



FACULTY OF PHYSICAL AND COMPUTING SCIENCES

DEPARTMENT OF GEOLOGY

**BSc. Geology
STUDENTS' HANDBOOK**

NOVEMBER, 2024



The Crest displays the year of the University's establishment, 1975. It also displays the Colours of the University; Purple, Green and White. The symbol of a Book at the centre of the crest depicts scholarship which the Usmanu Danfodiyo University is best known for. This significance is further emphasized by the motto of the University captioned in the Arabic word "Iqra" which means, "Read".



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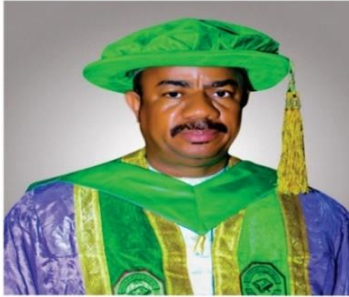
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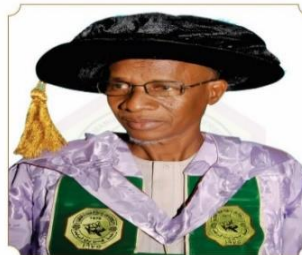
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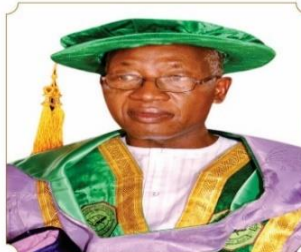
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DEAN'S MESSAGE – Faculty of Physical & Computing Sciences

It is with great pleasure that I welcome you to the Faculty of Physical and Computing Sciences of the Usmanu Danfodiyo University, Sokoto.

As the Dean of our Faculty, I am excited to have you onboard as we journey through this academic mission. Our dedication and committed to teaching and research are awesome with an array of teaching and non-teaching Staff that are always determined to foster a conducive atmosphere worthy of intellectual curiosity, critical thinking and collaborative learning.

I humbly encourage you to actively participate in the range of academic and extracurricular activities and research initiatives that our esteemed University offers. Also, be mindful of the fact that your journey here is not only about acquiring knowledge but most importantly, the transformation of society through the meaningful application of the knowledge and character.

Let us embrace the challenges and successes that lie ahead, and work enthusiastically to make the academic journey truly remarkable. I Wish you all a fulfilling and rewarding academic pursuit.

Best Regards,
Prof. Aminu Mohammed

FOREWORD FROM THE HEAD OF DEPARTMENT

Praise be to Allah for giving me this strength and might to chair the review of the Students' Handbook as the Head of Geology Department. May I start by congratulating all the students of Geology Department for being lucky to join one of the most important professional, academics and economic enhancing course all over the globe. The Department of Geology student handbook and curriculum is guided by the National University Commission (NUC) as embodied in the Benchmark for Minimum Academic Standard (BMAS), as such I encourage you to read and plan your future academic pursuit with it. The information and policies herein are current at the time of publishing.

I wish you great success in your academic endeavor and realization of your dreams.

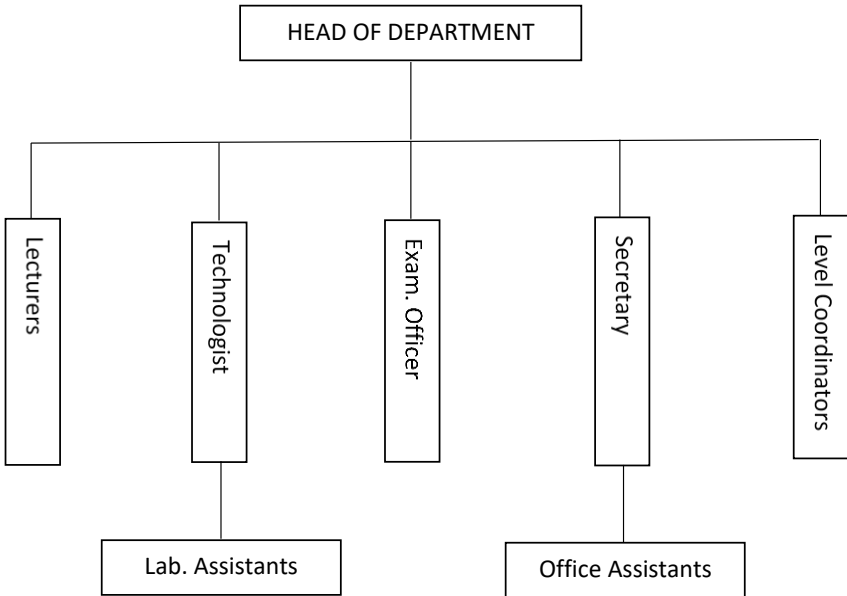
Head, Department of Geology

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DEPARTMENTAL ORGANOGRAM



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Brief History of the Department

The Geology Department at Usmanu Danfodiyo University Sokoto (UDUS) was established on January 9, 2013, with an initial intake of 23 students. The Department started from a single office domiciled within the department of Physics with Prof. Ibrahim Hamidu as the pioneer HOD and three other members of staff. Over the years, the Department has developed significantly both in staff strength, office infrastructure and number of students

A newly constructed administrative block was handed over to the Department in March 2024, the administrative block features 14 offices, 8 toilets, geology museum and a befitting conference room. This growth reflects the department's commitment to providing quality education in a conducive and resourceful environment for both staff and students.

The Department graduated its first set of students in the year 2017 and has since then graduated four other sets. Graduates of the department have gone on to achieve great things and a number of our former students have won both national and international scholarships such as the Erasmus Mundus and PTDF scholarships.

The Department currently has Twenty (20) academic staff, five (5) technical staff and three (3) secretarial staff. Among the academic staff we are endowed with 5 (five) Professors, 2(two) Readers, 7 (seven) senior lecturers, 4 (four) lecturer I and 2 (two) lecturer II.

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1.1 Vision and Mission of the Department

Vision:

To be a center of excellence in the training of broad-based geology students with emphasis in field and laboratory work.

Mission:

To participate in regional research and exploration in the field of Geology, and to contribute towards wealth creation, as well as community services in any appropriate way irrespective of race, creed, religion, gender, nationality or ethnicity.

1.2 Philosophy of the Department

Our philosophy is designed to produce B.Sc. Hons degree in Geology that will set the necessary foundation in producing specialized human resource who, by the end of the programme, would not have only been well-trained in geology and its applications, but also would have established contact with the local geological environment which will consequently result in enhanced interest in further study, exploration and exploitation of mineral resources in the region and the Country in general.

1.3 Objectives of the Department

- a) Produce trained geologists in both theoretical and relevant practical skills in field mapping and data interpretation that can compete effectively with other graduates and contribute positively in the nation building

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- b) Develop students capable of conducting independent research in geology and applying their geological knowledge and skills to solve theoretical and practical problems in the field
- c) Provide professional services to relevant government ministries, parastatal and multinational cooperation
- d) Provide the students the opportunity to develop a range of transferable skills of value in geological and non-geological employment
- e) Produce students capable of producing a geological map in the area of interest
- f) Prepare and develop the students for further studies in specialized areas of geosciences.

1.4 Admission Requirements

In addition to the general requirements for admission into the University, candidates intending to read the B.Sc. Degree in Geology must have fulfilled the conditions set out below:

i) Entry into 100 Level:

Candidate must have at least O' level credit passes in five subjects including English language, Mathematics, Chemistry, Physics and Biology. This is in addition to obtaining the required points in the UTME.

ii) Direct Entry (DE)

Candidate for direct entry must have two GCE A level passes in relevant subjects (Chemistry, Physics, Biology

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and Mathematics). Holders of Ordinary National Diploma/Higher National Diploma (OND/HND) in Geology, Geoscience, or Mining Engineering or any other relevant discipline, with at least Lower Credit level

1.5 Graduation Requirement

For a student to graduate, he/she is required to register and pass a minimum of 136 credit units for those admitted through University and Tertiary Institution Matriculation Examination (UTME) and 105 credit units for direct entry

1.6 Programme/Sub-discipline/Discipline Structure to include period of formal studies in the Universities, Industrial training, planned visit and projects

The programme spans over a period of four (4) years. Students are sent on industrial training after completing their third year of studies during the vacation preceding their fourth year of studies. They carry out research projects based on the fieldwork experiences in their second, third and fourth year. In their final (4th) year the last fieldwork would be conducted where students take on independent mapping, maps of areas would be assigned to each student covering 40KM² (forty square kilometers).

