

# DEPARTMENT OF ANIMAL SCIENCE AND TECHNOLOGY

FEDERAL UNIVERSITY OF TECHNOLOGY

OWERRI, NIGERIA



## STUDENTS' INFORMATION HANDBOOK



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**DEPARTMENT OF ANIMAL SCIENCE AND  
TECHNOLOGY**

**FEDERAL UNIVERSITY OF TECHNOLOGY,  
OWERRI, IMO STATE**



**UNDERGRADUATE STUDENTS'  
INFORMATION HANDBOOK**

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## BRIEF HISTORY OF THE DEPARTMENT

The Federal University of Technology, Owerri, was one of the first three Universities of Technology established by the Federal Government of Nigeria in the 1981/82 academic session. The establishment of the University was in direct response to the national need to raise skilled, innovative and technology-oriented manpower resources for the development of technology-based economy in Nigeria.

The Animal Production Programme was one of the programmes of the School of Agriculture and Agricultural Technology (SAAT) of the University. The School (SAAT) was one of the four Schools established then. The Programme started with an initial student enrolment of nine (9) and staff strength of two (2) in 1982. It existed as a programme from 1982 to 1987/88 academic year when it acquired the status of a full-fledged Department and renamed Department of Animal production. In the 1987/88 session, it graduated its first set of students. The degree awarded by the Department up to 1996/97 session was Bachelor of Agricultural Technology (B. Agric. Tech., Animal Production). In 1998 the Department was renamed Department of Animal Science and Technology, and currently the degree awarded is B. Agric. Tech. (Animal Science and Technology). To date, the Department has graduated well over 2,300 students.

Dr. M.U. Illoeje (now Professor) started the programme and became its first coordinator in 1982. He served in this position until 1988 when he assumed the Deanship of the School of Agriculture and Agricultural Technology. Then Dr. N. Eshett (now late) succeeded him as Programme Coordinator. When the Programme assumed a Department status, Dr. N. Eshett became the Acting Head (Ag. HOD) of Department.



Dr. A.B.I. Udedible took over as Ag. HOD in 1989 and held the position until November 1998 when Dr. U. Herbert took over as the Ag. HOD. Dr. N.J. Okeudo became the Ag. HOD in 2001 until 2003 when he handed over to Dr. G.A. Anyanwu. Dr. B.O. Esonu took over from Dr. Anyanwu in 2005 and handed over to Dr. U.E. Ogundu in 2006. Dr. M.C. Uchegbu took over from her in 2010 and handed over to Dr. O. O. Emenalom, the current Ag. HOD in July 2012. Currently, the Department has a complement of 24 fulltime academic staff, 4 registry staff, 3 laboratory staff and 22 technical farm staff.

Student enrolment in the Department has continued to increase over the years. The Department has over the years developed viable livestock holding in the University Teaching and Research Farm. These include large and small ruminant unit, cattle unit, swine unit, poultry unit and feed mill.

In 1989/90 Session, the Department developed a highly specialized Postgraduate training for students in the areas of Animal Genetics and Breeding, Animal Nutrition, Animal Management, Animal Products Technology and Reproductive Physiology.

### **CHANGE OF NAME**

Over the years, the Department had considered changing its name to reflect the totality of the curriculum the students were made to go through. In 1997/98 Session, the University Senate approved the change of name of the Department name from Department of Animal Production to Department of Animal Science and Technology.

### **VISION:**

To become a centre of excellence in Research and Training in Animal Science and Technology as well as

development of required expertise for the Animal Industry and related Industries.

### **MISSION:**

To produce manpower with a thorough professional background in general agriculture in addition to a very accomplished expertise and specialization in the art, science and Technology of Animal Science and Technology through quality Research and Teaching.

### **PHILOSOPHY:**

To impart the technical skills, the "know how" and "how to do" required for successful operation of a modern day animal industry.

### **OBJECTIVES:**

To produce skilled man power in Animal Science and Technology through Research and Teaching.

To provide academic liaison and dissemination of Research findings through public lectures, conferences, seminars, symposia, workshops and publications.

To provide policy advice and formulation in issues related to Animal Science and Technology.

### **ACADEMIC CONTENT AND PHILOSOPHY OF THE DEGREE PROGRAMME**

The Department offers a 5-year programme of instruction leading to award of the Bachelor of Agricultural Technology (B. Agric. Tech.) degree in Animal Science and Technology. The degree programme is carefully structured to give our students a thorough professional background in general agriculture, in addition to a very accomplished expertise and specialization in the Science and Technology of Animal Production. The main focus of our training is imparting the technical skills and know-how required for successful management of modern livestock

enterprises. A very unique feature of our programme is that Staff members are made to carry students along in instructions, discussions and development of appropriate technologies to meet the demands of the animal industry in the tropics.

Another unique feature of our curriculum is the practical content of our courses. Each hour of classroom contact is matched with another 3 hours of practical laboratory and / or on-farm exposure. Our training programme scrupulously provides opportunities for our students to learn by actually "doing it" themselves. In order to emphasize the importance of the practical aspect, our programme exposes the students to the rigors of animal production in the world, by offering job-training attachments to various animal production enterprises and farms. These periods of on-the-farm training amount to 30% of the student's entire stay in our Department. The contents of the undergraduate courses also offer excellent preparation for eventual postgraduate training in any of the areas of higher degree specialization in Animal Science and Technology in our University or any other University in the world.

## **ADMISSION REQUIREMENTS**

### **Admission through University/Tertiary Matriculation Examination (UTME)**

Candidates seeking admission into the Department through the University Tertiary Matriculation Examination (UTME) must possess at least five O' Level credits in the SSCE, NECO or GCE at not more than two sittings. The subjects include Agricultural Science / Biology, Physics, Chemistry, Mathematics and English language. Biology may be taken in place of Agricultural Science and vice versa but English, Mathematics and Chemistry are compulsory for any student to be admitted into any Department in the University.

## Admission through Direct Entry

Candidates seeking admission into the Department by Direct Entry must possess at least two A' Level passes in relevant subjects at HSC or GCE. In addition, the candidate must have credits in three other subjects including English Language Mathematics and Chemistry at not more than two sittings. Holders of the Ordinary National Diploma (OND) or Higher National Diploma Certificates in Agriculture at Upper Credit levels are eligible for admission to year II or III provided that their programmes covered certain courses required by the Department.?

## LIST OF COURSES TAKEN IN THE UNDEGRADUATE DEGREE PROGRAMME

### YEAR 1

#### HARMATTAN SEMESTER

COURSE CODE	TITLE	L,T,P	UNIT
MTH 101	Elementary Mathematics I	3, 1, 0	4
PHY 101	General Physics I	3, 0, 1	4
CHM 101	General Chemistry I	3, 0, 1	4
BIO 103	Biology for Agricultural and Biological Science.	12, 1	3
ENG 101	Workshop Practice I	0, 0, 1	1
ENG 103	Engineering Drawing I	0, 0, 1	1
GST 101	Use of English	11, 1, 0	2
GST 103	Humanities; Philosophy and Logic	1, 0, 0	1
IGB 101	Igbo	1, 0, 0	1
FRN 101	French	1, 0, 0	1
TOTAL			= 21 Units

#### RAIN SEMESTER

MTH 102	Elementary Mathematics II	3, 1, 0	4
PHY 102	General Physics II	3, 0, 1	4
CHM 102	General Chemistry II	3, 0, 1	4

BIO 104	Biology for Agric and Biological Science. II	2, 0, 0 2
ENG 102	Workshop Practice II	0, 0, 1 1
GST 110	History and Philosophy of Science	1, 0, 01
GST 102	Use of English II	1, 1, 0 2
GST 108	Polity and Economy of Nigeria	1, 1, 0 2
IGB 102	Igbo	1, 0, 0 1
FRN 102	French	1, 0, 0 1
TOTAL		= 21 Units

## YEAR II

### HARMATTAN SEMESTER

COURSE CODE	TITLE	L.T.P UNIT
AGR 203	Introduction to Agriculture	1, 0, 0 1
AGR 205	Agricultural Chemistry	1, 0, 1 2
CST 201	Crop Anatomy, Taxonomy and Physiology	1, 0, 1 2
AEX 201	Introduction to Agricultural Extension and Rural Sociology	2, 0, 0 2
CSC 201	Computers and Applications I	2, 1, 1 4
STA 211	Statistics	2, 1, 0 3
GST 201	Nigeria and African Cultural Development	1, 0, 0 1
AGR 207	Agricultural Biotechnology	1, 0, 1 2
AST 201	Principles of Animal Production I	2, 0, 0 2
TOTAL		= 19 Units

### RAIN SEMESTER

AGR 202	Farm Practice I	0, 0, 1 1
AGR 204	Agricultural Biochemistry	1, 0, 1 2
AST 202	Principles of Animal Production II	1, 0, 1 2
CST 202	Tree and Vegetable Crops	1, 0, 1 2
CST 204	Field Crop Production	1, 0, 1 2
CST 206	Agro-climatology and Biogeography	1, 0, 1 2
SST 202	Principles of Soil Science	1, 0, 1 2
AEC 202	Principles of Micro and Macro Economics	1, 1, 0 2



FAT 202	Introduction to Fisheries and Aquaculture	1. 0. 1 2
FWT 202	Principles of Forestry Research and Wildlife Management	1. 0. 1 2

