthropology, cultural anthropology, and linguistic anthropology) and relationship with built envrimoent.

Learning Outcomes

1. Demonstrate competent understanding of the four sub-fields of anthropology (archaeology, biological anthropology, cultural anthropology, and linguistic anthropology).
2. Recognize climate and culture as fundamental design determinants of the built environment.
3. Identify the difference between the design imperatives of the hot-humid and the hot-dry climates.
4. Apply the principles of human thermal comfort in design.
5. Explain the key theories, research themes, and concepts prominent in anthropological thought across the sub-fields.
6. Explain the multiple ways in which power, hierarchy and identity shape social interactions and outcomes.
7. Relate understanding of the fact that ideas, theories and methods were shaped and changed over time in particular historical contexts.
8. Apply the knowledge of anthropology in their architectural design using the human – centric approach.
9. Discuss human diversity and how knowledge about human diversity should lead to a better understanding of the built environment.

Course Content

Introduction to and a survey of human origins and cultural achievements in the built environment. Social anthropology. Afro-centric approach to design. Historical anthropology. Theoretical aspects of anthropology and design. Methodological perspectives. Scope of anthropology. Branches of anthropology. The unique features of anthropology. Anthropology of space and place. Cultural anthropology as an approach to vernacular architecture. Materiality, engagement and scale. Ecology of architecture. Architecture of abundance. Aesthetic value of

architecture. Myth, ritual and the social construction of the built environment. Architectural forms and culture. Social relations and the built environment

Minimum Academic Standard

As contained in the 70% of CCMAS.

GOU-ARC 233: Space Matrix and Morphology of Urban Systems (2 Units; Elective; LH = 15; PH = 45)

Senate-Approved Relevance

Modern Architecture organizes spatial, formal and social relationships with conceptual ideas, intelligibility and meaning. A good urban or architectural design responds to these dimensions over and above the specific program it is intended to accommodate. In fast developing Nigerian cities like Enugu, architectural and urban design propositions are evolving to the levels of developing conceptual content that engages the imagination through the organization of visual form and space represented graphically for the purposes of analysis in space compositions. The learning outcomes will inspire the students to the full that land is scarce, but the population is growing astronomically for a difficult planning of efficient urban system. By introducing this course in the undergraduate level of Godfrey Okoye University, it will enable the students to see the city and its abundant buildings differently as they are armed with knowledge of functional analysis which enhances their design thinking skills. This is also in consonance with the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities

Overview

This module gives a beginner-level introduction to the principles & methodologies of Space in Architecture, urban planning & building design practice. Additionally, the module studies in depth the relationships between architecture, space, and the theories involved in design practice, how buildings and cities support vibrant spatial cultures/behaviours, how they are experienced, how cultural messages and narratives are embedded in architecture and how symbolic meanings can bridge across media enhancing architectural understanding.

The course explores these issues in-depth through theoretical reflection built around visual ideas and analytic drawings. The course translates the complex and concrete fabric of space into discrete and syntactic components whose relations are explicable by mathematical mechanisms. In this course, students will learn the abstractions embedded in Spatial compositions which will be further expressed as 1-Dimensional lines in building and urban layouts representing circulation corridors, streets and paths called axial lines and 2-Dimensional convex zones representing rooms and termed convex spaces.

Objectives

The objectives of the course are to:

1. Discuss fundamental space matrix principles & methodologies.
2. Describe the significance of space matrix as a human-focused approach to design.
3. Explain the theoretical framework that links comparative and analytical descriptions with architectural theory, design intuition, and design logic.
4. Identify robust and reasonably objective arguments, methods and techniques to modelling that

predict effects of architectural and urban design on important social/behavioral issues related to privacy, safety, crime rates, and prosperity and traffic control.
5. Define the fundamental mathematical theories behind the space matrix approach.
6. Describe the syntactic analysis of buildings and cities within a wider theoretical context towards solving simple problems like indoor/outdoor circulation and way-finding.
7. Implement various building and spatial analysis practical work using space matrix principles.
8. Analyze the formation of new planned areas in the rural areas.
9. Conduct a practical exercise on the best way to minimize the exodus from the rural areas to urban cities.
10. Describe the modernity in the development rural areas and eexplain the primary courses of exodus and the way to cub it.
11. Conduct a demography of an area and know the number of amenities in comparison to the population