2.0 Administration of the Department

The Department is administered through the following

2.1 The Head

In accordance with the University regulations for management, the Head of Department is responsible for general conduct of

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the affairs of the Department and he/she also participates in teaching, research, community service, examination and administrative work including management and staff appraisal.

2.2 The Examination Officer

Liases with all staff and Head of Department regarding course distribution, collation of course questions for examinations, dissemination of information on dates of examination, venues for examinations, answers enquiries and responds to complaints regarding examinations. He also manages daily administration of examination during examination period. All these are in addition to his primary duties of teaching, research and community services.

2.3 SIWES Coordinator

Plans and coordinates Industrial Training for students in the Department. He also liaises with Industries to find placement for students and collects feedback. He liaises with the University's SIWES coordinator for dissemination of and compliance with Federal Government's policies on Industrial training. He also plans for staff visits to students places of attachments and presentation of SIWES Reports and Seminars.

2.4 Staff Advisor to NMGS/NAPE/AAPG

A staff member is appointed to serve as liaison between students and the Department. He/She may also advise and support the help pilot the association in the right direction.

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2.5 Level Coordinators

Are appointed by the Department to register a given level and monitor the individual students' academic progress. He/She may advise and counsel student on issues affecting students' performance, and offer guidance and counseling in liaison with University Guidance and Counseling.

2.6 Head of Laboratory

Coordinates day to day running of both the teaching and research laboratories of the Department. He is also in charge of laboratory staff and in liaison with staff he plans for execution of practical and delivery of lab talks.

2.7 Secretary to Head of Department

The secretary performs basic clerical and office responsibilities for the Department.

COURSES FOR EACH SESSION AND CREDIT UNIT

3.0 List of Courses

100 LEVEL

CORE COURSES			
CODE	TITLE	UNITS	SEMESTER
GST101	Communication in English	2[2+0]	First
GST102	Nigerian People and Culture	2[2+0]	Second
GST103	Information and Communication Technology (ICT)	1[1+0]	First
GST104	Use of Library and Study Skills	1[1+0]	Second
GST 105	Communication in French	2	First
GST 106	OR Communication in Arabic		
GLG 101	General Geology I	2[2+0]	First

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GLG 102	General Geology II	2[2+0]	Second
CHM 101	General Chemistry I	4[3+1]	First
CHM 102	General Chemistry II	4[3+1]	Second
PHY 101	General Physics I	3[3+0]	First
PHY 102	General Physics II	3[3+0]	Second
PHY 107	General Physics Laboratory I	1[0+1]	First
PHY 108	General Physics Laboratory II	1[0+1]	Second
BIO A 101	General Biology I	3[3+0]	First
MAT 103	Elementary Mathematics I	3[3+0]	First
STA 112	Descriptive Statistics	3[3+0]	Second
CMP 101	Introduction to Computer Science	3[2+1]	First
TOTAL		40	
ELECTIVES (Minimum of 0 and maximum of 8)			
PHY 103	General Physics III	2[2+0]	First
MAT 101	Elementary Mathematics III	3[3+0]	First
STA 111	Probability I	4[4+0]	First
STA 113	Basic Statistical Methods	3[3+0]	First
STA 114	Laboratory for Statistics	2[0+2]	Second

200 LEVEL

CORE COURSES			
CODE	TITLE	UNITS	SEMESTER
GST 211	Use of English Language II	2[2+0]	First
GST 212	Logic, Philosophy and Human Existence	2[2+0]	Second
GST 213	History and Philosophy of Science	2[2+0]	First
GST 214	Peace Studies and Conflict Resolution	2[2+0]	Second
GLG 201	Physical Geology	2[2+0]	First
GLG 202	Crystallography	2[1+1]	Second

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GLG 203	Field Geology I	2[1+1]	First
GLG 204	Introduction to Geology of Nigeria	2[2+0]	Second
GLG 205	Systematic Palaeontology	2[1+1]	First
GLG 206	Sedimentology	2[1+1]	Second
GLG 207	Introduction to Surveying	2[1+1]	First
GLG 208	Mineral Resources & Environmental Geology	2[2+0]	Second
GLG 209	Principles of Stratigraphy	2[2+0]	First
GLG 210	Elementary Structural Geology	2[1+1]	Second
GLG211	Introduction to Petrology	2[1+1]	First
CHM 210	Physical Chemistry II	2[1+1]	Second
CHM 212	Inorganic Chemistry II	2[1+1]	Second
CHM 213	Analytical Chemistry I	2[1+1]	First
MAT 202	Elementary Differential Equations I	2[2+0]	Second
PHY 204	General Physics IV	3[3+0]	Second
TOTAL		41	
ELECTIVES (Minimum of 6 and maximum of 7)			
BIO 201	Genetics I	2[2+0]	First
BIO 202	Introductory Ecology	2[2+0]	Second
BOT 202	Seedless Plants	2[2+0]	Second
GEO 203	Introduction to Geomorphology	2[2+0]	First
GEO 208	Introduction to Cartography	2[1+1]	Second
MAT 201	Mathematical Methods I	3[3+0]	First
MAT 207	Introduction to Numerical Analysis	3[3+0]	First
PHY 205	Thermal Physics	3[3+0]	First

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300 LEVEL

CORE COURSES			
CODE	TITLE	UNITS	SEMESTER
GST 312	Venture Creation and Growth	2[2+0]	Second
GST 311	Entrepreneurship and Innovation	2[2+0]	First
GLG 301	Optical and Determinative Mineralogy	2[1+1]	First
GLG 302	Sedimentary Petrology	3[2+1]	Second
GLG 303	Metamorphic Petrology	2[2+1]	First
GLG 304	Stratigraphy	2[2+0]	Second
GLG 305	Igneous Petrology	3[2+1]	First
GLG 306	Principles of Geophysics	2[1+1]	Second
GLG 309	Structural Geology	2[1+1]	First
GLG 310	Geochemistry	2[1+1]	Second
GLG 311	Field Geology II	2[0+2]	First
GLG 312	Photogeology & Remote Sensing	2[1+1]	Second
GLG313	Geological Research Technique	2[1+1]	First
GLG 315	Geology & Mineral Resources of Africa	2[2+0]	First
CHM 312	Instrumental Methods of Analysis	2[1+1]	Second
TOTAL		31	
ELECTIVES (Minimum of 6 and maximum of 17)			
GLG 307	Regional Geology of Africa	2[2+0]	First
GLG 308	Entrepreneurship	2[2+0]	Second
GLG 314	Palaeobiology	2[2+0]	Second
CHM 302	Inorganic Chemistry III	4[4+0]	Second
CHM 305	Petrochemistry	2[2+0]	First
CHM 316	Applied Spectroscopy	2[2+0]	Second
PHY 304	Electromagnetic Waves & Optics	3[3+0]	Second

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PHY 314	Solid State Physics	3[3+0]	Second
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400 LEVEL

CORE COURSES			
CODE	TITLE	UNITS	SEMESTER
GLG 400	Research Project	6[0+6]	Second
GLG 401	Petroleum Geology	3[3+0]	First
GLG 403	Applied Geochemistry	3[2+1]	First
GLG 404	Palynology	2[1+1]	Second
GLG 405	Economic Geology	3[2+1]	First
GLG 406	Applied Geophysics	3[2+1]	Second
GLG 407	Hydrogeology	3[3+0]	First
GLG 408	Geotectonics	2[2+0]	Second
GLG 409	Engineering Geology	2[1+1]	First
GLG 410	Seminar	1[0+1]	Second
GLG 411	Micropaleontology	2[1+1]	First
GLG 414	Advanced Metamorphic Petrology	2[1+1]	Second
GLG 416	Advanced Igneous Petrology	2[1+1]	Second
GLG 499	Students Industrial Work Experience Scheme (SIWES)	3[0+3]	First
TOTAL		37	
ELECTIVES (Minimum of 0 and maximum of 11)			
GLG 402	Regional Structural Geology	2[2+0]	Second
GLG 412	Geology & Mineral Resources of Africa	2[2+0]	Second
CHM 409	Radiochemistry & Nuclear Chemistry	2[2+0]	First
PHY 473	Acoustics	2[2+0]	First
BIO 403	Soil Ecology	3[3+0]	First
GEO 404	Advanced Cartographic Techniques	4[2+2]	Second
GEO 409	Arid and Semi-Arid Lands	3[3+0]	First

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3.1 Lists of Courses and their prerequisite