### **LONG VACATION AFTER YEAR II**

SIW 200	Industrial Attachment	0. 0. 2 2
TOTAL		= 21 Units

### **YEAR III**

#### **HARMATTAN SEMESTER**

<b>COURSE CODE</b>	<b>TITLE</b>	<b>L.T.P</b>	<b>UNIT</b>
AGR 301	Farm Practice II	0. 0. 1 1	
AGR 303	Agricultural Genetics	1. 0. 1 2	
AST 301	Introduction to Tropical Animal Health	1. 0. 1 2	
ALC 301	Introductory Farm Management and Production Economics	2. 0. 0 2	
ALC 303	Agricultural Marketing and Cooperative	2. 0. 0 2	
CST 301	Crop Disease and Their Control	2. 0. 0 2	
SST 301	Soil Chemistry and Fertility	1. 0. 1 2	
AGE 301	Farm Planning and Structures	1. 0. 1 2	
AEX 301	Community Agricultural Extension	1. 0. 1 2	
ENS 301	Introduction to Entrepreneurship and Innovation	2. 0. 0 2	
TOTAL			19 Units

#### **RAIN SEMESTER**

AGR 302	Farm Practice III	0. 0. 1 1	
AGR 304	Agricultural Statistics and Biometry	1. 0. 1 2	
AST 302	Introduction to Animal Nutrition and Feeding	1. 0. 1 2	
AGE 202	Agricultural Machinery and Mechanization	1. 0. 2 3	
CST 302	Crop Pests and their Control	1. 0. 1 2	
SST 302	Soil and Water Management	2. 0. 0 2	
AGR 306	Processing and Storage of Agricultural Food Products	1. 0. 1 2	

AEX 302	Introduction to Rural Sociology	2, 0, 0 2
ENS 302	Business Creation, Growth and Corporate Governance	2, 0, 0 2
AGR 308	Geographic Information Systems in Agriculture	2, 0, 0 2
TOTAL		= 20 Units

#### YEAR IV

#### HARMATTAN SEMESTER

COURSE CODE	TITLE	L.T.P UNIT
AGR 401	Farm Practice IV	0, 0, 1 1
AST 401	Quantitative and Hereditary Genetics in Animal Breeding	2, 0, 1 3
AST 403	Animal Feeds and Feeding	2, 0, 1 3
AST 405	Anatomy and Physiology of Farm Animals	2, 0, 1 3
AST 407	Reproductive Physiology and Endocrinology of Farm Animals	2, 0, 1 3
AEC 401	Agricultural Planning and Development.	2, 0, 0 2
MGT 405	Technical Report Writing	1, 0, 1 2
AST 409	Animal Microbiology	2, 0, 0 2
TOTAL		=19 Units

#### RAIN SEMESTER

SIW 400	Industrial Attachment	0, 0, 4 4
SIW 401	Industrial Attachment	0, 0, 2 2
TOTAL	= 6 Units	

#### YEAR V

#### HARMATTAN SEMESTER

COURSE CODE	TITLE	L.T.P UNIT
AGR 501	Farm Practice VI	0, 0, 1 1
AST 501	Animal Health and Biosecurity	2, 0, 1 3
AST 503	Abattoir Management and Animal Product Handling and Marketing	2, 0, 1 3
AST 505	Poultry Production and Hatchery Technology	1, 0, 12

AST 507	Sheep and Goat Production	2, 0, 1 3
AST 509	Research and Analytical Techniques in Animal Science	0, 0, 3 3
AST 513	Biotechnology in Animal Production	2, 0, 0 2
AEC 515	Agricultural Business Management and Finance	2, 0, 0 2
<b>TOTAL</b>		<b>=19 Units</b>

### **RAIN SEMESTER**

AST 502	Swine Production	2, 0, 1 3
AST 504	Cattle and Equine Production Technology	2, 0, 1 3
AST 506	Animal Nutrition and Feed Technology	2, 0, 1 3
AST 508	Pasture Management and Utilization	1, 0, 1 2
AST 510	Applied Animal Breeding	1, 0, 1 2
AST 512	Rabbit and Mini-livestock Production	2, 0, 0 2
AST 514	Research Techniques in Animal Science and Technology and Seminar	0, 1, 3 3
AEX 506	Rural Community Development	2, 0, 0 2
<b>TOTAL</b>		<b>=20 Units</b>
L,T, P - L = Lecture; T – Tutorial; P = Practical?		

### **COURSE OUTLINE**

#### **YEAR ONE: HARMATTAN SEMESTER**

MTH 101: Elementary Mathematics I (3, 1, 0)

Set Theory: Fields, union, intersection, complements, functions and their inverse. Real number systems: integers, rational and irrational numbers, mathematical induction; sequences and series; arithmetic and geometric sequence and series; theory of quadratic equations, absolute values, identities, inequalities and partial fractions, permutations and combinations-binomial theorem. Trigonometry: Circular measure, trigonometric functions and their properties, addition and factor formulae, solution of triangles. Complex numbers: Algebra of complex numbers, the Argand diagram, De Moivre's theorem, nth roots of unity. Calculus and real analysis: Elementary functions of a single variable and their graphs,

AST 507	Sheep and Goat Production	2, 0, 1 3
AST 509	Research and Analytical Techniques in Animal Science	0, 0, 3 3
AST 513	Biotechnology in Animal Production	2, 0, 0 2
AEC 515	Agricultural Business Management and Finance	2, 0, 0 2
TOTAL		=19 Units

### **RAIN SEMESTER**

AST 502	Swine Production	2, 0, 1 3
AST 504	Cattle and Equine Production Technology	2, 0, 1 3
AST 506	Animal Nutrition and Feed Technology	2, 0, 1 3
AST 508	Pasture Management and Utilization	1, 0, 1 2
AST 510	Applied Animal Breeding	1, 0, 1 2
AST 512	Rabbit and Mini-livestock Production	2, 0, 0 2
AST 514	Research Techniques in Animal Science and Technology and Seminar	0, 1, 3 3
AEX 506	Rural Community Development	2, 0, 0 2
TOTAL		=20 Units
L, T, P -	L = Lecture; T = Tutorial; P = Practical?	

### **COURSE OUTLINE**

#### **YEAR ONE: HARMATTAN SEMESTER**

MTH 101: Elementary Mathematics I (3, 1, 0)

Set Theory: Fields, union, intersection, complements, functions and their inverse. Real number systems: integers, rational and irrational numbers, mathematical induction; sequences and series; arithmetic and geometric sequence and series; theory of quadratic equations, absolute values, identities, inequalities and partial fractions, permutations and combinations-binomial theorem. Trigonometry: Circular measure, trigonometric functions and their properties, addition and factor formulae, solution of triangles. Complex numbers: Algebra of complex numbers, the Argand diagram, De Moivre's theorem,  $n$ th roots of unity. Calculus and real analysis: Elementary functions of a single variable and their graphs,

limits and continuity. Rates of change, tangent and normal of a curve. Differentiation of elementary functions product, quotients, functions of a function. Implicit differentiation; Maxima, minima and points of inflection, geometrical and physical applications of the derivative, mean value theorem, parametric equations, polar co-ordinators. Anti-derivation, integral, various techniques of integration, volume of revolution, area of surface of revolution.

#### PHY 101: General Physics I (2, 1, 1)

Elementary mechanics, Galilean invariance, work, energy, momentum, angular momentum, conservation laws; harmonic oscillator; rigid bodies; inverse square law forces; idea fluid; heat and thermodynamics, introduction of kinetic theory of matter. Pre-requisites: O' level physics.

#### CHM 101: General Chemistry I (2, 1, 1)

Fundamental concepts, including atomic and molecular structures, states of aggregation of matter, acid-base reactions; homogen, nuclear chemistry and descriptive aspects of inorganic Chemistry. Kinetic and treatment of chemical reactions in terms of acid-base concepts - physical and chemical properties, state of matter.

#### BIO 103: Biology for Biological and Agricultural Sciences I (2, 0, 1)

Common life forms and processes. The nature, characteristics and diversity of living organisms, along with a general treatment of process of evolution. Cell structure and cellular metabolism, including respiration, growth, and cellular transport. A general treatment of ecology and how living organisms relate to their environment and to one another. Form and function in plants: A general classification of plants, with emphasis on the families of higher plants that are of economic importance, general angiosperm morphology and anatomy. The process of



photosynthesis, reproduction, inorganic nutrition, growth and development in higher plants.

ENG 101: Workshop Practice I (0, 0, 1)

General: Use of engineering measuring instruments, calipers, gauges, etc.; introduction to hand tools e.g. practice in use of wood plainners, saws, sanders and pattern making; sampling and sizing techniques of raw materials. Sheet-metal work: Production of sheet metal products, layout, cutting and shaping, simple bend theory, joining technique, welding, soldering, brazing, fusion, fastening and assembly. Woodwork: Basic working principles and tools-layout methods, cutting and shaping, finishing and evaluating; finished products.

ENG 103: Engineering Drawing I (0, 0, 1)

Introduction to the use of drawing / drafting instruments, descriptive geometry and geometric construction. Drawing, measuring, lettering and dimensioning objects in various positions. Principle of orthographic in the first and third angle.

GST 101: The Use of English (1, 1, 0)

Use of library, use of words and sentence construction. Function of sentences - purposes structure, correct use of verbs (Action words), word order and punctuation. Essay/composition writing, paragraphs- structure, function, links and style. Deposition-description and explanation. Special types of exposition, e.g. letter writing, layout of a business letter, technical reports, including terms of reference, drafting and editing of reports.

GST 103: Humanities, Philosophy and Logic I (1, 0, 0)

Introduction to the humanities, definition and rationale. Role of literature in the humanities aspects of the contemporary African novel. Significant examples of African/Western Poetry, dramatic art-role and relevance in modern Nigeria with practical

demonstrations/performances, role of philosophy in the humanities, and its quest for certainty; materialism, idealism, the meaning and significance of selected concepts freedom, responsibility, obligation, the good life, art beauty, values-relatives; inductive arguments and scientific reasoning. Exposure to African history, its role and relevance, African art and music its history and development. Religion and the meaning of life - past, present and future.