Learning Outcomes

On completion of the module, students should be able to:

1. Comparatively describe space, form through theoretical and analytical knowledge.
2. Describe conceptual, empirical and functional aspects of architecture through theories of space, form, design languages, function, perception, cognition and way-finding.
3. Identify five (5) roles of space matrix analysis in architecture within interdisciplinary, cultural or behavioural analyses.
4. Explain theories of space, awareness of space, cognition and design languages in larger urban context.
5. Demonstrate syntactic analysis of buildings and cities within a wider theoretical context towards solving simple problems like indoor/outdoor circulation and way-finding.
6. Evaluate and analyse the functionality of spaces, layout and form configurations, using software, mathematical equations and graphical applications.
7. Conduct analysis on the best ways to develop the rural areas and eexplain various morphologies that a given area can adopt.
8. Predict a mini demography of a given area in order to adopt a morphology suitable for that area.
9. Describe the relationship between the population and amenities to be given to such area.
10. State some theories and measurement of movement, roads, and plants or comprise available.
11. Identify how autonomous communities could be created to cater for population and how best to control demography.

Course Content

Introduction to space matrix. The general theory. The psychology of human movement, flow patterns and spatial cognizance. People, movement and public space. Petropolis. Therapeutic space. Spatial cognition principles. Fundamental theories of circulation and way-finding. Cognitive way-finding. Bubble diagrams. Site analysis. Techniques of measurement for analysis. Layout configurations and mapping. Spatial networking. Spatial exploration and cognitive representations of real-world spatial information. Introduction to basic elements of space. Techniques for measurement and analysis (values). Introduction to the rudimentary calculation/simulation tools. Configuring architectural forms and layouts. Graphical and visualised

mapping. The best morphology to adopt. How to create and control the future population in comparison with less availability of land. How the land can be used effectively. Effects of climate change on the population and available land. Terrorism is another cause of migration. Morphology of spaces as a tool for easy population control in comparison with available land.

Minimum Academic Standards

Computer Laboratory with simulation software e.g. 3D EXPERIENCE, Mass Motion.

GOU-ARC 241: Introduction to Land Surveying (2 Units; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

Architecture students of Godfrey Okoye University will be trained to acquire basic knowledge on the principles and techniques of Land Surveying which will be relevant to their professional practice even before graduation. The course will enable them to understand the technical information and data from land surveying, their applications in project planning, design and construction. It will be of great benefit to them in site investigation, concept development, site planning and orientation, sectioning and setting out of their building projects. The built development will thereby be integrated with the terrain and environment to achieve sustainability which will be beneficial to the community and society at large. The graduate architect could be engaged by a client for site investigation, analysis, selection and acquisition for a fee. These are in line with the mission of Godfrey Okoye University to educate and qualify students with relevant entrepreneurial knowledge and skills to enable them to be self-employed. This also enhances the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities

Overview

Land surveying, one of the professions in construction industry, is the technique, profession, art and science of making all essential measurements to determine the relative positions of points above, on, or beneath the surface of the earth, which are used for preparations of plans and maps. It is an imperative requirement in the planning and execution of nearly every form of civil construction.

In architecture, land surveying provides the basic framework for the conception, planning, designing, execution and maintenance of building works. The course will enable the students to be educated on how they will utilize the technical information and data from land surveying to carry out their architectural practice.

Objectives

The objective of the course are to:

1. Provide an overall view about land surveying as an observation technology which will help the architect recognize the problems in which surveying can assist.
2. Introduce some basic surveying instruments and methods to the student-architect and how to employ them in their practice.
3. Identify the various methods of surveying small areas.
4. Utilize measurements from surveying to execute architectural works.
5. Identify the site details, sizes, boundaries, orientations etc. provided by survey plan and needed for their site planning and integrating the project with the terrain.

Learning Outcomes

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

1. Acquire cognitive knowledge on the basic principles and techniques of land surveying.
2. Use basic surveying devices.
3. Apply technical data and information from land surveying to carry out architectural and building projects.
4. Integrate site terrains and architectural projects to achieve a sustainable built environment.
5. Undertake preliminary site investigation, analysis, selection and assist in site acquisition for the client.