100 LEVEL

CORE COURSES		
CODE	TITLE	UNITS
GST101	Communication in English	2[2+0]
GST102	Nigerian People and Culture	2[2+0]
GST103	Information and Communication Technology (ICT)	1[1+0]
GST104	Use of Library and Study Skills	1[1+0]
GST106	Communication in Arabic	2[2+0]
GLG 101	General Geology I	2[2+0]
GLG 102	General Geology II	2[2+0]
CHM 101	General Chemistry I	4[3+1]
CHM 102	General Chemistry II	4[3+1]
PHY 101	General Physics I	3[3+0]
PHY 102	General Physics II	3[3+0]
BIO 101	General Biology I	4[4+0]
MAT 103	Elementary Mathematics I	3[3+0]
STA 112	Descriptive Statistics	3[3+0]
CMP 101	Introduction to Computer Science	3[2+1]
PHY 107/108	General Physics Laboratory I & II	2[0+2]
		41
OPTIONAL ELECTIVE COURSES		
PHY 103	General Physics III	2[2+0]
MAT 101	Elementary Mathematics III	3[3+0]
STA 111	Probability I	4[4+0]
STA 113	Basic Statistical Methods	3[3+0]
STA 114	Laboratory for Statistics	2[0+2]

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200 LEVEL

CORE COURSES			
CODE	TITLE	UNITS	PRE-REQUISITES
GST 211	Use of English Language II	2	
GST 212	Logic, Philosophy and Human Existence	2	
GST 214	Peace Studies and Conflict Resolution	2	
GST 213	History and Philosophy of Science	2	
GLG 201	Physical Geology	2	GLG101/GLG102
GLG 202	Crystallography	2	GLG101
GLG 203	Field Geology I	2	GLG101/GLG102
GLG 204	Introduction to Geology of Nigeria	2	GLG101/GLG102
GLG 205	Systematic Palaeontology	2	GLG102
GLG 206	Sedimentology	2	GLG101/GLG102
GLG 207	Introduction to Surveying	2	GLG101
GLG 208	Mineral Resources & Environmental Geology	2	GLG101/GLG102
GLG 209	Principles of Stratigraphy	2	GLG102
GLG 210	Elementary Structural Geology	2	GLG101/GLG102
GLG211	Introduction to Petrology	2	GLG101
CHM 210	Physical Chemistry II	2	
CHM 212	Inorganic Chemistry II	2	
CHM 213	Analytical Chemistry I	2	
MAT 202	Elementary Differential Equations I	2	
PHY 204	General Physics IV	3	
		41	

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OPTIONAL ELECTIVE COURSES			
BIO 201	Genetics I	2	
BIO 202	Introductory Ecology	2	
BOT 202	Seedless Plants	2	
GEO 203	Introduction to Geomorphology	2	
GEO 208	Introduction to Cartography	2	
MAT 201	Mathematical Methods I	3	
MAT 207	Introduction to Numerical Analysis	3	
PHY 205	Thermal Physics	3	

300 LEVEL

CORE COURSES			
CODE	TITLE	UNITS	PRE-REQUISITES
GST 312	Venture Creation and Growth	2	
GST 311	Entrepreneurship and Innovation	2	
GLG 301	Optical and Determinative Mineralogy	2	GLG 202
GLG 302	Sedimentary Petrology	3	GLG 206
GLG 303	Metamorphic Petrology	2	GLG211/104
GLG 304	Stratigraphy	2	GLG209
GLG 305	Igneous Petrology	2	GLG211/104
GLG 306	Principles of Geophysics	2	PHY102
GLG 309	Structural Geology	2	GLG210
GLG 310	Geochemistry	2	CHM212/CHM213
GLG 311	Field Geology II	2	GLG203
GLG 312	Photogeology & Remote Sensing	2	GLG203
GLG313	Geological Research Technique	2	GLG203

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GLG 315	Geology & Mineral Resources of Africa	2	GLG204/GLG208
CHM 312	Instrumental Methods of Analysis	2	
		3 ¹	
OPTIONAL ELECTIVE COURSES			
GLG 307	Regional Geology of Africa	2	
GLG 308	Entrepreneurship	2	
GLG 314	Palaeobiology	2	
CHM 302	Inorganic Chemistry III	4	
CHM 305	Petrochemistry	2	
CHM 316	Applied Spectroscopy	2	
PHY 304	Electromagnetic Waves & Optics	3	
PHY 314	Solid State Physics	3	

400 LEVEL

CORE COURSES			
CODE	TITLE	UNIT S	PRE-REQUISITES
GLG 400	Research Project	6	GLG311
GLG 401	Petroleum Geology	3	GLG309/304
GLG 403	Applied Geochemistry	3	GLG310
GLG 404	Palynology	2	GLG205
GLG 405	Economic Geology	3	GLG315
GLG 406	Applied Geophysics	3	GLG306
GLG 407	Hydrogeology	3	GLG302/GLG305
GLG 408	Geotectonics	2	GLG309
GLG 409	Engineering Geology	2	GLG309
GLG 410	Seminar	1	GLG313
GLG 411	Micropaleontology	2	GLG205

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GLG 414	Advanced Metamorphic Petrology	2	GLG303
GLG 416	Advanced Igneous Petrology	2	GLG305
GLG 499	Students Industrial Work Experience Scheme (SIWES)	3	
		37	
OPTIONAL ELECTIVE COURSES			
GLG 402	Regional Structural Geology	2[3+0]	
GLG 412	Geology & Mineral Resources of Africa	2[2+0]	
CHM 409	Radiochemistry & Nuclear Chemistry	2[2+0]	
PHY 473	Acoustics	2[2+0]	
BIO 403	Soil Ecology	3[3+0]	
GEO 404	Advanced Cartographic Techniques	4[2+2]	
GEO 409	Arid and Semi-Arid Lands	3[3+0]	

3.2 COURSE CONTENTS AND DESCRIPTION

100 level

GST 101: Communication In English I

2(2+0 Units)

Effective communication and writing in English, Language skills, Writing of essay answers, Comprehension, Sentence construction, Outlines and paragraphs, Collection and organization of materials and logical presentation, Punctuation.

GST 102: Nigerian Peoples and Culture

2(2+0 Units)

Study of Nigerian history, culture and arts in pre-colonial times, Nigerian's perception of his world, Culture areas of Nigeria and their characteristics, Evolution of Nigeria as a political unit, Indigene/settler phenomenon, Concepts of trade, Economics of

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self-reliance, Social justice, Individual and national development, Norms and values, Negative attributes and conducts (cultism and related vices), Re-orientation of moral and national values, Moral obligations of citizens, Environmental problems.

GST 103: Information Communication Technology (ICT)

1(1+0 Units)

Development of modern ICT, Hardware technology, Software technology, Input devices, Storage devices, Output devices, Communication and internet services, Word processing skills (typing, etc).

GST 104: Use of Library and Study Skills

1(1+0 Unit)

Brief history of libraries, Library and education, University libraries and other types of Libraries, Study skills (reference services), Types of library materials, using library resources including e-learning, e-materials, etc, Understanding library catalogues (card, OPAC, etc) and classification, Copyright and its implications, Database resources, Bibliographic citations and referencing.

GST 105: Communication in French

2(2+0 Units)

Introduction to French, Alphabets and numeracy for effective communication (written and oral), Conjugation and simple sentence construction based on communication approach, Sentence construction, Comprehension and reading of simple texts.

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GST 106: Communication in Arabic

2(2+0 Units)

Introduction to Arabic alphabets and writing systems, Elementary conversational drills, Basic reading skills, Sentence construction in Arabic.

GLG 101 General Geology I

2(2+0 Units)

Rocks: Definition, origin, classification, types, and the rock cycle; Minerals: Definition, classification, mode of occurrence, crystal chemistry, physical and chemical properties; Processes on the earth surface; Weathering, erosion and transportation of rocks; Formation of soil and sediments; Erosion and Landforms; Natural water cycle and groundwater, rivers wind and glaciers; Ocean process and sedimentation; Introduction to Internal processes in the body of the earth; Introduction to processes of Formation of igneous, metamorphic and sedimentary rocks; Deformation and geological structures.

GLG 102 General Geology II

2(2+0 Units)

The geologic time-scale and its method of measurements; Origin and chemical evolution of atmosphere, hydrosphere and biosphere; the history of life from bacteria to man; Relative and absolute age determination; fossils and fossilization. General taxonomical classification of fossil groups; index fossil and fossil records, their application to stratigraphy, paleontology paleogeography; Concept of Palaeoclimate, Palaeogeography, Palaeoceanography, Palaeomagnetism etc.; Basic Principles of Stratigraphy

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STA 111 Probability I

4(4+0 Units)

Generation of statistical events from set-theory and combinatorial methods. Elementary principles of probability. Types and distributions of random variables; the binomial, Poisson, hypergeometric, normal and exponential distributions; Expectations and moments of random variables; probability sampling from tables of random numbers; selected application/practical.