IGB 101: Introduction to Igbo Grammar, Composition and Comprehension (1, 0, 0)

i. Nkenke nkowa banyere ndi Igbo, ii. Nkowa asusu, iii. Njirimara asusu, iv. Uru asusu bara, v. Mmalite edemede asusu Igbo, vi. Mkparitauka banyere ndi malitere odide na ogugu asusu igbo dika, schon, ida ward, Olauda Equiano, Oldendorp, n'oge ochichi ndi bekee, vii. Ihe mere o jiri di mkpa na aga-akuzi asusu igbo n'ulo akwukwo anyi ha. Mkpuredemede Igbo (Otografi onwu). i. Ndeputa na Nguputa mkpuru edemede Igbo na usoro odide ya. ii. Mkpuredemede Igbo ndi ukwu, iii. Mkpuru edemede Igbo ndi ukwu, iv. Udaume Igbo: Ha di ole? Akaraedemede: i. Nkowa ihe bu akra edemede nakwa uru ha bara n'edemede Igbo, ii. Kpom - (.) na ebe ndi a na-etinye ha, iii. Rikom - (,), iv. Rikomelu ('), v. kpom kpom ('), vi. kpom rikom ('), vii. Akaramkpuchi (!), viii. Akaraajuju (?), ix. Akaramkpuchi / akarangudo ('), x. Akarauhie (-), xi. Akarangwu (""). Nkebiokwu Igbo: i. Gini bu nkebiokwu, nkebiokwu di iche iche, iii. Omumaatu nkebiokwu di iche iche. Nkebiahiri Igbo: i. Nkowa ihe bu nkebiahiriokwu. Ndakorita Udaume: i. Gini bu ndakorita udaume? ii. Ndakorita udamfe, iii. Ndakorita udaaru. Udaolu: i. nkowa ihe udaolu putara, ii. Akara uda elu, iii. Akara udaala, iv. Akara udansuda, v. omumaatu ha di iche iche, vi. Itinye akara udaolu n'okwu. Ntughari: i. Ihe ntughari putara, ii. Ihe eji eme ntughari, iii. Ihe ndi a ga-agbado ukwu n'ime ntughari, iv. Ntughari ihe ogugu ndi a hoputara. Edemede (Kompozishon): i. Gini bu edemede? ii. Ihe ndi di mkpa maka edemede.

Nchikota: i. Gini bu nchikota? ii. Kedu ihe a na-agbado ukwu n'ime nchikota, iii. Uru nchikota bara, iv. Ichikota agumagu eweputara. Ekwumekwu n'asusu Igbo: i. Ihe bu ekwumekwu n'igbo, ii. Ihe ndi a na-elekwasị anya n'ikwu ekwumekwu, iii. Uru ekwumekwu bara, iv. Kkparitauka na klaasi. Ikwu okwu n'oha: i. Uzo e nwere ike is were asusu Igbo gwa oha mmadu okwu, ii. Usoro ndi ekwesiri igbaso maka okwu oha, Ekele, Isiokwu, ihe mejuputara okwu, nchikota na mmechi. Nsupe n'igbo: i. Nsupe okwu n'igbo.

FRN 101: French Language I (1, 0, 0)

This course will introduce the students to the basics of French language such as greeting in French, French alphabets, vowels, pronunciation and accents. The students will also learn the components of French grammar as the article, verb, etc.

### **YEAR ONE: RAIN SEMESTER**

MTH 102: Elementary Mathematics II (3, 1, 0)

Vectors and analytic Geometry: Representation of vectors. Vectors addition and multiplication of vector by a scalar. Components of a vector and director cosines. Linear dependence and independence of vectors. Scalar and vectors products of two vectors. Scalar and vector products of three vectors. Plane analytic geometry of the straight line, conies (circles, parabola, ellipse, hyperbola). Differential equations: Occurrence of differential equation. Differential equations of first degree and first order, like variables, separable, exact homogenous with constant coefficients. Statistics: Introduction to statistics. Diagrammatic representation of descriptive data. Measure of location and dispersion for discrete and grouped data. Problems of groupings and events. Addition law, conditional probability and multiplication rule. Bayes theorem. Use of permutation and combination in scatter diagram, product moment and rank correlation. Linear regression.

Nchikota: i. Gini bu nchikota? ii. Kedu ihe a na-agbado ukwu n'ime nchikota, iii. Uru nchikota bara, iv. Ichikota agumagu eweputara. Ekwumekwu n'asusu Igbo: i. Ihe bu ekwumekwu n'igbo, ii. Ihe ndi a na-elekwasị anya n'ikwu ekwumekwu, iii. Uru ekwumekwu bara, iv. Kkparitauka na klaasi. Ikwu okwu n'oha: i. Uzo e nwere ike is were asusu Igbo gwa oha mmadu okwu, ii. Usoro ndi ekwesiri igbaso maka okwu oha, Ekele, Isiokwu, ihe mejuputara okwu, nchikota na mmechi. Nsupe n' igbo: i. Nsupe okwu n'igbo.

FRN 101: French Language I (1, 0, 0)

This course will introduce the students to the basics of French language such as greeting in French, French alphabets, vowels, pronunciation and accents. The students will also learn the components of French grammar as the article, verb, etc.

### **YEAR ONE: RAIN SEMESTER**

MTH 102: Elementary Mathematics II (3, 1, 0)

Vectors and analytic Geometry: Representation of vectors. Vectors addition and multiplication of vector by a scalar. Components of a vector and director cosines. Linear dependence and independence of vectors. Scalar and vectors products of two vectors. Scalar and vector products of three vectors. Plane analytic geometry of the straight line, conies (circles, parabola, ellipse, hyperbola). Differential equations: Occurrence of differential equation. Differential equations of first degree and first order, like variables, separable, exact homogenous with constant coefficients. Statistics: Introduction to statistics. Diagrammatic representation of descriptive data. Measure of location and dispersion for discreet and grouped data. Problems of groupings and events. Addition law, conditional probability and multiplication rule. Bayes theorem. Use of permutation and combination in scatter diagram, product moment and rank correlation. Linear regression.

PHY 102: General Physics II (3, 0, 1)

Electrostatics, conductors and dielectrics; Magnetostatics, magnetic field and induction, magnetic materials. Maxwell's equations; Waves and Oscillation, Electromagnetic wave; Oscillations, Optics, Modern Physics-Experimental basis of quantum physics, Planck's constant; Spectra; basic phenomena of atoms, molecules and nuclei

CHM 102: General Chemistry II (2, 1, 1)

Physical and Chemical equilibrium, solids solutions, reaction kinetics and kinetic theory. Alkanes and cycloalkanes, reactions of carbon-carbon multiple bonds; elimination and substitution, reactions of alcohols and alkyl halides, aromatic compounds, carbonyl compounds, organic acids and derivatives, and organic bases.

BIO 104: Biology for Biological and Agricultural Sciences II (2, 0, 1)

Form and function in animals. A general classification of animals with emphasis on the characteristics, morphology and anatomy of the economically important groups, such as Mammalia, Aves, Pisces, Arthropoda, Mollusca and Nematoda. Discussion of the following processes in animals: nutrition, excretion, reproduction, movement and confirm regulation.

ENG 102: Workshop Practice II (0, 0, 1)

Machine shop work: Lathe work, instruction and working process, shaping, milling, grinding, reaming and metal spinning, etc. design of simple jigs and fixtures. Finished products, sample technique.

GST 102: Use of English II (1, 1, 0)

Vocabulary, use of classical terms, word formation and affixes, special terms, acronyms, choice of correct words, definitions



by examples, synonym, analytic or operational definitions, basic words in fields of specializations e.g. mechanical, electrical, civil, aeronautical, automobile engineering, metallurgy, mathematics.

#### GST 108: Polity and Economy of Nigeria (1, 1, 0)

The nature and scope of economics. The Nigerian political system: polity and means of production in Nigeria. The structure of the Nigeria economy, aspects of economic and technological dualism; internal migration rural to urban migration and the informal sector. The role of capital in growth and development; public investment criteria, choice of 'appropriate' or 'relevant' technology. Human resources development in Nigeria, labour utilization, education and manpower development in Nigeria labour. Agriculture in the development process; land tenure and reform, agricultural technology and the green revolution and integrated rural development. Industrialization; role and type of industry, choice of techniques, import substitution and export expansion. The economic role of the government expenditure and taxation; the federal structure, fiscal federalism and revenue allocation; the financial system. Problem of development planning and plan implementation in the Nigeria federal system of government. Prospects of the Nigerian economy.

#### GST 110: History and Philosophy of Science (1, 0, 0)

##### Section A: Science and Society

Introduction: The need for science; modern scientific methods and evolution, selected key scientific research, innovations and inventions, science and culture. Nature of Science: History of science, classifications; science in the civilization of man; science evolution of man; social implications. Science and man's environment harnessing science for production, processing, conservation, distribution and utilization of agricultural products, climate and vegetation; terrestrial and

cosmic life; implications -and scientific advances, e.g. population control, environmental pollution. Science and thermal energy, nuclear energy, fossils fuels, estimates of energy reserve in Nigeria; case studies of demand and supply for energy Section B: Technology and Society:

Introduction: Technology in the development of man, role of technology in the national economy; agriculture, entertainment, transportation, communication, medicine and welfare, war and crime, etc. disciplines in technology; professional opportunities in technology in Nigeria. Technology evolution: History of technological education and practice in Nigeria. Some key revolutions in technology, e.g. electronics and computer technology, robotics and cybernetics, and their everyday applications. Implications of technology: Ethics in technology; implications of technological research and advances, e.g displacement of man by machines, space travel, threat of nuclear and neutron war, the genetic research and energy crisis, etc. technological products liability: effects of merchandization.. Consumerism: Constraints in the utilization of new technological products reliability, quality control and cost effectiveness, politics and environment.