Course Contents

Introduction to land surveying. Basic parts of land surveying. Measurements in land surveying: linear and angular. Primary divisions of surveying: plane and geodetic. Types of surveying instruments. Classification of surveying based on instruments used. Classification of surveying based on methods: triangulation and traversing. Some branches of land surveying. Importance of land surveying. Roles of land surveying in other professions. Theory, sources and types of errors in making observations in land surveying. Plans, maps and Scales. Equipment and Fieldwork for taping. Some important definitions in levelling and surveying. Levelling and how heights are determined. Calculating reduced levels. Chain surveying. Bearings and directions. Topographic maps/contouring. Longitudinal sections and cross sections. Setting out buildings and simple road works.

Minimum Academic Standard

As contained in the 70% of CCMAS.

GOU-ARC 242: Site Selection, Planning and Design (2 Units; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

This course helps in the enhancement of the architect's design. The course enables the student to appreciate the role of site selection and planning in architectural design. This is in line with the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities

Overview

Selecting, Planning and developing sites should be the target of the students' output. Creativity and flexibility are important when seeking an appropriate design for all building types. This course summarizes and explores the advantages and disadvantages of site selection for various building types.

Selecting the right site for a new building is a critical decision that can have far-reaching consequences. Selecting the right site is expected to take the following into consideration: local zoning laws, key design aspects, customer demand, etc. The course shows the importance of conducting a needs assessment before undertaking site selection.

Objectives

The objectives of the course are to:

1. Identify regional priority.
2. Discuss sustainability of sites.
3. Apply innovations in design.
4. Establish materials and resources.
5. Discuss energy disposition and atmosphere.
6. Investigate water efficiency at the site.
7. Explain indoor environmental quality.
8. Explain the need to create awareness and educate the client.
9. Apply the principles of locations and linkages.

Learning Outcome

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

1. Identify the regional priorities in the region.
2. Predict and trust the suitability of the site for its purpose
3. Apply the acquired innovations in design
4. Establish and specify the building materials
5. Establish the energy disposition of the site
6. Utilize the environmental infrastructural of the site
7. Address indoor and outdoor specifications of the site
8. Assure the client of the appropriateness of the designers' specifications
9. Use the principles of location of site and its linkages.

Course Content

The concept of site selection. The concept of site planning. The concept of site design. The process of site selection. The review of site selection criteria. Town planning regulations. The land use problems in Enugu and other Nigerian cities. Land Use Act 1978. Site programming and design. Site evaluation and implementation. Environmental factors in site planning. Site planning for road construction and other land uses. Landscaping in site planning and design. Other site planning operations like drainage and grading. Legal aspect of site selection and planning. Zoning in site planning and design and its effects on neighbours. Discussing various site selection criteria like location. Sources of building materials. Access to market outlets for finished products. Adequacy of bbuilding size. Accommodating future ggrowth. Plumbing, eelectrical and heating/ventilation. The condition of adjacent and nearby properties. Costs and renovations. Estimated maintenance costs. Political issues that would impede approval of the site.

Minimum Academic Standard

As contained in the 70% of CCMAS.

GOU-ARC 272: Building Typology (2 Units; Compulsory; LH = 30; PH = 0)

Senate-Approved Relevance

With the development of society, the attitude to architecture and its importance has become dynamic. Building typology in architecture is perceived as a professional activity that is a basis of architectonic creation, as such it should be acquired by students of architecture. Building typology is the comparative and taxonomic study of physical or other characteristics of the built environment. Godfrey Okoye University is committed to championing new trends by producing architects who will be so equipped with basic skills and knowledge needed for effectively bridging the gap that has been in existence in the industry. Expertise in Building Typology will enable the student of architecture of Godfrey Okoye University to poses the special entrepreneurial skill which the course intends to inculcate in the student. This will enable the student to not only be relevant in the industry but also self-reliant during the duration of his/her study and in practice thereafter.

Overview

Building typology refers to the study and documentation of buildings according to their essential characteristics. In architectural discourse, building typology classification tends to focus on building function (use/users), building form, or architectural style. The etymology of 'typology' points to the wider meaning. In connection with architecture, it is important to study types and their classifications and sorting items into categories and groups based on differences and conformity.

This course will encourage and enhance entrepreneurial knowledge and skills to enable students to be self-employed. This also enhances the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities.

