

## 2. DEPARTMENT OF SCIENCE, TECHNOLOGY AND MATHEMATICS EDUCATION

### (a) Curriculum for B. Ed. Biology Degree

#### 100 Level Harmattan Semester

Course Code	Course Title	Units	Status
EDU 101	Introduction to the Teaching Profession	2	C
EDU 103	Foundations of Education	2	C
BIO 101	Basic Biology I	3	C
BIO 107	Experimental Biology I	1	C
CHM 101	General Chemistry I	3	C
CHM 107	Experimental Chemistry I	1	C
PHY 101	General Physics I	3	C
PHY 107	Experimental Physics I	1	C
MTH 101	General Mathematics I	3	C
GNS 101	Use of English I	2	R
CIT 111	Introduction to Information and Communication Technology	2	R
LIB 101	Use of Library	1	R
	<b>Total</b>	<b>24</b>	

#### 100 Level Rain Semester

Course Code	Course Title	Units	Status
EDU 102	Educational Administration and Planning	2	C
EDU 104	Educational Psychology	2	C

BIO 102	Basic Biology II	3	C
BIO 108	Experimental Biology II	1	C
CHM 102	General Chemistry II	3	C
CHM 108	Experimental Chemistry II	1	C
PHY 102	General Physics II	3	C
PHY 108	Experimental Physics II	1	C
MTH 102	General Mathematics II	3	C
GNS 102	Use of English II	2	R
CIT 112	Introduction to Information Programming	2	R
	<b>Total</b>	<b>23</b>	

### 200 Level Harmattan Semester

Course Code	Course Title	Units	Status
BIO 201	General Ecology	2	C
BIO 203	Introductory Genetics	2	C
BIO 205	Cell Biology	2	C
BOT 207	Seedless Plants	2	C
MCB 201	General Microbiology I	3	C
BCH 201	General Biochemistry I	3	C
STA 201	Statistics for Biological & Agricultural Sciences	4	C
GNS 201	Osun People & Culture	2	R
FRN 221	Basic French	2	R
	<b>Total</b>	<b>22</b>	

### 200 Level Rain Semester

Course Code	Course Title	Units	Status
BIO 202	Biological Techniques	2	C
BIO 204	Cell Physiology	2	C
BOT 206	Seed Plants	2	C
ZOO 202	Invertebrate Zoology	3	C
ZOO 204	Chordates	2	C
BIO 206	Hydrobiology	2	C
BIO 208	Developmental Biology	2	C
GNS 202	Nigerian Peoples & Culture	2	R
FRN 222	Basic French	2	R
<b>Elective:</b>			
MCB 202	General Microbiology II	3	E
MCB 305	Microbial Genetics and Molecular Biology	2	E
		<b>22</b>	

### 300 Level Harmattan Semester

Course Code	Course Title	Units	Status
BIO 301	Genetics II	2	C
BOT 303	Plant Physiology	3	C
BIO 303	Evolution	3	C
BIO 305	Population Ecology	2	C
ZOO 301	Parasitology	3	C

ZOO 303	Animal Ecology	3	C
GNS 301	Entrepreneurial Skills Development and Practice	2	R
<b>Elective:</b>			
BIO 307	Soil Science	2	E
MCB 305	Microbial Genetics and Molecular Biology	3	E
	<b>Total</b>	<b>20</b>	

### 300 Level Rain Semester

<b>Course Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Status</b>
ZOO 402	Animal Physiology	2	C
ZOO 404	Basic Entomology & Pest Control	3	C
BOT 402	Plant Ecology	3	C
BIO 402	Conservation of Natural Resources	2	C
BOT 404	Plant Pathology	2	C
BOT 406	Plant Reproduction	2	C
BOT 408	Plant Tissue	2	C
ZOO 406	Comparative Vertebrate Embryology	2	C
<b>Elective:</b>			
BCH 202	General Biochemistry II	3	E
MCB 208	Introductory Biotechnology	2	E
	<b>Total</b>	<b>20/21</b>	