IGB 102: Introduction to Igbo History, Culture and Literature (1, 0, 0)

Akuko banyere ndi igbo na nmalite ndu ha: i. Kedu ndi bu Ndigbo., Akuko di ichiche banyere mmalite ndu ndigbo. Ekele na nsopurur n'ala igbo: (a) i. Udi ekele di ichiche, ii. Oge eji ekwe ekele ndia nakwa ihe a na-akele. iii. Aziza onye / ndi e kwere na-aza. (b) (i) Uzo di ichiche esi enye nsopuru, (ii) Nsopuru nwata na-enye pokenye, (iii) Nsoppuru nwayi na-enye di ya (iv) Nsopuru din a-enye nwunye ya, (v) Nsopuru ndi okenye kwesiri inye onwe ha. N' adigbo na nnabata ndi obia: i. Ndi igbo dika agburu na-anabata ma na elekotakwa ndi obia, ii. Uzo di ichiche ndi Igbo si elekota ndi obia, iii. Oji n'ala Igbo, iv. Uru oji bara, v. Emume di n'oji (iche, icho and igo oji), vi. Nso di

n'oji. Ewumewu ndi Igbo: i. Usoro alumi na nwunye n'ala Igbo, ii. Ezi na ulo, iii. Ewumewu mmekeorita mmadu na ibe ya, iv. Emume di iche iche na uru ndi ha bara, v. Emume iri ji ohuu, vi. Igba mmonwu, vii. Iwa akwa, viii. Iru mgbede. Ewumewu nkwalite akui na uba: i. Ndi Igbo dika ndi oru ugbo, ii. Ndi na-azu ahia, iii. Aka oru di iche iche n'ala Igbo, iv. Ufodu ihe ndi a ma ama a na-akoputa n'ala Igbo. Ewumewu okpukperechi: i. Usoro okpukperechi ndi Igbo tupu mmalite okpukperechi olozo ohuu, ii. Okwukwe ndi Igbo nwere na Choikwu, dika Chi kacha chi nile, iii. Chi ndi nke na-agalite ozi n'agbata mmadu na Chukwu, iv. Ihe ndi jikoro okpukperechi odinala na nke ndi out Kraist. Agumagu Igbo: (i) Agumagu onu (odinala), (ii) Agumagu ederede (ugbua). Akparamagwa na uru agumagu onu na agumagu ederede: (i) Iduazi, (ii) Ejije, (iii) Abu. Akparamagwa na uru agumagu onu na agumagu ederede: (i) Ejirimara agumagu onu, (ii) Uru ndi agumagu onu bara, (iii) Ejirimara agumagu ederede, (iv) Uru Agumagu ederede bara, (v) Ntulekorita ejirimara agumagu onu nke ederede. Nkowa Ngalaba Di Iche Iche: (i) Nnyocha na igu akwukwo agumagu ufodu ndi ebiputara n'asusu Igbo, (ii) Ejije, (iii) Iduazi, (iv) Abu. Njem Nlegharinya

FRN 102: French Language II (1, 0, 0)

Here the students will be drilled in French grammar proper, dialogue and other oral exercises. The students will also be introduced into reading, starting with France Afrique Book 1. At the end of this course, the students should be able to speak basic French and be able to tell the time in French.

## **YEARTWO**

### **HARMATTAN SEMESTER**

**AGR 203: Introduction to Agriculture (1, 0, 0)**

Definition and role of agriculture in national economy, history of agricultural development with particular reference to Nigeria; branches of agriculture soil, forestry, animal, economics, extension, wildlife and fishery. Career opportunities in agriculture.

**CST 201: Crop Anatomy, taxonomy and Physiology (1,0,1)**

Plant anatomy: plant cell structure, components and functions. Plant tissues and their functions. Anatomy of root, stem and leaf; flora structure. Introduction to plant taxonomy. Plant specimen collection, identification and classification. Classification system. A brief introduction of the herbarium. Characteristics, distribution and local examples of: malvaceae, dioscoreaceae, musaceae, gramineae/poaceae, solanaceae, fabaceae / leguminosae, compositae, etc. cell division. Enzymes. Some processes in crops: photosynthesis, translocation, pollination, respiration, energy utilization, seed dormancy and germination, development, mineral nutrition, etc. growth regulation.

**AGR 205: Agricultural Chemistry (1, 0, 1)**

Chemistry of the S-block element and the representative block elements. Brief introduction into the chemistry of first series transition element. Structure, reaction and function of hydrocarbons, alcohols, phenols, aldehydes, ketones, organic acids and their derivatives. Atomic structure and bonding. Periodic table. Colloids, chemical kinetics and equilibrium. Oxidation and reduction. Acids, bases. Properties and reactions of elements of importance in agriculture.

AEX 201: Introduction to Agricultural Extension and Rural Sociology (2, 0, 0)

The need for Agric. Extension; Agricultural Extension in Nigeria and the world; basic philosophy behind extension with Agricultural development agencies, communication and extension teaching processes, adult education principles, practical on selected oral and written communication methods and audio-visual aids (AVAs).

CSC 201: Computer and Applications I (2, 1, 1)

Brief history of computers and computer generation. Classification of computers. Structure of a general purpose computer, number systems. The stores program. Technique of problem solving. Flowcharting, Stepwise refinement. Algorithm for sorting and merging of ordered list. Data preparation I/O devices. Data types. Data representations. Data capture. Problem-oriented languages. BASIC and FORTRAN programming: Logic expression; arrays; sequencing; alteration and iteration; subroutines and parameters. Elementary numerical algorithms. Pre-requisites: MTH 101 / 102.

STA 211: Statistics (2, 1, 0)

Frequency distributions, measures of location and dispersion in simple and grouped data. Laws of probability. The binomial Poisson and normal distributions. Estimation and tests of regression and correlation, contingency tables and X<sup>2</sup> applications. Pre-requisites: MTH 101 / 102.

AGR 207: Agricultural Biotechnology (1, 0, 1)

Introduction to Biotechnology. Definition and its importance. History of domestication and Agriculture. Ancient plant germplasm. Fermented foods and beverages (History). Classical Biotechnology. Foundations of Modern Biotechnology. Early Microscopy. Development of cell theory.



Nature of gene. First Recombinant Experiment. First DNA cloning Experiment 1. Plant and Tissue Culture and Applications. Plant Tissue Culture. Micro propagation Other uses of Tissue Culture Plants Genetic Engineering. Plant transformation and Agrobacterium tumefaciens. Challenges of foreign Gene Expression Application of plant Genetic Engineering. Crop improvement. Forestry-tree improvement. Genetically Engineered traits. Genetically Engineered foods. Nutritionally Enhanced plants. Molecular Farming Gene Transfer Methods in Animals. Microinjection. Embryonic stem cell Gene Transfer. Retrovirus and Gene Transfer Transgenic Animals and their Application. Mice, Cow, Pigs, Sheep, Goat and Birds Animal Health Animal Propagation: Artificial Insemination. Animal Clones Regulation of Transgenic Animals Patenting Genetically Engineered Animals Aquaculture: Gastropod, Bivalves and Crustacean production Marine Animal Health Algae products. Medical Applications: Marine Natural Products and their medical potentials. Anticancer and antiviral compounds. Antibacterial agents. Marine toxins transgenic fish. Ruminant farm animals. Specific treatment will be given to cattle, sheep, goat and rabbit production. Pre-requisite: BIO 101/103.

GST 201: Nigeria and African Cultural Development (1, 0, 0)  
Concepts and Meaning of Development; Traditional Africa - its geographical and ethnographical review. its family structure, kingship system, etc. socio-economic preoccupations, political systems, art and music, modes of communication in art and aesthetics, nationalism and cultural revival, mass media and national development.

AST 201: Principles of Animal Production I (2, 0, 0)  
Introduction to Anatomy and Physiology; Fundamentals of anatomy and physiology of the cells, cell types, tissues and organs; parts of the body of cattle, sheep and goats; breeds and

breeds characteristics of cattle, sheep and goats; digestive system and functions, feeds and nutrient requirements of cattle, sheep and goats; animal behaviours, handling and restraining techniques; management of tropical ruminant animals.

## **RAIN SEMESTER**

**AGR 202: Farm Practice I (0, 0, 1)**

Students will be required to be intimately involved in the performance of various farm operations, communication and farm records skills will be taught in various operations in crop production, fisheries, forestry and poultry and non-ruminant animal husbandry techniques; semen collection and evaluation techniques; sexing, as well as the social components of technology generation, dissemination and Economic analysis.

**AGR 204 Agricultural Biochemistry (1, 0, 1)**

Cellular composition and morphology, chemistry, metabolism and synthesis of carbohydrate, lipids and proteins in plants and animals. Importance of pH and buffers. Classifications and functions of enzymes and enzyme reactions.

**AST 202: Principles of Animal Production II (1, 0, 1)**

Introduction to the Anatomy and Physiology; Fundamentals of anatomy and physiology of the cells, cell types, tissues and organs; parts of the body of non-ruminant animals (poultry, pigs and rabbits); breeds and breeds characteristics of non-ruminant animals; digestive system and functions, feeds and nutrient requirements of non-ruminant animals; animal behaviours, handling and restraining techniques management of tropical non-ruminant animals.

**CST 202: Tree and Vegetable Crop production (2,0,0)**

Origin and distribution of tree and vegetable crops; soil and climatic requirements of some important permanent crop such as cocoa, banana, plantains, citrus, kola, cashew, etc and some important vegetable crop such as fluted pumpkin, melon

Amarantus, garden egg, etc. production practices, improvement, harvesting, utilization, processing, storage and economic aspects of some selected permanent and perennial crop.