Objectives

The objectives of the course are to enable students to:

1. Identity different building types.
2. Review the structural and architectural configuration of buildings.
3. Provide the basis for creating a structural model for buildings.
4. Analyze the dynamic performance of buildings.
5. Evaluate and be able to apply the functional and circulation principles.
6. Design technical systems of different building types.

Learning Outcomes

After completing the course, students should be able to:

1. Design different building types and designs.
2. Competently handle complex architectural designs and drawings.
3. Recognize diagram of different building types.
4. Summarize and apply the characteristics and needs of different types of buildings.
5. Predict the dynamic performance of buildings.
6. Combine advanced skills in designing technical systems of different building types.

Course Content

The meaning of building typology in Architecture. Understanding building typology. Importance of topological analysis in architecture for cultural continuity. Types of building typology. The concept of typology in architecture. Typology in building design. Typology in building construction. Government categorization of building types. Building typology and their influence on the location. Typology as a design method. Typology as a design process. National building typologies. Housing Typology Assessment. Commercial building typology. Building typology classification and earthquake vulnerability scale. Improving the building typology. Structural typologies and architectural space. Spatial building typology. Building typology and energy efficiency.

Minimum Academic Standard

As contained in the 70% of CCMAS.

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 (2 Units C: PH 90)

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.

GOU-ARC 331: Recreation and Water Architecture (1 Unit; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

Water is one of the fundamental resources for survival of humanity. It was one of determining factors that influenced the choice of new settlement in the rural areas. Water as a renewable resource needs continuous protection by mankind. This is true especially in the light of climate changes we are experiencing, such as rising temperature, desertification and flood. Water has always had a close relationship with architecture by influencing buildings since ancient times. It also creates an enabling environment and resource for recreational activities when effectively developed and managed. The permanent site of Godfrey Okoye University is blessed with four water bodies: two natural lakes and two flowing streams which can be harnessed and developed into recreation sites. This course explores these natural treasures which can offer students skills and knowledge needed for creating sustainable recreational environment by way of water architecture.

Overview

Water bodies no longer pose a threat to urban design and development as water itself is a vital resource with immeasurable values when properly tapped. Hence urban design now reflects a need to incorporate our water bodies in harmony with life and nature. Buildings and landscaping design now takes advantage of this natural resource by adopting forms from water or naturally incorporates water elements in attempt to preserve water and celebrate nature. This leads to structures which create a beautiful connection between land and water, and man and nature.

The contents of this course is designed to effectively address the various challenges water bodies seem to pose to design and drive towards tapping into this vital resource to create beautiful pieces of architecture and follow the line of great architects like Frank Lloyed Wright (Falling waters) and the inspiration of many beautiful pieces of water architecture like Water Mirror in Bordeaux, Fin Garden in Iran, Villa d'Este garden in Tivoli.

Objectives

The objectives of the course are to:

1. Explain to the concept of recreation and water architecture.
2. Establish the bases for the course.
3. Identify the components of recreation and water architecture.
4. Describe the process environmental requirements.
5. Illustrate building requirements for recreation and water architecure.
6. Explain the safety measure and risk management strategies.
7. Explore various architectural design consideration for designing in water.
8. Illustrate the role of recreation to healthy life.
9. Identify the benefits of incorporating nature in design and recreation.

Learning Outcome

On the completion of this course, the students should be able to:

1. Explain the fundamental elements of recreation and water architecture.
2. Identify design challenges in water bodies.
3. Enumerate seven climatic benefits of designing water nature.
4. Explain the concept of developing waterfronts areas.
5. Illustrate the relationship between architecture, water and recreation.
6. Generate a design template for sustainable design around water.
7. Incorporate recreation in developing waterfronts designs.
8. Adopt sustainable building materials for water architecture and recreation.

Course Content

Water and land recreation potential and opportunities. Various types of water bodies and ways to harness them for recreation. Principles of riverfront development. Site study and specific information analysis. Building requirements. Safety measures. Sustainable design strategies. Water in outdoor spaces. Water in indoor spaces. Accessibility and service roots. Water conservation. Economic and socio - environmental viability. Materials and water management. Construction methods. Principles of designing along water bodies. Design for building in water. Basic structural principles for designing along water coastlines.

Minimum Academic Standards

The minimum academic standards for this course shall be as contained in the already established CCMAS standard.