STA 112 Descriptive Statistics

3(3+0 Units)

Basic statistical concepts. Statistical data: Types, sources, methods of collection, classification, presentation and interpretation of statistical data. Frequency distribution, Measures of location, partition, dispersion, skewness and kurtosis. Moments and Sheppard's correction. Error and Approximation, Rates, ratios and index numbers. Applications/Practical.

STA 113 Basic Statistical Methods:

3(3+0 Units)

Population and sample, sampling distribution, Estimation (point and interval) and tests of hypothesis concerning population mean and proportion. Elementary time series, demographic measures. Design of experiments. Analysis of variance and covariance. Simple regression and correlation. Contingency tables. Some non-Parametric tests. Applications/practical.

MAT 101 Elementary Mathematics I

3(3+0 Units)

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Elementary set theory: subjects, union, intersection, complements, Ven diagrams. Real numbers, integers, rational and irrational numbers, mathematical induction, real sequences and series, theory of quadratic equations, binomial theorem. Complex numbers: algebra of complex numbers, the Argand diagram, De Moivre's theorem, trigonometric functions of angles of any magnitude, addition and factor formulae. Angles: rotation, radians, trigonometric ratios, reciprocal ratios, Pythagora's theorem, special angles. Trigonometric identities, trigonometric formulas.

MAT 103 Elementary Mathematics III

3(3+0 Units)

Function of a real variable, graphs, limits and idea of continuity. The derivative as limit of rate of change. Techniques of differentiation. Extreme, curve sketching. Integration as an inverse of differentiation. Methods of integration. Definite integrals. Application to areas and volumes. Two-dimensional co-ordinate geometry: straight lines, circles, parabola, ellipse, hyperbola. Tangents and Normal. Pre-requisite- MTH 101

CHM 101 General Chemistry I

4(3+1 Units)

Atoms, Molecules and Chemical reaction. Chemical equations and stoichiometry. Atomic Structure and periodicity. Modern electronic theory of atom. Radioactivity. Chemical Bonding. Introduction to properties of gases: (Compressibility, Expandability, Volumes of Gases Versus Volumes of Liquids or Solid), Review of ideal gas laws. Equilibria and Thermodynamics. Introduction to Chemical Kinetics: Order and molecularity of chemical reactions, kinetics of first order reactions. Electrochemistry.

CHM 102 General Chemistry II

4(3+1 Units)

Historical survey of the development of organic chemistry. Nomenclature and classes of organic compounds. Homologous series. Introduction to functional groups. Isolation and purification of organic compounds. Quantitative organic chemistry. Stereochemistry (Conformational and configurational). Determination of structure of organic compounds. Electronic theory in organic chemistry. Saturated hydrocarbons. Unsaturated hydrocarbons. Periodic Table and Periodic properties; (Size, Ionization Energy, Electron Affinity, Electronegativity, Lattice and Hydration Energies). Valence Forces; structure of solids. The chemistry of selected metals and non-metals.

BIO A 101 General Biology I

3(3+0 Units)

Cell structure and organization, functions of cellular organelles, diversity, characteristics and classification of living things, general reproduction, interrelationship of organisms; heredity and evolution, elements of ecology and types of habitat.

CMP 101 Introduction to Computer Science

3(2+1Units)

History and generations of Computers, Characteristics of computers; Computer Hardware: Functional components of computers and Modern I/O units. Software: Operating Systems and Application Packages. Definition, types and applications of computer networks. Introduction to OSI and TCP/IP models. Introduction to databases: review of database management systems and applications, how to use Microsoft access DBMS

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software to create databases and establish relationship between the tables. Introductory aspect of human computer interaction.

PHY 101 General Physics I (Mechanics & Properties of Matter)

3(3+0Units)

Space, time and frame of reference, Measurements, Units and dimension, Scalars and Vectors, Kinematics motion in one and two dimensions, fundamental laws of mechanics, force and momentum, Newton's laws of motion and applications; Parallelogram and triangular laws of forces, applications, Statics and dynamics, moments of a force or torque, principles of moments, equilibrium under parallel forces, couples, torque, centre of gravity and centre of mass of different objects, linear momentum, conservation of linear momentum, collisions; Work, energy and power, Circular motion, simple harmonic motion, Law of Universal gravitation, circular orbit, and escape velocity, rigid body and rotational motion, moment of inertia, angular momentum and conservation laws. Elasticity; Stress and Strain, Hook's Law. Young's modulus, bulk and shear modulus, Poisson's ratio. Hydrostatics: pressure, buoyancy and Archimedes Principle, Surface tension: Stokes Law and terminal velocity, surface energy, angle of contact, adhesion, cohesion. Capillarity, drops and bubbles, Hydrodynamics streamlines and Bernoulli's Principle, Laminar and turbulent flow. Reynolds's number, Viscosity, Poiseuille's equation for flow of liquid through a tube.

PHY 102: General Physics II (Electricity and Magnetism)

3(3+0Units)

Electrostatics, Electric force and field, Electric flux, Conductors and current electricity, dielectric and capacitance, Magnetic force, field and magnetic materials, Magnetic effects of current,

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Electromagnetic induction, electromagnetic oscillations and waves. Applications.

PHY 103: General Physics III (Basic Heat & Waves)

2(2+0Units)

Temperature and heat: Thermometric properties. Measurement of temperature, heat, thermal expansion and heat transfer, specific heat. Heat capacity, latent heat; Molecular properties of matter — solid, liquid and gases. Molecular spacing and molecular movement Brownian movement, Gas Laws: Kinetic theory of Gases, ideal and real gas, comparison of solids, liquid and gases. Waves and wave motion: Transverse waves, Longitudinal waves, Progressive waves, Principle of super position, Stationary or standing waves and their properties, stationary longitudinal waves, Stationary transverse waves, Properties of waves, wave properties of EM waves.

PHY 107: General Physics Laboratory I

2(0+2Units)

Quantitative measurements: Treatment of measurement errors, and graphical analysis. A variety of experimental techniques in mechanics and properties of matter and heat will be employed. The experiments include studies of meters, mechanical systems, heat, viscosity, etc. Covered in Physics 101 and Physics 103.

PHY 108: General Physics Laboratory II

2(0+2Units)

Experiments related to the topics under PHY 102. The experiments cover topics in waves and electricity.

200 level

GST 211 Communication in English II

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2(2+0Units)

Logical presentation of papers, Phonetics, Instruction on lexis, Art of public speaking and oral communication, Figures of speech, Précis, Report writing.

GST 212 Logic, Philosophy and Human Existence

2(2+0Units)

(A) Islamic Philosophy

Definition, scope, relationship between Philosophy and religion (Islam). Theory of knowledge in Islam. A critical review of the sources of knowledge (perception), experience, reason, intuition etc, with special emphasis on the role of REVELATION as the most reliable source of knowledge. Ultimate reality: Allah and his attributes, critical review of philosophical proofs, Qur'anic approach to providing the existence of Allah, Predestination and freedom of will as aspect of Allah's knowledge and power. Prophet -hood and the Day of Judgment. Ethics in Islam

(B)Western Philosophy

A brief survey of the main branches of Philosophy: Symbolic Logic, Special symbols in Symbolic Logic-conjunction, negation, affirmation, disjunction, equivalent and conditional statements; Law of Tort. The method of deduction, using rules of inference and bi-conditionals qualification theory. Types of discourse: Nature of arguments, Validity and soundness; Techniques for evaluating arguments; Distinction between inductive and deductive inferences, etc. (Illustrations will be taken from familiar texts, including literature materials, Novels, Law reports and newspaper publications).

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GST 213 History and Philosophy of Science

2(2+0 Units)

Man – his origin and nature, Man and his cosmic environment, Scientific methodology, Science and technology in the society and service of man, Renewable and non-renewable resources – man and his energy resources, Environmental effects of chemical plastics, Textiles, Wastes and other material, Chemical and radiochemical hazards, Introduction to the various areas of science and technology. Elements of environmental studies.

GST 214 Peace Studies and Conflict Resolution

2(2+0 Units)

Basic Concepts in peace studies and conflict resolution, peace as a vehicle of unity and development, Conflict issues, Types of conflicts, e.g. Ethnic/religious/political/economic conflicts, Root causes of conflicts and violence in Africa, Indigene/settler phenomenon, Peace – building, Management of conflict and security. Elements of peace studies and conflict resolution, Developing a culture of peace, Peace mediation and peace-keeping, Alternative Dispute Resolution (ADR), Dialogue/arbitration in conflict resolution, Role of international organizations in conflict resolution, e.g. ECOWAS, African Union, United Nations, etc.