**CST 204: Field Crop Production (1, 0, 1)**

Detailed treatment of the major field crops; yam, cocoyam, cassava, sweet potato, maize, rice, sorghum, beans, groundnut, winged bean, sugarcane, tobacco, etc. For each crop, there will be detailed discussion on time of planting, site selection, land preparation, planting materials, seed rate, spacing, mulching, fertilization (type, rate and frequency), crop protection (weed, pest and disease control), harvesting, processing and storage.

**CST 206: Agric- Climatology and Bio- geography (1,0,1)**

The principles, aims and scope of climatology and biogeography, The elements and control of climate and weather and the dynamics of the earth's atmospheric radiation and heating of the atmospheric systems, atmospheric moisture, the dynamics of pressure and wind systems condensation and precipitation processes. Seasonal radiation in temperature, day length, and rainfall and evapo-transpiration equipment and maintenance of standard metrological relation between agriculture and climate with reference to crops, livestock, irrigation, pests and diseases.

**SST 202: Principles of Soil Science (1, 0, 1)**

Fundamental discussions on the distribution and classification of tropical soil: their physical, chemical and biological properties, as well as the relationship of the crop productivity will be dealt with.

**AEC 202: Principles of Micro and Macro Economics (1, 1, 0)**

Scope and methods of economics. Price theory including the

theory of demand and supply. Theories, of production and distribution. National income determination. Monetary theory of international trade. Theory and economic growth, development and policy. Fundamental treatment of demand and supply. Theory of production, pricing and employment resources. Introduction of different fields of agricultural economics, marketing, credit and finance, resource economics, project analysis.

FAT 202: Introduction to Fisheries and Aquaculture (1, 0, 1)

External morphology: Difference between bony and cartilaginous fishes. Identification, distribution and life history of selected fin fish and shell fish. Food and feeding habitat of fish according to the different niches. Classification of fish in relation to salinity, classification of aquatic habitat in relation to depth. Definition of fisheries management. Dynamics of fish population. Management procedures. Restrictive laws, artificial propagation, introduction and habitat improvement, natural and artificial selection and management.

FWT 202: Principles of Forestry Resources and Wildlife Management (1, 0, 1)

Definition of forestry terms. Differences between forest and forestry. Renewable natural resources, availability, distribution and potentials. Grazing land, fallow lands, forests and game reserves, national parks and other conservation stands. Components of Renewable Natural Resources Plants, wildlife, water resources, forest soil, etc. Forest exploitation and utilization. Logging and log transportation. (skidding, and Haulage, Road and water transportation) Sawmills and types, types of wood products. World Distribution of tropical forests based on climate. Different Nigerian vegetation (forests and savannah). Nigerian wildlife species. Sustained yield management, Forest management plan and its importance in forest management. Introduction to forest ecosystem.

## **SIW 200: LONG VACATION INDUSTRIAL ATTACHMENT YEAR THREE**

### **HARMATTAN SEMESTER**

**AGR 301: Farm Practice II (0, 0, 1)**

Practical illustration and a do-it-yourself involvement of students in the agricultural practices in crops, pests and diseases control, harvest, storage and processing, fertilizers and their applications. Agricultural price data collection, Handling of instruments (for castration, debeaking, dehorning, artificial insemination, etc), animal drugs and vaccines, housing, feeds and feeding techniques; disease control techniques in farm animals.

**AGR 303: Agricultural Genetics (2, 0, 0)**

Elaboration of the principles of Genetic applicable in agricultural production, with specific discussion on: scope and history of genetics, Mendelian fundamental principle of inheritance, including functions, nature and structure of genes. Quantitative and qualitative characters and their inheritance in plants and animals; Variation and measures of variation, probability, binomial distribution, chi-square, variance, standard deviation, standard error of means. Different types of gene action. Basic concepts of the genetics of population. Rudiments of selection and breeding with objective and priorities on yield, quality, resistance, adaptation, stress tolerance and mechanizability in Agriculture, introductory aspect of recombinant DNA Technology will also be highlighted. Pre-requisites: BIO 103 and 104: Biology for Agriculture and Biological Sciences.

**AST 301: Introduction to Tropical Animal Health (1, 0, 1)**

Predisposing factors in animal health (housing, nutrition, ventilation etc). Signs of good health and ill health (emphasis should be placed on current health condition). Disturbances of

the body systems (digestive, respiratory, uro-genital, cardiovascular system etc). common endo and ectoparasites of animal health importance including their distribution, transmission, specific hosts and control strategies

### AEC 301: Introduction to Farm Management and Production Economics

Basic idea of production: meaning of production; classes of production; direct and indirect production; specialization and division of labour in production. The scale and location of production; determinants of scale and location of production; economics of scale; diseconomies of scale; the optimum farm firm; advantages and disadvantages of small scale production; returns to scale; combination of business units. Factors of production: meaning; the natural and manmade resources; management / entrepreneurship as factors of production in the farm business; the reward to management; management and the decision making process; work division and work conditions in management decision making; management approaches problems in supervision of labour and other physical inputs. Management of soil, crop and livestock: the aim of soil, crop and livestock management in agricultural production; the right condition for high soil, crop and livestock output. Labour as a factor production: Meaning of labour, types of farm labour; measurement of work and labour; the rewards for labour; problems of farm labour, seasonal demand and supply of farm labour; measures for raising labour productivity; capital as a factor of production meaning of capital; types / classes of capital; ways of raising capital in the farm business; capital depreciation; interest and security of loans; advantages and disadvantages in taking farm loans; capital formation, savings and investments; capital rationing in agriculture; measures for raising capital productivity; etc. Land as a factor of production: The economic meaning of land; land as subject to the law of diminishing returns; measures for raising the productivity of

land; etc. Principles of agricultural production and resource use: factor-factor relationship in agriculture; factor product relationship in agriculture; product - product relationship in agriculture; budgeting techniques, use of break even analysis in farm production planning, elements of time, risk and uncertainty in agricultural production etc. The theory of cost and revenue and their applications in agricultural production: various concepts of revenue and their applications in agriculture; marginal analysis of gross margins, net margins, net - farm income, etc. farm production records: general principles of record - keeping; types of farm records; uses of farm records; advantages of keeping farm records. Types of farm records; inter and intra - farm comparison using financial and physical records. Farm production planning: advantages of a farm plan; selection of production methods; programme planning and procedure; budgeting: types, advantages, farm budgeting under land labour and capital constraints; budgeting for new equipment; ways of raising farm profit. Pre-requisites: AEC 202: Principles of Micro and Macro-economics.

- AEC 303: Agricultural Marketing and Co-operatives (2, 0, 0)  
Discussion of basic marketing concepts and interrelationships between agricultural production and marketing; approaches to the study of agricultural marketing and elements of international trade. Application of marketing principles to the identification and solution of agricultural development problems.  
Pre-requisites: AEC 202: Principles of Micro and Macro-economics.

CST 301 Crop Diseases and their control (1, 0, 1)  
Causes and control of diseases prevalent among crops grown in the country. Topics include an introduction to the structure, life history, classification and importance of fungi, bacteria and viruses, the development and spread of plant diseases of tropical crops and stored products and their control.

### **SST 301: Soil Chemistry and Fertility (1, 0, 1)**

The chemical properties of soils in relation to plant growth. Emphasis will be placed on tropical soils. Topics include: chemical composition of soils; the origin and chemistry of plant nutrients, the origin, formation and properties of clay minerals; ion exchange and nutrient absorption by plant roots; leaching of plant nutrients; influence of soil properties on nutrient absorption; inorganic fertilizers and their management; organic manure, soil acidity, soil alkalinity, soil fertility evaluation based on soil testing and plant analysis; oxidation reduction potential. Pre-requisites: SST 202: Principles of Soil Science.

### **AGE 301: Farm Planning and Structure (1, 0, 1)**

Introduction to farmstead problems; consideration for size and siting of farms. Procedures for planning the layout of facilities. Types of farms: private, collective, government. Integrated study of farm houses: beef cattle, dairy cattle, hogs, sheep, goats and poultry housing. Farm bunkery and soils with consideration for heat requirement, generation and movement

### **AEX 301: Community Agricultural Extension (1, 0, 1)**

Introduction to agricultural extension: meaning, concept, philosophy and principles of agricultural extension, role of governmental and non-governmental organizations (NGOs), Agricultural Extension Service and Agricultural Innovations. Students will visit rural communities, conduct investigations into their agricultural practices and characteristics of the farms and observe development activities of formal agencies in rural areas. Demonstration and communication techniques in extension.

## **RAIN SEMESTER**

### **AGR 302: Farm Practice III (0, 0, 1)**

Practical illustration and do-it-yourself involvement of students in the agricultural practices of plant spacing and orchard



layouts; manure and compost making; weeds, soil conservation techniques; ante-mortem and post-mortem inspection and slaughter house management; agricultural economics, questionnaire design and conduct of interviews.

#### AGR 304: Agricultural Statistics and Biometry (1, 0, 1)

Introduction to simple linear models in agricultural research, and their utilization in the design and analysis of farm experiments. Particular emphasis will be placed on the formulation of appropriate experimental designs and analysis of variance and covariance for completely randomized design; randomized block designs, Latin square design and factorial experiments. Estimation of variance components, regression and correlation coefficients, and simple test is discussed. Recent advances in Bio-statistics will be highlighted as well as introduction to the development of computer-assisted capability for analysis of farm data. Pre-requisite: MTH 211: Statistics

#### -AST 302: Introduction to Animal Nutrition and Feeding (1, 0, 1)

Definition of nutritional and feed terms; international feed vocabulary and international feed number. Feed nutrients and their importance in animal health and production. Classification of feedstuff (methods and importance). Composition and nutritive value of common tropical feeds and fodder for farm animals. Feed types and feed formulation for various classes of livestock and poultry.