GOU-ARC 345: Introduction to Landscape Design (2 Units; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

Landscaping enhances the beauty of the surroundings of a building. This can be deployed in environmental sustainability. Landscaping is gradually becoming in our society a big source of income for architects. This course is in line with the mission of Godfrey Okoye University to educate and qualify students with relevant entrepreneurial knowledge and skills to enable them to be self-employed. This also enhances the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities.

Overview

Our ability to leave behind for succeeding generations an improved or sustainable environment depends both on a more enlightened approach to the use of land/landscape resources as well as on improved resource management. This requires insights into relevant techniques to apply in solving complex environmental/landscape design problems.

Enugu, which is beautifully perched on the rolling landscape along Enugu and Awgu Escarpments, and the Udi – Nsukka plateau, parades a unique mix of urban, sub-urban, upland, palustrine and some degraded landscapes. These offer practical settings for learning and experimentation in this introductory course. This course is thus geared towards introducing and igniting ecological sensitivity and wise use of resources in the design/management of the relationship between indoor and outdoor spaces as well as open spaces.

Objectives

The course intends to

1. Illustrate what landscape is along with the elements integrated in landscape design namely: topography, vegetation, water, light, structures etc.
2. Explain the role and scope of landscape architecture in both the built and natural environments.
3. Introduce the landscape design process as a problem-solving journey with feed-backs and involving site inventory, analysis, synthesis and plan graphics.

4. Label elements of landscape design on site and context entailing visual, contextual, natural, socio-cultural and behavioral factors.
5. Create an appreciation of grade or level changes in the landscape, the design features to address them along with plants in the landscape, ecology/ecosystems and relationships with human ecosystems.
6. Experiment with all these precepts in practical design of selected open spaces both in GOUni campuses and the metropolis.

Learning Outcome

On completion of this introductory course, the students should be able to:

1. Describe environmental/landscape design processes.
2. Identify various techniques in site planning and in the design of landscapes.
3. Appraise planning and management of small outdoor spaces and landscape for living/working.
4. Produce at least two sketches that relate adequately to indoor spaces.
5. Generate two practical design of selected open spaces both in Godfrey Okoye University campus site and the metropolis.

Course Content

A general appreciation of natural elements of landscape. A general appreciation of man-made elements of landscape. The contribution of natural elements of landscape in the design of open spaces related to buildings. The contribution of man-made elements of landscape in the design of open spaces related to buildings. Design with nature or subjugation of nature. Landscape architecture of urban neighbourhood. Landscape architecture of single building lands. Landscape architecture of rural neighbourhood. Hard landscaping. Soft landscaping. Therapeutic landscaping. Horticulture. Climate constraints. Environmental constraints. Spatial relationship between architectural interiors and landscape. Traditional building techniques and landscape. The use of natural resources: Trees, bushes, grass, rocks, water, etc in urban landscape (housing recreation area).

Minimum Academic Standards

The minimum academic standards for this course shall be as contained in the already established CCMAS standard.

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 (2 Units C: PH 90)

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 mixeduse 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 (4 Units C: PH 180)

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 mixeduse 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 Llyod 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.

GOU-ARC 431: Working Drawing and Detailing (2 Units; Compulsory; LH = 15; PH = 45)

Senate-Approved Relevance

The focus of this course is to equip the graduates of Architecture with relevant knowledge and skills to respond and communicate correctly with other consultants in the building industry like the engineer, the contactor and other specialists. This course will arm students of architecture with the skill of working with a completed working drawing. A working drawing is used in the erection of a building from foundation to finishing. Students of the course will also learn how to handle basic specifications of building materials to suit the design and functions of a building. This course is in line with the mission of Godfrey Okoye University of educating and empowering students with relevant entrepreneurial knowledge and skills for self-employment. This also enhances the mission of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education and goal 11 which is on sustainable cities and communities.

Overview

Architectural working drawings show all the details and measurements needed for the builder to construct the building but also to plan the construction process, particularly showing any unusual features or requirements that need special attention. These include plans for each floor, exterior elevations (outside views) and sections (cutaway views) of the building.

Working drawings form an addition layer (s) of detail over the planning-approved drawing, structural and building regulation drawings. They show the dimensional detailed specifications about every aspect of a building. Done properly, they should read as a how-to manual for the Builder on site.