GLG 201 Physical Geology

2(2+0 Units)

Planet earth: its composition from core to crust; Agents and processes of weathering; Soil formation, erosion, transportation and deposition of materials by mass movement, water, air and ice. Surface processes and landforms and their formation related to geological parameters, major earth structures; Introduction to Plate tectonics; General features of continental and oceanic

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terrain; Geological and hydrological cycles; Earthquakes and Volcanism.

GLG 202 Crystallography

2(1+1 Units)

Definition of crystal; Crystallisation; Internal structure of crystals; Relationship between internal order and morphology; Crystallographic axes, crystal geometry and symmetry, interfacial angles, axial ratios & Miller indices; Crystal forms and classes; Braivai's law, Steno's law & law of rotational indices; Zones and zone axes; Twinning: origin laws & importance; Spherical and stereographic projections; Constituents of crystals; Isomorphism, polymorphism & psuedomorphism; Graphic representation of composition variations; Physical properties of minerals and relationships to composition and internal structure. Effect of heat, electricity, magnetism and radioactivity on physical properties of crystals; Practical identification of crystallographic axes, symmetry, forms, zones and zone axes of common basic crystal systems/classes. Measurement of interfacial angles; determination of axial ratio and Miller indices; Stereographic projection plotting.

GLG 203 Field Geology I

2(1+1 Units)

Fieldwork requirements and preparation; Safety issues in fieldwork; Types and uses of positioning and directional equipment; Field observation and measurements; Techniques for sampling and storage of geological materials; Field study of weathering, soil formation, erosion, sediments and sedimentation processes; Examination of igneous and metamorphic rocks and associated structures, features and land forms in the field; use of topographic maps in the field;

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Techniques for large and small scale geological mapping; Preparation of simple field geology map; Detailed interpretation topographic and geologic maps

GLG 204 Geology of Nigeria

2(2+0 Units)

Broad outline of the bedrock geology of Nigeria; Distribution of crystalline basement; Migmatite –Gneiss Complex, Schist Belts, Older Granites, Undeformed Acid and Basic dykes, Younger Granites. Sedimentary basins; Benue Trough, Bida Basin, Sokoto Basin, Borno Basin, Dahomey Basin, Anambra Basin, Niger Delta Basin

GLG 205 Systematic Paleontology

2(1+1 Units)

Systematics & principles of taxonomy; Morphology, evolution, classification and identification of major animal phyla viz: protozoa, coelenterata, bryozoa, Brachiopoda, arthropoda, mollusca, echinodermata, graptolithina; their stratigraphic and palaeocologic distributions and significance; Vertebrate and plant fossils; trace fossils. Practical identification and examination of fossils and fossiliferous rocks

GLG 206 Sedimentology

2(1+1 Units)

Origin and formation of sediments and sedimentary rocks; Sedimentary processes: Lithification, compaction, cementation, diagenesis, etc.; Structures, classification and mineralogical composition of sedimentary rocks; Concept of flow regime;

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Reynolds and Froude numbers. Classification and diagnosis of sedimentary environments from rock records: continental, shoreline, marine, turbidities; Paleocurrent analysis and indicators; Relationship between sedimentary environment and sedimentary facies; facies models; Sieve analysis, quantitative and statistical study of sedimentary texture.

GLG 207 Geological Surveying

2(1+1 Units)

Map: scale, orientation, contours, national map sheet system, etc.; Geological maps: scale selection; Surveying instruments and their uses; Measurement of distances (horizontal and vertical); Paces, tapes, stepping, barometer, baseline, tacheometry, levelling; Measurement of angles (horizontal and vertical): compass, clinometer, planetable/alidade & theodolite; Methodologies, triangulation, re-sectioning, off-setting & gridding

GLG 208 Mineral Resources & Environmental Geology

2(2+0 Units)

Metallic and non-metallic mineral resources: their composition, distribution and utilisation; Fossil fuels; surface and underground water hydrology; Pollution and its sources, hazards and control; Prediction and control of geologic hazards.

GLG 209 Principles of Stratigraphy

2(2+0 Units)

History and fundamental principles of stratigraphic thoughts; Categories of stratigraphic units; Concepts of chrono-, litho-, bio-stratigraphy. The facies concept; Unconformities; Correlation using physical and biological criteria; Correlation problems; The geological time scale.

GLG 210 Elementary Structural Geology

2(1+1 Units)

The attitude of beds; Introduction to rock deformation, horizontal, folded and faulted strata and joints; Unconformities and igneous intrusions; Foliations and lineations; Graphical and trigonometric determinations of attitudes of planes and lines; Interpretation of geological maps and sections; Structures and history; Thickness and depth determinations; Outcrop and map areas.

GLG 211 Introduction to Petrology

2(1+1 Units)

Origin, classification, texture and mode of occurrence of igneous, metamorphic and sedimentary rocks; Systematic description and identification of major rock types; Magma, its ascent, crystallization, differentiation and emplacement; Bowen's reaction series. Introduction to crystals and crystal systems; application of physical properties (colour, streak, luster, hardness, fracture, cleavage, tenacity, form, density, magnetism, radioactivity, electrical, tactility and taste etc.) in minerals identification; Practical identification of common rock-forming minerals and rocks

BIO 201 Genetics I

2(2+0Units)

Hereditary and non-hereditary characters, probability and test of goodness of fit. Quantitative inheritance, variation on genome structure. The chromosome structure of the eukaryotes and prokaryotes. Linkage, cross-over, sex-linkage, sex chromosomes and sex determination. The mechanism of genetic recombination. Introduction to population genetics.

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Application of genetics in crop improvement and environmental protection.

BIO 202 Introductory Ecology

2(2+0Units)

Concept and definition of ecosystem, ecology at community level, ecological classification of habitat types, terrestrial and aquatic biomass, specific features of each, biotic components of habitat. Natural destruction, factors of communities, success of community interaction, natural cycle, dynamics of population. Practicals: to include among others community and population studies of each species in a habitat. Succession simply treated.

BOT 202 Seedless Plants and Fungi

2(2+0 Units)

Morphology and life cycle of selected fungal and algal species, Bryophytes and Pteridophytes including fossil forms. Habitats and adaptation of non-seed plants, economic importance of non-seed plants and fungi.

MAT 201 Mathematical Methods I

3(3+0 Units)

Real – valued function of a real variable. Review of differentiation and integration and their applications. Mean value theorem. Taylor series. Real valued functions of two or more variables. Partial derivatives. Chain rule. Extreme. Lagranges Multipliers. Increments, differentials and linear approximations. Evaluation of line integrals. Multiple integrals. Pre – requisite – MAT 101, 103

MAT 202 Elementary Differential Equations I

3(3+0 Units)

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First order ordinary differential equations, Existence and uniqueness, Second order ordinary differential equations with constant coefficients. Laplace transforms. Solution of initial-value problems by Laplace transform method. Simple treatment of partial differential equations in two independent variables. Applications. Finite linear difference equations. Application to geometry and physics. Pre-requisite - MAT 103

MAT 207 Introduction to Numerical Analysis

3(3+0 Units)

Solution of algebraic and transcendental equations. Curve fitting. Error analysis. Interpolation and approximation. Eros of non-linear equations in one variable. Systems of linear equations. Numerical differentiation and integration. Initial value problems for ordinary differential equations. Pre-requisite - MAT 101, 103.

CHM 210 Physical Chemistry

2(2+0Units)

Kinetic theory of gases and ideal gas laws. Behaviour of real gases - the van der Waal's equation. First Law of thermodynamics and internal energy, state and non-state functions, enthalpy changes at constant volume and constant pressure, heat capacities for ideal gases. Thermodynamic quantities (w , q , ΔU , ΔH) of ideal gases and their relationships. Van der Waals equation and critical state. Principle of corresponding states. Entropy changes in reversible and irreversible processes. Joule-Thomson effect. Pseudo order. Kinetic law for second order reactions. Factors affecting rate of reaction: Introduction to collision and transition state theories in bimolecular reactions and its comparison with Arrhenius equation. Mechanism and theories of elementary processes. Introduction to photochemical reactions. Basic electrochemistry.