#### AGE 202: Agricultural Machinery and Mechanization (1, 0, 2)

Short review of the development of agricultural machines. Historical development of tractor types; makes and features in various farm operations. Tractor hitch, linkage and control. Types of drive and power transmission. Introduction to field implements, their uses and modes of operation.

### CST 302: Crop Pests and their Control (1, 0, 1)

The identification and control of pests of crops. Emphasis will be on pests of crops grown in the country. Topics include introductory aspects of the structure, life history, identification of insects, nematodes and weeds; principles and methods of insect control and management; introduction to weed ecology and control; the major basis and parasitic nematodes of tropical crops and stored products.

### SST 302: Soil and Water Management (2, 0, 0)

The general principles of managing soil for the optimum production of crops. Emphasis will be on the application of these principles in the management of tropical soils. Topics include: an elementary treatment of causes (wind and water) and control (cultural methods) of erosion; methods of land clearing in the forest and savannah zones and their effects on soil properties; role of mulches, green manures, crop rotation, and fallows in the maintenance of organic matter and improvement of other soil properties. Role of no-till farming on soil. Introduction to the occurrences, economic impact, causes (including improvement, soil compaction and root growth, management of soil acidity; management of low native soil fertility, moisture needs of crops, soil-water plant relationships, irrigation water application, timing of irrigation; methods of irrigation; drainage. Pre-requisite: SST 202: Principles of Soil Science

### AEX 302: Introduction to Rural Sociology (2, 0, 0)

Basic principles and concepts of rural sociology and understanding of rural situations. Importance of rural communities and institutions, social processes and changes in rural areas. Leadership and community power structure. Various agricultural extension and rural sociological communication strategies and their uses.

ENS 302: Business creation, growth and corporate governance (2,0,0)

Concept of business and new value creation. Introduction to theories of growth. Business strategy. Sources of capital. Principles of marketing. Business ethics and social responsibility. Opportunity sets and expansion considerations (E- Commerce, E- Business, E- Trade). The scientist / engineer as an entrepreneur; opportunities and challenges. Managing transition (start up, growth). Basic accounting literacy. Feasibility and viability studies including issues in cash flow analysis. Crafting business plans. Corporate governance and change management

AGR 306: Processing and Storage of Agricultural Products (2, 0, 1).

Scope, type, handling and processing of livestock, poultry, fish and crop products. Animal slaughter and carcass handling. Preservation and poisoning principles. Machinery involved in processing of major agricultural food products of animal and plant origin. Food packaging - types of packages, vacuum packaging and modified atmosphere packaging.

AGR 308: Geographic Information System in Agriculture

Introduction to geographic information system (GIS). Terminologies and concepts in GIS. GIS inputs methods; GPS, Remote sensing, Digital Information system and data bases, spatial analysis and image processing. Application of GIS in different aspects of agriculture.

## **YEAR FOUR**

### **HARMATTAN SEMESTER**

**AGR 401: Farm Practice IV (0, 0, 1)**

Practical illustration and do-it-yourself involvement of students in the agricultural practices of dry season vegetable production, irrigation water management, calendar of farm operations, nursery practices in forest trees, fingerling production, ruminant animal production, hay and silage management and utilization.

**AST 401: Quantitative and Hereditary Genetics in Animal Breeding (2, 0, 1)**

Qualitative and quantitative character inheritance in domestic animals; genes, chromosomes, alleles (simple and multiple) changes in genes and chromosomes, mutation, lethal genes, phenotypic expression of genes, variation in phenotypic ratio, sex determination, sex-linked, sex-influenced and sex-limited inheritance, variation in economic traits in farm animals; phenotypic and environmental variations; genotype by environment interaction, correlation between traits, heritability, repeatability and most probable producing ability. Pre-requisites: AST 201, AST 202, AGR 303 and AST 302.

**AST 403: Animal Feeds and Feeding (2, 0, 1)**

Feed digestion and nutrient absorption in livestock and poultry. International and national feed standards; techniques and schemes for feed evaluation. Alternative feed sources and processing methods. Contaminants and anti-nutritional factors in livestock and poultry feed. Quality control of feeds and feedstuff. Feed preservation and storage; conservation of fodders; silage and hay making. Trends in feed formulation, feed additives and their use in livestock and poultry feeding. Detailed studies of the principles and practice of livestock and poultry feeding. Pre-requisites: AST 201, AST 202, AST 302.

AST 405: Anatomy and Physiology of Farm Animals (2, 0, 1)  
Discussion and detailed practical demonstration on the anatomy of tissue, organ, and muscle structure in farm animals. Physiology of circulation, respiration, digestion, excretion, nervous and muscular responses. Pre-requisite: AST 201, AST 202.

AST 407 Reproductive Physiology and Endocrinology of Farm Animals (2, 0, 1)  
Discussions and detailed practical demonstrations on the physiology of the male and female reproductive systems of livestock and poultry. The physiology of fertility, gestation, parturition and lactation. Ovum and sperm physiology. Introduction to the physiology of vertebrate endocrine system. Properties and nature of hormonal action. Endocrine functions involved in fertility, lactation and growth

AST 409: Animal Microbiology (2, 0, 0)  
Principles of microscopy. Bacteria, viruses, rickettsiae, protozoa and fungi of importance in animal production. Immunity, immune system, resistance, antibodies, antigens, haptens and adjuvants.

AEC 401: Agricultural Planning and Development (2, 0, 0)  
The concepts of economic growth and development; Essentials of Agricultural Development; Agricultural Development Programmes in Nigeria; Introduction to Agricultural Development Theories and Models; Planning Agricultural Development. Problems of Agricultural Planning in Nigeria and Developing countries in general; Economic Planning in Nigeria.

MGT 405: Technical Report Writing (1, 0, 1)  
Introduction to principles of effective communication; principles of technical writing, organization and presentation of

technical reports, feasibility studies, technical proposals, technical presentations and instructions, technical correspondence, oral presentation of technical ideas, technical aids in presentation and applications.

## **YEAR FIVE**

### **HARMATTAN SEMESTER**

**AGR 501: Farm Practice VI (0, 0, 1)**

Farm internship: students will be assigned specific and detailed on farm jobs in their respective programmes. The execution will require the integration of all the on-the-farm skills acquired from the previous farm practice courses including demonstration on animal farm waste management techniques.

**AST 501: Animal Health and Biosecurity (2, 0, 1)**

Aetiology, treatments and methods of control of common infectious and contagious diseases of tropical farm animals. Detailed discussions and practical demonstrations of the etiologic, pathogenesis, and lesions of diseases and diseased livestock. The public health relationship will be emphasized. Animal health intervention and diseases: Assessment of impact on the environment. Challenges of livestock wastes and methods of waste management. Pre-requisites AST 301.

**AST 503: Abattoir Management and Animal Product Handling / Marketing (2, 0, 1)**

Abattoir / slaughter house design and establishment. Livestock judging, slaughter techniques, conversion of muscle to meat, carcass evaluation and meat grading; meat cuts, meat quality; abattoir hygiene and waste management. Basic process and principles of meat processing (cutting / comminution, stuffing, packaging etc). Milk composition and synthesis. Milk quality. Basic process and equipments involved in milk processing. Milk products (dry milk powder - whole and skim, yoghurt, cheese, butter etc). Egg composition, handling and marketing; quality

changes during storage and their control, egg products (dry whole egg, albumen, egg yolk etc). Introduction to the production, handling and use of edible and inedible animal by-products - liver, kidneys, GIT, bones, hooves, hides and skin etc. Brief overview of the animal products industry in Nigeria.

**AST 505: Poultry Production and Hatchery Technology (1, 0, 1)**  
Practices and methods involved in egg production, broiler production, and breeder flock operations in different poultry species (chicken - local and exotic, quail, guinea fowl, duck, turkey, pigeons). Feeding, breeding, selection, health-care, and management of poultry operations, incubation and hatchery technology, and the operational aspects of owning, establishing and running a poultry farm and hatchery. Prerequisites: AST 202.

**AST 507: Sheep and Goat Production (2,0,1)**  
Practices and methods involved in sheep and goat (and other small ruminant) production. Feeding, breeding, housing, health-care, and management in sheep and goat production systems, with emphases on the operational aspects of owning, establishing and running a sheep and goats farm. Prerequisite: AST 201.

**AST 509: Research and Analytical Techniques in Animal Science (0,0,3)**  
Research techniques peculiar to Animal Physiology, Animal Nutrition, Animal Health, Animal Management, Animal Breeding and Genetics, Pasture Management. Uses of computer software's such as SAS, SPSS, EXCEL etc.

**AST 513: Biotechnology in Animal Production (2, 0, 0)**  
Concepts of biotechnology; applications in animal health, nutrition, reproduction, processing and preservation of animal products. Biotechnology in animal waste management.

Vaccine production. The genetic material: DNA replication, the genetic code; method of detection and identification of genes of known sequence; genetic markers; restriction site; genetic polymorphism, cryogenesis, quantitative traits loci (QTL). Introductory aspects of genomics, proteomics and bioinformatics.

**AEC 515: Agric Business Management and Finance (2, 0, 0)**

Meaning of Agribusiness: The scope of agricultural business and management; Components of agribusiness: the supply component, the farm production component, the processing component, the marketing component; The consumer and agribusiness; Role of agribusiness in economic development; Economics of agricultural processing, marketing management, enterprise selection, production planning. Public policies affecting agribusiness and farm growth. Agribusiness organizations and tax strategies. Principles of farm Credit, capital needs of agribusiness organizations, sources of loan funds, principles of farm credit, collateral for loans, credit agencies government credit policy and approaches to efficient management, farm management, inventory, balance sheet, cash book analysis.