#### 400 Level Harmattan Semester

Course Code	Course Title	Units	Status
EDU 301	Teaching Practice I	3	C
EDU 303	Test, Measurement and Educational Statistics	2	C
EDU 305	Research Methods	3	C
EDU 307	Special Education	2	C
EDU 401	Curriculum & Instruction I	2	C
EDU 403	Seminar in Education Biology	2	C
EDU 405	Science, Technology, Society	2	C
EDU 407	Special Methods II	2	C
	<b>Total</b>	<b>18</b>	

#### 400 Level Rain Semester

Course Code	Course Title	Units	Status
EDU 302	Guidance and Counseling	2	C
EDU 304	Educational Technology	2	C
EDU 402	Teaching Practice II	3	C
EDU 404	Research Project In Education Biology	6	C
EDU 406	Curriculum & Instruction II	2	C
EDU 408	Special Methods III	2	C
	<b>Total</b>	<b>17</b>	

#### COURSE DESCRIPTION

### **EDU 101: INTRODUCTION TO THE TEACHING PROFESSION (2 Units)**

Candidates who are training themselves to become teachers should understand what teaching profession stands for and its requirements. The concept 'profession' will be examined by this course. The characteristics of the teaching profession in Nigeria will be composed with other professions in the world and especially in Nigeria.

### **EDU 103: PSYCHOLOGICAL FOUNDATIONS OF EDUCATION (2 Units)**

Developmental psychology as a branch of general psychology, traces the stages of development of the human organism from conception to adolescence. The dimensions of human development usually discussed include physical development, emotional development, intellectual development, linguistic and development and moral development.

### **EDU 105: SOCIOLOGICAL AND PHILOSOPHICAL FOUNDATIONS OF EDUCATION (3 Units)**

This course focuses on sociological theories of great sociologist such as Plato, Aristotle, and Thomas Hobbes. It looks at the thought of the Roman Philosophers those of Renaissance and Reformation etc.

### **EDU 107: GENERAL METHODS OF TEACHING (3 Units)**

This course introduces students to teaching as an activity. It lets students into teaching act through the shallow end. Thus, it takes students through the whole gamut of teaching by incorporating definitions and explanation of teaching and learning; elements of good teaching/characteristics of the ideals teachers; principles of learning; instructional planning; unit and lesson plans; formulating educational objectives; taxonomy of education objectives (the cognitive, affective and psychomotor domains); factors underlying the choice of teaching methods; method/approaches to teaching; classroom management; and factors affecting teaching and learning.

### **EDU 109: INTRODUCTION TO CURRICULUM STUDIES (3 Units)**

A general introduction to the concept of curriculum and theories of curriculum design. Emphasis on organization and management of the teaching and learning process.

### **EDU 111: SUBJECT METHODS (2 Units)**

The concepts of teacher and learning objectives in teaching method of teaching of the various subjects (in the secondary school curriculum in Nigeria) the syllabus, scheme of work, lesson plans and lesson note how they apply to the different subject, evaluation procedures applied to the teaching of these subjects.

### **EDU 113: HISTORY AND POLICY OF EDUCATION (2 Units)**

This course traces the development of formal education in the world. It pinpoints great men and women who have made contributions to the growth of formal education in Nigeria generally and in Nigeria specifically. It examines the growth of formal education in Nigeria since the time of the arrival of the missionaries. It also examines the problems that the present education system of Nigeria is faced and finds ways of solving such problems.

### **BIO 101: BASIC BIOLOGY I (3 Units)**

A generalized survey of plant and animal kingdom. Basic cell types. Prokaryotic and Eukaryotic cells. Cell structure and organization. Functions of cellular organelles. Mitosis, Meiosis and Heredity. Characteristics and classification of living things. General characteristics of microorganisms: structure, ecology and reproduction. Cell division and Reproduction. Diversity, morphology and general characteristics of algae, bryophytes, pteridophytes, gymnosperms and angiosperms. Basic principles of Zoological Nomenclature Outline classification of Animal kingdom. Diagnostic features of major animal phyla and their classes.