CHM 212 Inorganic Chemistry II

2(2+0 Units)

Periodic trends and properties of the 1st row transition metals. Use of redox potential and reaction feasibility. Chemistry of s and p-block elements: (Alkali and alkaline earth metals: Hydrides and Complexation tendencies. Structural features of hydrides, halides, oxides and oxyacids). Chemistry of first row transition metals (Salient features, characteristic properties of 3d-elements with reference to oxidation states, colour, magnetic behaviour, and complex formation tendency). Introduction to coordination Chemistry including elementary treatment of Crystal field theory. Elementary introduction of Organometallic Chemistry. Role of metals in biochemical systems.

CHM 213 Analytical Chemistry I

2(2+0 Units)

Theory of errors. Statistical treatment of data (determination of mean, median, mode; Deviations, accuracy and precision, confidence limits, rejection of results and significant figure convention). Theory of sampling. Chemical methods of analysis; including volumetric (preparation of solutions inclusive) and gravimetric and physicochemical methods, Optical methods. Introductory to Spectroscopic methods of analysis. Separation methods (solvent extraction and different types of chromatographic methods).

PHY 204 General Physics V (Waves and Optics)

3(3+0 Units)

Wave phenomena: Acoustical waves, the harmonic oscillator, electromagnetic oscillators, waves on a string, energy in a wave

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motion Longitudinal waves, transverse waves, Progressive waves, stationary waves, standing waves, principle of superposition, groups and phase velocity. Propagation; intensity; phase and path difference. Doppler's effects; Ultrasonic, Physical Optics, nature of light, Huygens theorem and wave front. Properties of light, reflection, refraction and Fermat's Principle. Spherical waves, Interference and diffraction, Law of Malu, thin films, crystal diffraction, holography, polarization, dispersion and scattering. Elements of Geometrical Optics: Waves and rays, principle of reflection, refraction and refractive index, Reflection at a spherical surface, thin lenses, mirrors and prisms; microscopes and telescopes, Aberrations and corrections

300 level

GST 311: Entrepreneurship and Innovation

2(2+0 Units)

This course is an introductory course for studying Entrepreneurship for the first time. The design and flow of the course are aimed at creating awareness, providing the knowledge and skills that are important to achieving success in all human endeavors.

GST 312: Venture Creation and Growth

2(2+0 Units)

The aim of this course is to develop students' competence and confidence in creating viable businesses with high potentials for new value addition and high income. The course is designed to enable students achieve economic independence after graduation. Its main goal is to help change students' mindset away from paid jobs and over-dependence on families and government. By the end of the course, students will be able start

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and manage businesses at micro or at family level. They will also be able grow ventures capable of generating employment and better utilize resources.

GLG 301 Optical & Determinative Mineralogy

2(1+1 Units)

Nature of light; Optical properties of minerals under unpolarised, plane polarised, cross polarised and convergent cross polarised transmitted light; Principles of light polarising microscopy; Light polarising microscope: parts and functions; Routine techniques: magnification, centring, crossing & vibration direction of the polariser; Methods of preparation of thin section for microscopic examination; Path of light for orthoscopic vision in the polarising microscope; Optical properties of plane polarised light; Conoscopic vision; Optical effect in convergent light; introduction to reflected light microscopy.

GLG 302 Sedimentary Petrology

3(2+1 Units)

Origin of sediment grains including Terrigenous clastics, Biogenics and non-clastics (siliceous, phosphatic, evaporitic, Calcareous and carbonates). Classification, chemical and mineralogical composition of sedimentary rocks, mineral stability, heavy minerals studies, the concept of maturity, isotope studies. Grain textures, mass properties and fabrics, Eh-Ph effects, concretions and nuddles, intrastratal solution. Microscopic petrography of sedimentary rocks.

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GLG 303 Metamorphic Petrology

3(2+1 Units)

Agents and types of metamorphism; Nomenclature and classification of metamorphic rocks; Most important minerals of metamorphic rocks; Metamorphic reactions and textures; Grubemann's metamorphic depth zones; Mineral zones of contact aureoles in calcareous, basic and pelitic rocks; Mineral zones and isogrades in regional metamorphism; Metamorphic grades and facies with emphasis on P-T conditions and effect; Metamorphic equilibria; Changes accompanying metamorphism, metasomatism and metamorphic differentiation; Metamorphism of pelitic, mafic and carbonate rocks; Petrographic studies of metamorphic rocks; Igneous rock association related to regional metamorphism with examples from Nigerian Basement Complex; Geothermometry and geobarometry

GLG 304 Stratigraphy

2(2+0 Units)

Facies analysis, origin and evolution of sedimentary basins; Geohistory analysis with examples from Nigeria. Concept of Sequence stratigraphy, Sequence, systems tract, isotopes stratigraphy, cyclostratigraphy; Seismic stratigraphy, event stratigraphy, magneto-stratigraphy.

GLG 305 Igneous Petrology

3(2+1 Units)

Physical properties and nature of magmas; Extrusive and intrusive igneous processes and products; Magma evolution types and trends; Volcanic and plutonic igneous structures; Classification and petrography of igneous rocks (IUGS System);

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Phase diagrams and crystallization in silicate systems; Associations of igneous rocks in space and time; Basalts: origin, mineralogy and petrology with Nigerian examples; Classification of alkali olivine basalts and tholeites; Layered basic intrusions and associated rocks; Ultramafic rock associations; Granites: origin, mineralogy and petrology; Older and younger granites of Nigeria; Petrography of major rock groups: granites & associated rocks, gabbro, peridotites, pyroxenites, basalts and under saturated rocks; Phase equilibria and the genesis of selected igneous rocks; Igneous rocks of various geological environments; Minor elements and isotopes in igneous rocks

GLG 306 Principles of Geophysics

2(1+1Units)

Physical properties of minerals and rocks; principles, equipment, data acquisition, processing, interpretation and application of geophysical methods including gravity, magnetism, spontaneous potential, electric resistivity & seismic; Potential distribution in a homogeneous earth and apparent resistivity; ER field equipment, its use and data interpretation; Nuclear methods of geophysical surveying

GLG 307 Regional Geology of Africa

2(2+0 Units)

Geology, structure and evolution of African Precambrian domains and their radiometric ages; Development of Phanerozoic interior and coastal basins in Africa with emphasis on Nigeria

GLG 309 Structural Geology

2(1+1 Units)

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Stress and strain: the stress ellipsoid, stress components and projections, analysis of strain; Deformation mechanism and experimental deformation of rock materials; Brittle and ductile deformations; Origin and classification of fault, joint and fold; Criteria for brittle failure & fracture development; Mohr's diagrams; Foliation and lineation; Gravity tectonics; Primary and secondary geological structures; Small scale (micro) structures, their description, measurement and origin; Use of Rose diagrams and geometric (stereographic) projection in solving structural problems; Structural interpretation of regional geological maps and structural cross-sections

GLG 310 Geochemistry

2(1+1Units)

Origin, structure and chemical composition of earth; Abundance, classification and distribution of elements in the cosmic system, meteorites, lithosphere, hydrosphere and atmosphere; the geochemical cycles; Geochemistry of different rock types and mineral deposits; Principles underlying major geochemical analytical methods: Atomic absorption spectrometry (AAS), X-ray fluorescence (XRF), X-ray diffraction (XRD), colorimetry, etc.; Introduction to Principles and methods of exploration geochemistry. Dispersion of elements: primary and secondary patterns and haloes.

GLG 311 Field Geology II

2(0+2 Units)

A 2-week extended field excursion to two or more major geological provinces of Nigeria; Geological map preparation; Sampling and sampling methods in designated basement and sedimentary terrains; Examination of geological structures in both basement and sedimentary terrains; designation of type

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sections in sedimentary terrain; Preparation of geological maps; Compilation and presentation of field notes and preparation of reports

GLG 312 Photogeology & Remote Sensing

2(1+1 Units)

The physical basis of Remote sensing including electro-magnetic energy, solar radiation at source, in transmission and at target Radiation characteristics of earth phenomena, sensors and sensor platforms, Remote sensing products photographs, imageries and types principles of interpretation; techniques of photogrammetry; study, and interpretation of aerial photographs and satellite imageries; applications to mineral resources, and environmental evaluation; Dynamics of rocks, stress-strain relationships, faults, folds, ring dykes, introduction to Acrustal tectonics, study and interpretation of geological maps; Remote sensing studies in Nigeria.