## **RAIN SEMESTER**

**AST 502: Swine Production (2, 0, 1)**

Detailed studies of pig production enterprises (breeder stock, weaner production, farrow - finish, fattener pig production - pork and bacon etc). Emphasis will be given to the operational aspects of these enterprises (housing, feeding, breeding, health care and marketing). Pre-requisites: AST 202.

**AST 504: Cattle and Equine Production Technology (2, 0, 1)**

Detailed studies of cattle, buffalo production enterprises (beef and dairy). Emphasis will be given to the operational aspects of these enterprises (housing, feeding, breeding, health care and



marketing). Detailed studies of equine (horses, camels, donkeys, mules etc) production enterprises. Emphasis will be given to the operational aspects of these enterprises (housing, feeding, breeding, health care and marketing). Pre-requisites: AST 201.

**AST 506: Animal Nutrition and Feed Technology (2, 0, 1)**

Nutrient metabolism and interaction in farm animals: carbohydrates, proteins, fats, minerals, water and vitamins. Energy transfer systems and calculation of energy yields. Field and laboratory analytical techniques in animal nutrition. Growth stimulating substances in animal nutrition (antibiotics, probiotics, hormones, enzymes etc). Feed mill and accessories, commercial and on farm feed manufacturing processes and procedures. Feed manufacturing ethics and regulations. Pre-requisite AST 403.

**AST 508: Pasture Management and Utilization (1, 0, 1)**

Introduction to forages in Nigeria. Perennial and annual forage specie description and adaptation. Forage plant morphology, growth and development. Forage quality for ruminants. Forage crop identification. Formulating mixtures for pastures and hay. Forage seed and principles of establishment. Defoliation physiology. Pasture and paddock management. Cutting management for grasses, legumes and mixtures. Forage fertilization and nutrient management. Hay quality and storage. Silage management. Forage related animal disorders and poisonous plants.

**AST 510: Applied Animal Breeding (1, 0, 1)**

Determination of genetic parameters; statistical tools for studying inheritance; genetic variance and Covariance; Heritability and Repeatability estimates. Foundation stock in Livestock breeding; breeding systems; Inbreeding and relationships; crossbreeding in practice. Selection method, Selection in practice. Genetic improvement of various livestock

traits; Breeding and Selection of beef and dairy cattle, record of performance test; progeny test. Breeding and Selection of Sheep and Goats. Breeding and Selection of poultry; random sampling; egg production test. Pre-requisites: AGR 303 and AST401.

AST 512: Rabbit and Mini-livestock Production (2,0,0)

Identification and classification of important mini-livestock species (rabbits, grasscutter, giant rat, snail, guinea pig, some insects (e.g. termites, palm grubs) and fishes). The concept of mini-livestock production with reference to evolution and developmental trends worldwide. Morphology, anatomy, physiology and reproductive cycles of some selected mini-livestock species. Breeding techniques for mini-livestock species. Systems and levels of management, housing, nutrition of mini-livestock species. Socio-economic importance of mini-livestock production. Health and common diseases of mini-livestock.

AST 514: Res. Techs. In Animal Sci. and Tech. / Seminar (0,0,3)

AEX 506: Rural Community Development (2, 0, 0)

Meaning and scope of community development, principles and philosophy of agricultural extension and rural development; organization staffing, functions and current problems and issues in extension and co-operative

AGR 307: Elements of Animal and crop Production (Service Course for Food Science Students) (1,0,2)

This service course is designed to introduce non-majors in Agriculture to the general biology of farm animals, rudiments of tropical animal production, with detailed discussions on management, housing, feeding, breeding, health, slaughtering processes, meat handling as they relate to poultry, swine, sheep, goat and cattle production. Contribution of the animal industry to the Nigerian economy will also be discussed.

AST 304: Elements of Animal Production (2, 0, 1) - (Service Course for Engineering students)

This service course is designed to introduce non-majors in Agriculture to the general biology of farm animals, rudiments of tropical animal production, with detailed discussions on management, housing, feeding, breeding, health, slaughtering processes, meat handling as they relate to poultry, swine, sheep, goat and cattle production. Contributions of the animal industry to the Nigerian economy will also be discussed.

### **STAFF MEMBERS IN THE DEPARTMENT**

The Department is endowed with a good mix of qualified and experienced staff who administer the academic programmes of the Department. The background of these professionals is the focus in this section of the handbook.

#### **A. ACADEMIC STAFF**

Professor M.U. Iloeje, B.Sc (Animal Science) (UNN); M.Sc., Ph.D. (Cornell); MNSAP; M.A.S.A.S.; M.A.D.S.A; M.S.A.N.; M.A.S.N. etc.

Area of Specialization: Animal Breeding and Genetics.

Professor Iloeje was the pioneer staff of the Department becoming the first Coordinator within the University system. He has risen from this position to that of Ag. Dean, SAAT, and then Director of Academic Planning and Development. He was Deputy Vice Chancellor (Academic), FUTO (1997-2001). Professor Iloeje is widely published and has served as External Assessor for many Professorial appointments/promotions in his chosen field. The experience of Professor Iloeje brings much to bear on the administration of the Undergraduate and Postgraduate programmes in the Department.

Professor A.B.I. Udedibie, B.Sc. (Animal Science) (UNN); M.Sc., Ph.D. (Cornell); RAS FNSAP; MS.A.N.; F.A.S.N.;

Member, African Network for rural Poultry Development, among others.

Area of Specialization: Animal Nutrition

Professor Udedibie, an erudite scholar, has brought fame to the Department in particular and the University in general through his break-through in jackbean research. He is widely published and ranks high in the authors most cited in the area of alternative feed resources in animal nutrition. In 1989, Professor Udedibie became the Head of this Department, a position he held for 9 fruitful years, during which he worked tirelessly to see the Department grow. Professor Udedibie was serving a second term as Dean of SAAT when he was appointed Deputy Vice-Chancellor (Academic), FUTO (2001-2005).

Professor B.O. Esonu, B. Agric. Tech. (Animal Production) (FUTO); M.Sc., Ph. D (Animal Nutrition) (FUTO); RAS, MNSAP; FASN; MNYAS; MASAN; MWPSA; MASAS among others.

Area of Specialization: Animal Nutrition.

Professor Esonu was Head, Department of Animal Science and Technology (2005- 2006), University Alumni Relation Officer (2006 -2011) and Director Centre for Agricultural Research (2011-2012).

Professor N.J. Okeudo, B. Agric. Science (Ife); M. Phil. (Ife); Ph. D (Belfast); RAS, MNSAP; MASN; MIFST (UK).

Area of Specialization: Animal Products.

Professor Okeudo was Head, Department of Animal Science and Technology (2001-2003).

Professor G.A. Anyanwu, B. Agric. Animal Science (UNN); M.Sc. Animal Science (Ibadan); Ph.D. Animal Nutrition (FUTO); RAS MNSAP; MASN;

Area of Specialization: Animal Nutrition.

Professor Anyanwu was Head of Department (2003-2005) and Associate Dean, SAAT (2006 - 2008)

Dr. (Mrs) U.E. Ogundu, B.Sc. Animal Science (Ibadan); M.Sc. Animal Science (ABU); Ph. D. (FUTO); RAS MNSAP; MASN; Reader.

Area of Specialization: Animal Breeding and Genetics.

Dr. Mrs. Ogundu was the Ag. Head of Department, (2006-2010) and SAAT SIWES Coordinator (2010-2012)

Dr. I.C. Okoli, DVM (Ibadan); M.Sc. Animal Management (FUTO); Ph.D. (FUTO); MNVMA; MNSAP; Reader

Area of Specialization: Animal Health and Management.

Dr. M.C. Uchegbu, B. Agric. Animal Science (UNN); M.Sc. Animal Nutrition (FUTO); Ph.D. (FUTO); RAS MNSAP; MASAN, MASN, MWPSA; Reader.

Dr. Uchegbu was Ag. Head of Department (2010-2012).

Area of Specialization: Animal Nutrition.

Dr. O.O. Emenalom, B. Agric. Tech. Animal Production (FUTO); M.Sc., Ph.D. Animal Nutrition (FUTO); RAS, MNSAP; MASAN, MNSN, MWPSA; Reader.

Area of Specialization: Animal Nutrition.

Dr. Emenalom was SAAT SIWES Coordinator (2003 -2006)) and current Ag. Head of Department.

Dr. E.B. Etuk, B. Agric. Tech. Animal Production (FUTO); M.Sc., Ph.D. Animal Nutrition (FUTO); RAS, MNSAP; MASAN; MASN; MWPSA; Senior Lecturer.

Area of Specialization: Animal Nutrition.

Dr. Etuk, was the Associate Dean, SAAT (2011-2013) and presently the Associate Dean, Students' Affairs.

Dr. C.T. Ezeokeke, B.Sc. Agric. Biochemistry and Nutrition; M.Sc. Agric. Biochemistry; Ph.D. (Ibadan); RAS MASAN; MNSAP; Senior Lecturer.

Area of Specialization: Animal Nutrition and Biochemistry.

Dr. (Mrs). H. O. Obikaonu, B. Agric. Tech. Animal Production (FUTO); M.Sc., Ph.D. Animal Management (FUTO); RAS, MNSAP; Senior Lecturer

Area of Specialization: Animal Management.

Dr. Mrs. Obikaonu was the Deputy Director, Linkages and advancement (2011-2013).

Dr. I.F. Etuk, B. Agric. Animal Science (Uyo) M.Sc.(Ife), Ph.D (Umudike) RAS, MNSAP; MASAN; Senior Lecturer.

Area of Specialization: Animal Physiology

Dr. V.M.O. Okoro, B. Agric. Tech. (FUTO); M.Sc. (Ibadan); Ph.D (Umudike); RAS, MNSAP; MASAN; MGSN; MWPSA; Lecturer I.

Area of Specialization: Animal Breeding and Genetics.