Objectives

The objectives of this course is to:

1. Explain the concept of graphic communication in architecture and construction.
2. Analyse different drawing tools and equipment, technical standards and procedures for construction drawings.
3. Explain to the students the skills that will enable them convert pictorial 3-D drawing to 2-D.
4. Itemise and apply the principle of sectioning.
5. Explain to the students the purpose, procedures, materials, and conventional symbols utilized in architecture and construction.

Learning Outcomes

On the completion of this course, the student should be able to:

1. Create and utilize construction documents.
2. Decipher and communicate information through drawings and specifications.
3. Produce drawings in accordance with standard industry practice and to a level suitable for building permit approval applications.
4. Read and interpret plans and specifications and to produce working drawings for buildings.
5. Generate architectural working drawings and detailing.

Course Content

Definitions. Essentials of working drawings. Uses of working drawings. Types of working drawings. Problems of incomplete working drawings. Structure of working drawings. Floor plans. Sections. Site plans. Roof plans. Foundation plan. Dimensioning. Specifications. Checklist of drawings. Scale representation. Graphical representation. Detailing. As-built drawing.

Minimum Academic Standard

Visit to a construction site and an architect’s office.

GOU-ARC 433: Problem Analysis and Design Economics for Architects (2 Units; Compulsory; LH = 30; PH = 0)

Senate-Approved Relevance

Problem-solving is an important life skill because it is also a very useful tool to help tackle immediate challenges or achieve goals. It is a skill that once acquired becomes usable repeatedly. The training of highly-skilled architects capable of producing economic and sustainable designs aligns with the mission and vision of Godfrey Okoye University of imparting quality education. The contents of the course align with the United Nations' Sustainable Development Goals: goal 4 which is on quality and inclusive education, goal 11 which is on sustainable cities and communities and goal 17 which revolves on the strengthening of the means of implementation of sustainable development.

Overview

There are a variety of problem-solving processes, and each process consists of a series of steps, including identifying an issue, searching for options, and putting a possible solution into action. There is also an increasing design need to provide design solutions that deliver value for money and which recognizes the increasing economic constraints of clients and the need to balance the environmental, social and economic factors in the development process. The increasing number of abandoned projects all over the country as a result of the inability of the clients to complete the construction as designed has become a great source of worry to architectural educators.

In an attempt to complete the building, desperate clients resort to making unauthorized design changes that invariably increase the chances of avoidable building collapse. This course presents to the student the cost implications of the design decisions the architect makes, together with the choice of materials and the skill and technology necessary to put those materials together.

Course Objectives

The objectives of this course are to:

1. Define problem-solving strategies.
2. Identify and solve design problems.
3. Explain the cost implications of the design decisions of the architect.
4. Analyze the factors affecting design cost and economics.
5. Describe the design cost and benefit matrix.
6. Explain the capital cost theory.
7. Explain the cost effects of choice of form, space organization and choice of material.

8. Consider the cost implications of the skill, techniques and technology necessary to assemble the building materials together.
9. Highlight the cost implications of transportation of building materials as a determinant factor in choice of materials.
10. Analyze design variables and key design considerations.
11. Explain the concept of whole life cost theory of the product of design.
12. Demonstrate the concept of value management theory.
13. Discuss the resource-based theory.

Learning Outcomes

On the completion of this course, the student should be able to:

1. Describe the cost implications of the design decisions of the architect.
2. Outline the factors affecting design cost and economics.
3. Defend the design cost and benefit matrix.
4. Explain the capital cost theory.
5. Identify the cost effects of choice of form, space organization and choice of material.
6. Consider the cost implications of the skill, techniques and technology necessary to assemble the building materials together.
7. Highlight the cost implications of transportation of building materials as a determinant factor in choice of materials.
8. Enumerate design variables and key design considerations.
9. Appraise the concept of whole life cost theory of the product of design.
10. Identify the concept of value management theory.
11. Summarize the resource-based theory.

Course Content

Architectural programming. Deductive and inductive reasoning. Design as a problem-solving tool. Problem solving process. Concept generation in architecture. Problem solving techniques/exploring CPM. The use of network and systems analysis. Operations research. Time motion studies. Topological phenomena. Cost implications of the design decisions of the architect. Architects instructions and implications. Professionals involved in Design in economics. Specification in design. Cost-effective design. Factors affecting design cost. Factors affecting design economics. Design cost control. Design benefit matrix. Capital cost theory. Design variables and their implications. Design considerations. Determinant factor in choice of materials. The concept of whole life cost theory. The concept of value management theory. The concept of resource based theory. Resource-based theory.