GLG 313 Geological Research Techniques

2(1+1 Units)

Design and implementation field and laboratory geological research; Field and laboratory techniques in geological research; Geological styles of report writing and presentation skills; Geostatistics; Statistical software application packages; Techniques for production of digital maps with the use of computer software application package

GLG 314 Palaeobiology

2(2+0 Units)

Palaeontology; Sampling, palaeoecologic principles and palaeobiologic models; Macro- and micro-evolution; Statistical data analysis of paleontological data; Evolution, iteratie & rates

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of evolution; Taxonomy and species concept; Nomenclature and identification of fossil taxa; Extinction

GLG 315 Geology and Mineral Resources of Africa

2(2+0 Units)

Geology, structure and evolution of Africa viz; Tectonic framework of Africa; Structure and distribution of African cratonic areas, mobile belts and sedimentary basins; The Kalahari, Congo and the West African craton and their radiometric ages; The Iullemeden, Taoudeni, Chad, Volta and the Karoo basins; Mobile belts fringing the cratons; Rift Valley of East Africa and the Benue Trough; Development of Phanerozoic interior and coastal basins in Africa with emphasis on Nigeria; The distribution of important mineral resources in Africa and its coastal areas: gold, uranium, chromite, diamond, tin, phosphate, oil & natural gas, manganese, copper, iron, platinum, bauxite, coal etc.

CHM 302 Inorganic Chemistry III

4(4+0 Units)

The noble gases. Hydrogen. Chemistry of Boron: carbon and silicone; Nitrogen and Phosphorus; Oxygen and Sulphur. The Halogens. Transition elements. Separation of metals. Coordination chemistry. Ligand and Crystal Field theories. Introduction to Radiochemistry. Radioactivity and the periodic table. Selected topics: a. Energy devices: Batteries; Fuel cells, Solar cells, Biomass as renewable energy resources. Corrosion: Causes of metallic corrosion, types of corrosion, measurements of corrosion by weight loss method, prevention (electrochemical and inhibitor).

CHM 305 Petrochemistry

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2(2+0 Units)

Petroleum in the Contemporary Energy Scene; Formation, Nature, Classification and Composition of Petroleum; Distribution of Petroleum Resources (the Globe and Nigerian Situations); Pre-refining processes: Desalting, water separation. Physical separation processes: atmospheric distillation, vacuum distillation, azeotropic and extractive distillation. Conversion processes: thermal conversion processes (Coking Processes, Delayed Coking, Fluid Coking, Vis-breaking) and catalytic conversion processes (catalytic reforming, catalytic cracking, hydrotreating Process); Emphasis should be given to feeds, process condition, product distribution and chemistry & technology of each process.

CHM 312 Instrumental Methods of Analysis

2(0+2 Units)

Theory, principles and applications of; UV/Visible Spectrometry, IR Spectrometry. Flame Emission and Atomic Absorption Spectrometry. Fluorescence and Phosphorescence spectrometry,. Nuclear Magnetic resonance and Electron spin resonance. Introduction to Electro-Analytical Techniques. X-ray and radiochemical methods of analysis. Other instrumental methods: Refractometry and, Polarimetry, Polarography, Calorimetry.

CHM 316 Applied Spectroscopy

2(2+0 Units)

Principles and application of UV, IR, NMR and Mass spectroscopic techniques in the determination and elucidation of structures of organic compounds. Ultraviolet - chromophores, λ_{\max} and ϵ , Woodward-Fieser rules for dienes and enones, rules for polyenes and Scotts rules for calculation of λ_{\max} of the ET

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(electron transfer) band of aromatic carbonyl compounds. Interpretation of UV spectra. Infrared and Raman spectroscopies. Basis. Use as fingerprint and identification of major groups using correlation tables. Characteristic frequencies. NMR - chemical shifts (^1H and ^{13}C), integrals, coupling patterns and coupling constants and their use, interpretation and prediction of spectra. Spin half nuclei, abundances, sensitivities, operating frequencies, Fermi contact, coupling, satellites. Quadrupolar nuclei, coupling patterns. Mass Spectrometry - use of EI and CI spectra, important fragmentation processes.

PHY 304 Electromagnetic waves and Optics

3(3+0 Units)

Maxwell's equations and electromagnetic potentials. The wave equation, propagation of plane waves, Reflection and refraction, Transmission lines, wave guides and resonant cavities. Radiation, geometrical optics, interference of waves, diffraction. (Pre-requisite-PHY 303).

PHY 314 Solid State Physics

3(3+0 Units)

Crystal structure and crystal binding. Lattice properties, indexing, crystal diffraction, Laue equations, reciprocal lattice, Brillouin zones, structure factor. Interatomic forces, bonding types, Elastic properties, lattice vibrations. Elastic waves, dynamics of momentum and diatomic lattice, phonons and inelastic neutron scattering, phonon dispersion, theories of the specific heat of solid, thermal conductivity. Imperfection in solid defect statistics, diffusion, ionic conductivity, colour centers amorphous solids, dislocation and strength of materials. Free electron of metals, energy wave vector relations. Fermi surface

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and Fermi energy, cyclotron resonance, hall effect, optical properties of metals, thermionic and field emission.

400 level

GLG 400 Research Project

6(0+6 Units)

This will mainly involve geologic mapping and independent study of an assigned area followed by laboratory analysis, data interpretation and preparation of a geologic report. The project will be done under close supervision of a member of staff

GLG 401 Petroleum Geology

3(3+0Units)

The origin, formation, migration and accumulation of petroleum; source rock characteristics, maturation and destruction of petroleum; Types of reservoir rocks, temperature and pressure condition of reservoirs; Hydrocarbon traps; Abnormal pressures; Formation water; Evaluation of petroleum potential; Exploration and appraisal methods; Basin analysis and well logging & interpretation; Reserve estimation and classification; Preparation of structural contour maps; The Niger Delta petroleum province

GLG 402 Regional Structural Geology

2(2+0Units)

Analysis of large-scale regional structures; continental drift; concept and evidence of plate tectonics; Plate tectonics in space and time; Sea-floor spreading and plate tectonics regimes in the geologic record; mid-ocean ridges; Island arcs and transform faults; Palinspastic reconstruction of fold belts

GLG 403 Applied Geochemistry

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3(2+1Units)

Sampling and sample preparation methods; Geochemical application in prospecting, exploration (pedogeochemistry, Lithogeochemistry, hydrogeochemistry, biogeochemistry, and stream sediments surveys), mining and restoration; Case histories of geochemical surveys; Environmental geochemistry and pollution studies; concept of Background & threshold in geochemistry; Isotope geochemistry and applications; Interpretation of geochemical data and maps.

GLG 404 Palynology

2(1+1 Units)

Palynology groups: morphology, taxonomy and palaeoecology; Occurrence in tropics; Relationship of palynomorphs to sedimentation; Applications in stratigraphic and palaeo-environmental reconstruction; Applications in oil and coal industries; Palaeobotany and the concept of continental drift

GLG 405 Economic Geology

3(3+0 Units)

Principles and processes of formation of solid and energy mineral deposits, their regional distributions; Weathering, sedimentary, metamorphic and igneous process that lead to the formation of economic deposits; Prospecting, mine development and mineral treatment; Area reserve calculations and mineral economics; Specific deposits illustrating principal types; Solid and energy mineral deposits of Nigeria

GLG 406 Applied Geophysics

3(2+1 Units)

Geophysical surveys: acquisition, processing and interpretation of data; Drilling techniques and well logging measurements; Measurement, data processing and interpretation and

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applications of Spontaneous Potential (SP) log, resistivity log, porosity log, gamma log, deep meter log, etc. Applications of well-logging to prospecting for raw materials; Induced polarisation and electromagnetic methods; Seismic exploration: data acquisition, processing and interpretation.

GLG 407 Hydrogeology

3(3+0 Units)

The hydrologic cycle; Occurrence and movement of groundwater; Nature & origin, classification, physical and chemical properties of aquifers; Hydrologic properties of rocks; Fundamental hydrodynamic laws; Introduction to laboratory and field determination of aquifer hydraulic properties; Hydrogeological maps; Concept of resources and water resource management; Well exploration, location and design and development of groundwater resources; Introduction to well drilling; Groundwater inventory; Introduction to groundwater prospecting; Regional hydrogeology of Nigeria

GLG 408 Geotectonic

2(2+0 Units)

Classical geosynclinals orogenic cycle seismic, gravity, magnetic, heat flow, geological and paleontological evidence for the modern theory of plate tectonics. Specific modern examples of plate boundary and other phenomenon. Consideration of the role of plate tectonics in evolution of earth's crust, since earliest archean. Plate boundaries and their associated basins and mineralization.