Dr. E.C. Akanno, B. Agric. Animal Science (Umudike); M.Sc. (Umudike); PhD (; MNSP; MNSAP; Lecturer II

Area of Specialization: Animal Breeding and Genetics.

Mr. N.J. Anyanwu, B. Agric. Tech. (FUTO); M.Sc. (RSUST); RAS; MNSAP; MASAN; MWPSA; Lecturer II.

Area of Specialization: Pasture and Range Management.

Dr. I.P. Ogbuewu, B. Agric. Tech. (FUTO) Animal Science and Tech. (FUTO); M.Sc., Ph.D. (FUTO); RAS, MNSAP; MASAN; Lecturer II.

Area Specialization: Animal Reproductive Physiology.

Dr. V.U. Odoemelam, B. Agric. (Umudike); M.Sc.,

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Ph.D (Umudike); RAS MNSAP; MASAN; NIAS; Lecturer II.

Area of Specialization: Livestock Production and Management.

Mr. O.N. Aladi, B. Agric. Tech. (FUTO); M.Sc (FUTO); RAS,

MASN; MASAN; Lecturer II Area of Specialization: Animal Products Technology.

Dr. I.C. Unamba-Oparah, DVM (UNN); Assistant Lecturer.  
Area of Specialization: Animal Health and Management

Mrs O.E. Kadurumba, B. Agric. (Umudike); M.Sc. (Umudike),  
RAS, MASAN, MNSAP, Assistant Lecturer.  
Area of Specialization: Animal Genetics and Breeding

Dr. C. C. Ugwu, DVM (UNN); M. Sc (UNN) Assistant Lecturer  
Area of Specialization: Animal Health & Animal Microbiology.

Miss. E. C. Egenuka B. Agric. Techn. (FUTO); M.Sc (FUTO)  
Assistant Lecturer;

Area of Specialization: Animal Products

Mr. T. C. Iwuji, B. Agric. Techn. (FUTO); M.Sc (Umudike);  
Assistant Lecturer

Area of Specialization: Animal Physiology

Mr. U. E. Ahiwe, B. Agric. Techn. (FUTO); M.Sc (FUTO);  
Assistant Lecturer

Area of Specialization: Animal Nutrition.

Mrs. P. C. Okere, B. Agric. (CAI); M.Sc (FUTO); Assistant  
Lecturer

Area of Specialization: Animal Management

### **NON-ACADEMIC STAFF**

Administrative Staff

Mrs. P. Ekeledo - Administrative Assistant

Mrs A. N. Enwereuzo - Senior Executive Officer

Miss O. R. Ngerem - Computer processor

Miss O. T. Amaechi - Senior Clerical Officer

### **Farm Staff**

Mr. M.D. Okafor	-	Farm Manager
Mr. K. O. Njoku	-	Principal Superintendent I
Mrs. A.N. Uhuegbu	-	Principal Agric. Superintendent.
Mr. G Achonu	-	Chief Farm Supervisor
Mr. A.O. Ogoke	-	Asst. Chief Foreman Supervisor
Mr. E. Azuike	-	Senior Farm Officer
Mr. C. O. Iroajanma	-	Farm Officer I
Mrs. L. C. Ikpamezie	-	Farm Officer II
Mrs. C. Emele	-	Farm Officer II
Mrs. V. K. Iwuagwu	-	Farm Officer II
Mrs. A. U. Akagha	-	Farm Officer II
Mrs. N. M. Orji	-	Higher Agric. Superintendent
Mr. A.O. Kamalu	-	Senior Foreman
Mr. M. Uzoma	-	Senior Foreman
Mr. David, Jesse	-	Senior Foreman
Mr. E. Osuji	-	Senior Foreman
Mrs. A. Osuji	-	Senior Foreman
Mrs. A. Ekezie	-	Farm Attendant
Mr. Y. Adamu	-	Farm Hand
Mr. S. Okere	-	Farm Hand
Mrs. S. C. Ebere	-	Farm Assistant
Mrs P. Nwachukwu	-	Farm Attendant

### **Laboratory Staff**

Mr. E.O.O. Onuoha	-	Deputy Chief Technologist
Mrs. O.V. Ezema	-	Senior Lab. Technologist
Mrs. D.C. Njoku	-	Technologist



## **OUTREACH PROGRAMME**

The Department maintains constant contact with farmers and other professionals in the field of livestock production. The expertise of the staff is made available to the University's community outreach programme to help in fostering livestock development in the rural communities. The wide experience of staff members in different field of livestock production including livestock production systems, sustainable technological development, mini livestock, etc, provides a rich source of knowledge that can be tapped. The Department participates in the organization of public lectures, workshops and symposia.

The Department sets out a day in the year when people from within and outside the Department are invited to interact with members of the Department. During such days, the public is enlightened through lectures and displays on the activities of Department. Such forums also provide excellent opportunities for the younger professionals in the Department to get better understanding of opportunities that abound in their chosen profession.

## **ACADEMIC DEVELOPMENT OF STAFF AND STUDENTS**

The professional development of staff and students is taken very seriously in the Department. Staff members are encouraged to continuously update themselves through available means of development in their areas of specialization by attending conferences, workshops and symposia. They are also encouraged to participate in community outreach programmes so as to enable them come face to face with the practical problems facing farmers in the field. Such case studies are important tools for the transfer of knowledge to students and this makes our programmes unique.

Both undergraduate and postgraduate students are involved in academic exercises that would improve their professional

competence. They are made to make presentations, where their understanding of their respective subjects is assessed. That way, they build up confidence as professionals and are more likely to be very productive after training/studies.

## **ACADEMIC GUIDANCE FOR STUDENTS**

Academic staff members are assigned responsibilities to serve as academic advisers to students. Each class (level) is assigned to a class academic adviser who freely proffers academic advice to students, for example, during registration and at other times the students may need counselling on academic matters. More difficult issues are taken to the Head of Department for resolution.

The University also has a functional Guidance and Counselling Unit headed by a Director. Students are encouraged to avail themselves of this and act on advice given to them by the counsellors

## **EXAMINATIONS**

Registered students are made to take examination for courses they have registered and participated in. It is expected that before students present themselves for examination in any course, they have dully registered the courses, attended lectures and practicals/tutorials at least 75% of the time, and have carried out all continuous assessment exercises requested by the lecturer(s).

Similar to other academic Departments in the School, the Department has the Head of Department as Chairman of the Departmental Board of Examiners. He is assisted by the Internal Examiners. One of the Internal Examiners is appointed as Examinations Officer who deals directly with the students over issues concerning examinations and results. Every year, a senior professional academic from a sister University is

appointed as External Examiner to evaluate the quality of the work carried out in the Department. The Head of Department liaises with the registrar for the administration of examination.

Grading system is uniform throughout the University. According to sections 21 and 27 of the University's Handbook on Academic Regulations 1991-96, students' performance on a course shall be recorded in letter grades (after due conversion from percentage scores) as follows:

Percentage Score	Grade	GradePoint	PointEquivalent
70-100	A	5	Excellent
60-69	B	4	Very Good
50-59	C	3	Good
45-49	D	2	Pass
40-45	E	1	Poor Pass
0-39	F	0	Failure

Each of the letters is assumed as the equivalent of the grade points as indicated above. Where weight is given to work done during each semester, this must be based on formal examination, written, oral or practical, or on the assessment of work approved by the Board of Examiners, and not on mere attendance to lecture, or an assessment by the lecturer without examination.

For courses without laboratories, the weighting shall be: Examination 70% and Test 30%. For courses with laboratories, the weighting shall be: Examination 60%, Lab 20% and Test 20%.

The number of grade point of each course completed by the student is computed by multiplying the number of units for the course by the grade point equivalent he obtained in the course. When the grade point for all course units on each level of courses have been assembled, each students' cumulative

grades point average (CGPA) is worked out by dividing the total number of his grades by the total number of units (TNU) taken. This is worked out progressively until the end of the degree programme.

All the degree courses (required, restricted, elective and General Studies taken by a student as well as the successful completion of his Industrial attachment shall count towards the evaluation of his degree. The classes of degrees awarded are as follows:

Classes of Degree	Cumulative Grade Point Average		
First Class Honours	4.50	-	5.00
Second Class Honours (Upper Division)	3.50	-	4.49
Second Class Honours (Lower Division)	2.40	-	3.49
Third Class Honours	1.50	-	2.39
Pass	1.00	-	1.49
Fail	0.00	-	0.99

The Degrees/Diplomas of the Federal University of Technology, Owerri are awarded only to candidates who, by the authority of the Senate, have been found worthy in character and learning for the award of such degrees/diplomas. To be worthy in learning, a candidate must have successfully completed and passed all the prescribed examinations and courses of instruction required for such degree/diploma, within the stipulated time, or as the Senate may otherwise prescribe.

Students who have been found involved in cases of gross misconduct such as (but not limited to) examination malpractices, convicted of felony or other cases of criminal offences, association with or membership of secret cults or of any organization proscribed by the University or the Government, shall, by the authority of the Senate, not be worthy in character for the award of a degree/diploma of the Federal

University of Technology, Owerri.

The University does not carry out re-sit examinations for final year students. Rather, students are required to carry over courses which they failed to the next year of study. At the end, straight averaging is used in the computation of the result, whereby the total credit load of courses offered throughout the students' duration in the University is used to divide the total cumulative grade points obtained in the courses.

### **STUDENTS' ASSOCIATION**

The students in the Department are encouraged to interact with themselves to take advantage of peer influence on their positive development as professionals in the livestock industry. The student association is registered with the Students' Affairs Unit of the University and staff members in the Department act as Patrons and advisers. The students exchange ideas and engage in such social activities as would help to integrate them as members of one family.

Dr. O.O. Emenalom  
Ag. Head of Department

*Note:*

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Nnamdi Press: 08036819081



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