### **BIO 102: BASIC BIOLOGY II (3 Units)**

Similarities and differences in external features of plant and animal kingdoms. Nature of living and non living things. Homeostatis. Growth and development. Endocrine system, Respiration, Reproduction, Nutrition and enzymes, Digestion and excretion. Aims and scope of ecology. Basic units of ecology (Population, Community and Ecosystem). Biotic and abiotic components of an ecosystem. Energy

flow and nutrient cycling. Dynamics of population and communities. Distributions of microorganisms in nature. Microbes as friends and foes. Man and environment.

**BIO 107      EXPERIMENTAL BIOLOGY I      (1 Unit)**

Simple experiments illustrating the topics covered in BIO 101.

**BIO 108    EXPERIMENTAL BIOLOGY II    (1 Unit)**

Simple experiments illustrating the topics covered in BIO 102.

## HED 202: ACCIDENT PREVENTION AND SAFETY EDUCATION (2 Units)

A study of acquire knowledge and skill for the emergency core of individuals; basic principles of prevention of accidents as applied to sports and games, control of an defences and understanding of individual during personal and community accident prevention.

**EDU 204: CURRICULUM AND INSTRUCTION (2 Units)**

The meaning and nature of curriculum process, planning and development, historical and educational foundation to the Nigeria curriculum factors affecting curriculum and planning designs and curriculum objectives the process of curriculum planning and development, curriculum designs and curriculum evaluation.

**EDU 206: TRENDS IN EDUCATION (3 Units)**

This course is concerned with structures in education from colonial era till date such as 6-3-3-4, 9-3-4, nomadic education, riverine education HIV education, ICT, etc.

**EDU 208: PHILOSOPHY OF EDUCATION (2 Units)**

The course focuses attention of philosophy of education paying attention to the branches of philosophy and their contributions to educational development.

**EDU 210: MICROTEACHING (2 Units)**

The meaning and processes of microteaching, role and uses of micro-teaching, objective and merits of microteaching. Processes involved in the designing and products of educational media, factors involved in the selection of educational media, educational media centers in Nigeria.

### **EDU 212: EDUCATIONAL TECHNOLOGY (3 Units)**

The concepts, history and role of educational technology, communication in teaching, educational media, educational design, selection and utilization, system approach to instructional technology, innovations in educational broadcasting.

### **EDU 214: SOCIOLOGY OF EDUCATION (2 Units)**

The course focuses on the concept of sociology of education; it examines concepts such as socialization, family types, and functions of family in the society, it looks at deviant behaviour among students, causes and control of deviant behaviour.

### **BIO 201 GENERAL ECOLOGY (2 Units)**

Aims and Scope of ecology, Basic units of ecology (population, Community and Ecosystem)

Biotic and Abiotic components of an ecosystem. Production in ecosystem. Energy flow and nutrient cycling. Dynamics of population and communities.

### **BIO 202 BIOLOGICAL TECHNIQUES (2 Units)**

Microscopy and calibration of the light microscope. Preparation of slides. Sectioning of plant tissues. Techniques in culturing plant tissues. Botanical drawings, Herbarium. Experimental designs.

### **BIO 203 INTRODUCTORY GENETICS (2 Units)**

History of genetics, simple mendelian inheritance, chromosomes, genes, gene expressions and combination, dominance (complete and incomplete), linkage and crossing over, gene classification and mapping, hereditary and non-hereditary characters of organisms, Changes in gene and chromosomes, Alleles (simple and multiple), sex determination, sex ratio, sex linked inheritance, sex influenced and sex-limited traits, lethal genes, sex-linked lethal, inherited defects and gene interactions.

Practicals to include collection and classification of indigenous goats within Osun State University and its environs.

### **ZOO 202: INVERTEBRATE ZOOLOGY (3 Units)**

Identification, phylogeny, general biology, organization, behaviour and economic importance of some important phyla, including Protozoa, Porifera, Coelenterates, Platyhelminths, Annelida, Mollusca, Arthropoda and Echinodermata.

**MCB 201: GENERAL MICROBIOLOGY I (3 Units)**

Origin and scope of Microbiology. Introduction to various forms and characteristics of representative genera including bacteria, viruses, fungi, protozoa and algae. Nutrition and biochemical activities of microorganisms. Biology of microorganisms metabolism, growth and reproduction in microorganisms; role of microorganisms in nature-how they affect people, property, and the environment; Microbial variation and heredity.