Minimum Academic Standard

As contained in the 70% of CCMAS.

GOU-ARC 444: Maintenance, Restoration and Conservation of Building (2 Units; Compulsory; LH = 30; PH = 0)

Senate-Approved Relevance

Buildings require maintenance to ensure their functionality and ensure that they do not deteriorate to a state of creating safety concerns to users. The importance of maintenance is unfortunately not appreciated by most owners who view it as a necessary evil and commit minimum funds for the work. This leads to a reactive mode of maintenance rather than a planned preventive approach, with implications on service quality and increasing costs as defects are inevitably attended to too late. Nigeria is highly skilled in design and construction, but unlike countries like Italy and Spain, not much is invested in conservation techniques as is obtainable in advanced countries. For instance, in Enugu, a lot of money could have been made from the restoration and conservation of old coal mines and coal corporation buildings around Iva Valley Coal Camp and other places. Instead those areas were destroyed, and sold to individuals for the purpose of residential dwelling. The course is developed in conformity with the mission of Godfrey Okoye University to impart quality education and to produce graduates who are equipped to contribute to societal development.

Overview

This course is designed to expose students to all elements of buildings, their performance in use and the progressive deterioration in their conditions. The course deals with aspects of maintenance involving rehabilitation, repairs and restoration.

The course will enhance the preparation of students in Architecture with the knowledge and skills on how to restore/conserve one of the most essentials of life, which is shelter. The importance of this course lies in meeting the need of achieving sustainable development goals in the areas of poverty reduction and good working condition and space instead of destroying our patrimony and rebuilding another like in the old secretariat in Enugu.

Objectives

The objectives of this course are to:

1. Explain to students how to establish a maintenance management framework for efficient and cost-effective work planning and execution.
2. Evaluate the drivers of maintenance namely cost and service, and then identify different parameters for deriving a maintenance strategy.

3. Expose students to maintenance policy and maintenance standards to meet organizational needs.
4. Analyse long, medium and short term maintenance budgets.
5. Analyse guidelines for maintenance outsourcing and performance monitoring.
6. Explain the restoration, conservation and design or redesign of an existing edifice.
7. Compare the use and application of old materials with modern ones.
8. Conduct some practical exercises by going to the archive or town planning offices to retrieve and study documents, and reconstruct old monuments like presidential Hotel, Railway quarters, Council buildings among others.
9. Describe the principles and maintenance techniques of conservation.
10. Describe the moisture control of every old monument in order to fortify the building.
11. Explain the effects of rain, wind, sun on material degradation problem.
12. Describe how to transform an old building to modern one instead of demolishing it.
13. Analyse the benefits of maintenance, conservation and restoration.

Learning Outcomes

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

1. Restore older and dilapidated buildings back to its original standards.
2. Maintain buildings in good and healthy condition and prevent serious damage in buildings.
3. Maintain the utility value and increase the durability of buildings.
4. Undertake some improvements in a building so that it can perform its function properly and improve the buildings depending on trends and modernization in the area.
5. Prevent decay of building structure caused by adverse effects of weathering agencies.
6. Strengthen the structures or maintain the standard of building.
7. Describe how old buildings can be transformed into a modern building.
8. Conduct analysis on the use of modern materials to fortify old buildings.
9. Conduct practical exercises on the impact of humidity on old building material and how to change the tide.
10. Enumerate how the youths can make a living with conservation.
11. Explain at least 5 (five) conservation and restoration methods of old monuments and buildings.

Course Content

Building Maintenance Drivers. Building Maintenance Strategy. Maintenance Policy. Maintenance Standards & Systems. Maintenance Management Structure. Maintenance Budgets and Outsourcing. Monitoring Maintenance Work. Choice of materials and methods of construction. Maintenance consideration at the design stage. Program of maintenance works. Production of maintenance manuals. The preparation of schedules of dilapidation and schedules of repairs.