**MCB 208: INTRODUCTORY BIOTECHNOLOGY (2 Units)**

Definitions of Biotechnology; historical development of biotechnology; the interdisciplinary nature of biotechnology; benefits of biotechnology to man; biotechnology and development; the importance of microbiology in biotechnological pursuit; applications of biotechnology.

**EDU 301: TEACHING PRACTICE I (4 Units)**

Students will be given guidance in the planning, methodology and evaluation procedure necessary for classroom practice. They should also undertake practical teaching in a post primary school for six weeks.

**EDU 303: TEST, MEASUREMENT AND EDUCATIONAL STATISTICS (3 Units)**

It familiarizes students with descriptive statistics and inferential statistics to the level of application of test for measuring differences between two means. The aim of the course is to guide students on how to prepare valid and reliable test. It also aims to teach them the use of statistics to describe behaviour of performance in a test. Areas to be covered include; the concept of measurement, types of test, use of test, planning a test, table of specifications, item analysis, types of validity and reliability, administration of test and scoring the types of standard deviation, Pearson, z-score, stamina, Pearson Product Moment and Spearman Rank Correlations.

**EDU 305: RESEARCH METHODS (3 Units)**

This course prepares the student teacher for research processes in education. It helps the students to understand the meaning of educational research and the

processes involved in it, so as to become a teacher equipped with knowledge of carrying out simple researches into educational problems. This is a three-unit course and presents unit like the meaning of general research, the meaning of educational research, types of educational search and their procedures while students are not registered to compute any statistics in this course, they are rather expected to be able to interpret simple research data and present such in table to facilitate their knowledge in what they are expected to do in writing of the research project.

### **EDU 307: SPECIAL EDUCATION (2 Units)**

The special education familiarizes students with the meaning of special education and its rationale. It gives an outline of different branches of special education, which comprise giftedness, physical impairment and blindness. This introductory course also discussed the educational opportunities of giftedness and impairments.

### **EDU 309: GUIDANCE AND COUNSELLING (3 Units)**

The nature and purpose of counseling, basic counseling orientation, the helping relationship role of the guidance counselor text and non text student's appraisal as essential aids to understanding students.

### **EDU 311: EDUCATIONAL PSYCHOLOGY (2 Units)**

The course examines the relationship between psychology and education, especially with regards to teaching and learning. Educational psychology is one of the fields of applied psychology. Course contents include psychology, its objectives and research methods; behaviorist theories of learning e.g. skinner, Pavlov, Thorndike and Premack and its applications for teaching and learning; cognitive theories of learning including language e.g. Piagets and Gestalt psychology and its implications for teaching and learning; attention initiation, modeling and appraisal e.g. Sandra (i.e. social learning) and its implication for teaching and learning, transfer of learning for learning and teaching.

### **MCB 307 MYCOLOGY (3 Units)**

The major groups of fungi and their probable relationships. Structure, function, life cycles, physiology and classification of fungi. Economic and ecological importance of fungi in agriculture, food and industry; reference to Nigerian examples. Importance of fungi to man.

### **EDU 402: EDUCATIONAL ADMINISTRATION AND PLANNING (3 Units)**

This is an introductory course to educational administration and planning participants in the course are acquainted with an overview of education administration, competences in skills required for effective school administration functions of the school administrations and development of competences in school administration. Key issues handled include theories of schools administration and organization theories, the general system theory, social system theories and other theories related, equity theory are also considered,

### **EDU 404: RESEARCH PROJECT WRITING (6 Units)**

Theory and practice of project writing, choosing of research topic, preliminary writing of Chapter 1. Review of appropriate literature, presentation, discussion of collected data, research report format, mini-project production and seminar.

### **EDU 406: TEACHING PRACTICE II (4 Units)**

Students will be given guidance in the planning, methodology and evaluation procedure necessary for classroom practice. They should also undertake practical teaching in a post primary school for six weeks

### **EDU 408: PRACTICUM IN CLASSROOM MANAGEMENT (3 Units)**

Education system, school records keeping, leadership and communication in school.