Aspects of maintenance involving rehabilitation, repairs and restoration should be explained. Elements of buildings, their performance in use and the progressive deterioration. Types of maintenance in buildings. Retrofitting. The motive and importance of design, maturation and conservation of old monuments. Factors affecting restoration and maintenance of old buildings and monuments. How restoration can help for tourism, foreign exchange and families in Nigeria. Materials for conservation and scraping of old planting and making the walls stronger and modern. Scraping of old roofs to modern ones if the need be case studies of selected monuments like the presidential building and old secretariat.

Minimum Academic Standard

As contained in the 70% of CCMAS

GOU-ARC 476: Building Contracts and Arbitration (2 Units; Compulsory; LH = 30; PH = 0)

Senate-Approved Relevance

In the field of architecture there are challenges which remotely linked to art of designing of structures. Building contracts and matters of arbitration are examples of such. The training of highly qualified graduates who are capable of competently addressing the multiple challenges in a field is embedded in the core values of Godfrey Okoye University. Thus, the mission of the university speaks about epistemological dialogue. Also, this course is designed to addresses the United Nations' Sustainable Development Goals 4, 11 and 16 which deal respectively with the following: inclusive equitable quality education while promoting lifelong learning opportunities for all; resilient and sustainable cities and human settlements, and the promotion of peaceful and inclusive societies for sustainable development.

Overview

The ability of the architect to successfully balance the dictates of his responsibility towards his client and the contractor largely determines the delivery and quality of the project. This course is designed to introduce students to real life situations of project supervision from tendering stage through award of the contract to all the intricacies of project supervision up to final account and project hand over.

It emphasizes the professional role of the architect in managing the contract signed between the client and the contractor while remaining a fair arbiter to all concerned. The central focus of the course is to ensure that the architect successfully delivers the project without any cost over-run or schedule over-run,

Course Objectives

The objectives of the course are to:

1. Identify the professional activities of the architect leading to the award of a contract.
2. Identify the approval process of a plan.
3. Explain the tendering process.
4. Analyze tender analysis.
5. Describe the factors that influence the choice of the type of contract to be adopted in a particular situation.
6. Differentiate between types of contracts e.g. design and build vs turn-key.
7. Express the general structure of the standard form of the building contract.
8. Interpret all the 35 clauses of the standard form of the building contract.
9. Identify the clauses that empower the architect to issue architect's instructions.
10. Differentiate between variation and fluctuation.
11. Identify the various conditions under which either the client or the contractor can determine the contract.
12. Identify the warning pointers to cost over-run and schedule over-run during the project supervision process.
13. Distinguish between interim certificate and final certificate.

14. Recognize the implication of retention fund.
15. Explain the implication of practical completion for the architect, client and contractor.
16. Analyze the logic behind the duration and the implication of the defects liability period.
17. Prepare the final account, organize the project hand over report and list the advantages of arbitration as a dispute resolution mechanism

Learning Outcomes

On the completion of this course, the students should be able to:

1. Itemize sequentially the professional activities of the architect leading to the award of the contract.
2. Take a project through all the stages of the approval process.
3. Describe the tendering process and the tender analysis.
4. Explain the factors that influence the choice of the type of contract to be adopted in a particular situation.
5. Distinguish between design and build, and turn-key types of contracts.
6. Comprehend the general structure of the standard form of the building contract.
7. Apply all the 35 clauses of the standard form of the building contract.
8. Master all the clauses that empower the architect to issue architect's instructions.
9. Apply the practical implications of variation and fluctuation in the course of project supervision.
10. Identify when and how a contract can be determined by any of the parties in the contract.
11. Supervise within project budget limit and proposed project duration.
12. Express the importance and significance of the various certificates issued by the architect during supervision.
13. Recognize the technicalities and advantages of arbitration as a dispute resolution mechanism.

Course Content

The architect and the law. The importance of the law in the professional activity of the architect. The architect's duty as an agent. Negligent actions and statements. The law, the architect and his client. Easements and conveyancing. Professional activities leading to the award of the contract. Factors that influence the award of the contract. Types of building contracts. Advantages of design and build and turn-key projects. Disadvantages of design and build and turn-key projects. The structure of the standard form of the building contract. The contents and implications of the clauses from clause 1 to clause 35 including arbitration. Types of arbitration.

Minimum Academic Standard

As contained in the 70% of CCMAS.

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.	Filling 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
Hest 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 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

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.	Filling 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 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