GLG 409 Engineering Geology

2(1+1 Units)

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Geologist and Civil engineering; Engineering properties of rocks and soils; Geological construction materials; Quarrying techniques; Geological considerations for foundations in different soils and rocks; Geological site investigations of buildings, bridges, roads, dams and reservoirs; Excavations and slope stability problems; Influence of groundwater on engineering structures; Geological hazards; Case studies

GLG 410 Seminar

1(0+1 Units)

A comprehensive literature review on selected topic, under the supervision of a member of staff, to be written and orally presented before staff and students of the Department; Assessment will be by all academic staff during the presentation

GLG 411 Micropalaeontology

2(1+1 Units)

Introduction to micropalaeontology; Major microfossil phyla; Origin, morphology, taxonomy, phylogeny and antogeny of Foraminifera, Radiolaria and Ostracoda; Origin, morphology and taxonomy of diatoms, conodonts, coccoliths, and pollens; Stratigraphic and palaeoenvironmental applications of different microfossils; Use of microfossils in correlation and environmental determination of Palaeozoic, Mesozoic and Cenozoic deposits; Methods of preparation of different kinds of microfossils. Practical identification and examination of microfossils in mounts and under thin section; Determination, drawing and description of Foraminifera, Radiolaria and Ostracoda.

GLG 412 Geology of Mineral Resources of Africa

2(2+0 Units)

Tectonic framework of Africa; Structure and distribution of African cratonic areas, mobile belts and sedimentary basins; The

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Kalahari, Congo and the West African craton and their radiometric ages; The Iullemeden, Taoudeni, Chad, Volta and the Karoo basins; Mobile belts fringing the cratons; Rift Valley of East Africa and the Benue Trough; The distribution of important mineral resources in Africa and its coastal areas: gold, uranium, chromite, diamond, tin, phosphate, oil & natural gas, manganese, copper, iron, platinum, bauxite, coal etc.

GLG 414 Advanced Metamorphic Petrology

2(1+1 Units)

Metamorphic reaction series; metasomatism; behaviors of fluids during metamorphism; equilibrium curves. Effects of T-P relations of metamorphic reactions on mineral assemblages. Elements distribution in co-existing minerals. Compositional changes in solid-solution minerals during metamorphism. Significance of isograds, diaagrammatic representation of mineral paragenesis. Phase rule and paragenetic diagrams. Paired metamorphic belts. Distribution of metamorphic facies.

GLG 416 Advanced Igneous Petrology

2(1+1 Units)

Concept of experimental petrology and the phase rule; problem solving using phase diagrams. Binary and ternary systems in petrology. Petrographic provinces. Chemical variation diagrams (construction and uses). Isotopic studies in igneous petrology. Plutonic and volcanic rock series. Mineralogical and chemical composition and variation of igneous rocks. Chemical affinities, mode of occurrence and crustal environment and petrogeneses of carbonatite and anorthosites complexes. Pyroclastic rocks and rhyolites, pyroclastic fall and ash flow deposits.

GLG 499 Students Industrial Work Experience Scheme (SIWES)

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3(0+3 Units)

A 6-months industrial attachment to be done in two periods of 3-months each during 200 Level/300 Level and 300 Level/400 Level breaks, respectively

GEO 404 Advanced Cartographic Techniques

4(2+2 Units)

Scope and limitations of the visual presentation of statistics data in graphic formats, critical review of cartographic, graphic and diagrammatic techniques of cartographic production, scale and error factors in map construction. Principles of map design, the use of mechanical, optical and photographic aids in cartography, the logic of conceptual diagrams including system diagrams, computer cartography.

GEO 409 Arid and Semi-arid Lands

3(3+0 Units)

Definitions and causes of aridity; World arid zones; Environment hazards and resources of the arid zones; Problems of development in the arid environment with special reference to Africa

CHM 409 Radiochemistry And Nuclear Chemistry

2(2+0 Units)

Naturally radioactivity, fusion, fission, decay processes, nature of radiation. Nuclear models, energetic of nuclear reaction. Principles and measurements of radioactivity. Application of radioactivity. Radiation hazards.

PHY 473: Acoustics

2(2+0 Units)

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Assessment of sound levels and its measurement; Radiation of sound. Ultrasonic. Microphones. Absorption of sound, Acoustic of buildings. (Pre-requisite-PHY 204).

4.0 STUDENTS MEMBERSHIP OF PROFESSIONAL BODIES

4.1 Students Records

There shall be a record for each student during his/her stay and after graduation from the Department; therefore, it is expected of each new student to open a file with the administrative secretary. All information pertaining to the student will be kept in the file.

4.2 Membership of Professional Bodies

Undergraduate will run academically and socially active student. Each student is advised to register with the main professional bodies as student membership with Nigerian Mining and Geoscience Society (NMGS), Nigerian Association of Petroleum Explorationist (NAPE) Nigerian Association of Hydrogeologist (NAH) and American Association of Petroleum Geologist (AAPG). However, the association operates under the guidance of the Head of Department and Staff Adviser.

5.0 ACADEMIC REGULATIONS

1. Academic Regulations

The policy in pursuit of academic standard and maintenance of good academic atmosphere includes periodic tests, assignments, seminars, and symposia. The students are assessed in all these aspects and these contribute 40% of the final undergraduate examinations.

2. Attendance of Lectures and Continuous Assessment

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- i. Students are expected to attend their prescribed course lectures punctually and regularly. The University has set seventy-five percent (75%) course lecture attendance as pre-requisite for sitting for examination.
- ii. Continuous assessment constitutes 40% of the total points in the final examination.
- iii. The University is not under any obligation to repeat course(s) and/or continuous assessment to student(s) who absent themselves from continuous assessment (CA), the University may grant concession to students to write a make-up CA; or test as the case may be in special circumstances such as medical grounds and other approved leaves on application to the Dean of a students' Faculty.

3. Leave of Absence

- i. Students can apply to the Dean of Faculty for not more than one-year leave of absence if the need arises. Student may also apply for special leaves such as maternity, to perform pilgrimage, etc. through appropriate University authority. However, such leaves are given without any academic concessions.
- ii. Students who have genuine reason(s) to be away from the University may also apply for the suspension of their study for a specified period.
- iii. Students are advised to get in touch with the University immediately they have any genuine reason(s) that will warrant their absence from the University during a session. If the circumstance will not permit, as on health grounds the

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University may accept an application written on behalf of the student.

4. Examinations and Graduation

A. Conduct of Examinations

- i. The University Senate reserves the power, under the Act establishing the University and other subsequent amendments, to decide exclusively on all academic matters.
- ii. At the end of each semester or when applicable, examinations are conducted for courses taught in various departments. Such examinations may take the forms of written papers, oral examination, practical, clinical, submission and defense of written projects, etc. as approved by the University Senate.
- iii. The time-table for the examinations shall be fixed on the various notice boards and website in the University stating the time and venue of all examinations.
- iv. Students who have clashes in the examinations based on the time-table should immediately intimate their Departmental/Faculty Examinations Officers.
- v. Students who fail to intimate the appropriate officers of the University of Impending Clashes in examinations shall blame themselves for any difficulty or eventuality that may arise.
- vi. Continuous assessment shall be included in determining the final score of candidates in the examination results.
- vii. Any student who absents him/herself from any examination without University approval and has

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- not withdrawn from the course of study would be graded "F" for such course(s) and the grade(s) would be reflected in the calculation of his/her GPA for the semester or session. Where there is an approval, such should be documented as appropriate.
- viii. Subject to the approval of the Senate, the University may grant concessions to student(s) who could not complete or take all the examinations due to certified illness or other exigencies acceptable to the Senate. Where the Senate accepts any reason as genuine, it shall be at the pleasure of Senate to determine the nature of concession(s) to be so given.
 - ix. The University may allow second semester registration in appropriate cases.
 - x. Students who satisfy the requirements for examinations shall be issued with an examination card dully signed by an appropriate officer, which shall be presented to the invigilator in all examinations.
 - xi. No student shall be allowed to enter the examination hall without the University identity card examinations cards.
 - xii. A candidate shall not be allowed to enter the examination venue if he or she is more than 30 minutes late. However, a candidate may be allowed entry only at the discretion of the invigilator in consultation with the Head of Department or the Faculty Examinations Officer. Such cases shall be reported in writing by the invigilator to the Faculty Examinations Officer.

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- xiii. A candidate shall not be allowed to leave the examination venue within 45 minutes after the commencement of the examination except under exceptional circumstances approved by the Head of Department or the Examinations Officer or the Invigilator.
- xiv. No candidate shall leave the examination venue during the last 15 minutes of the examination.
- xv. On entering the examination venue, it is the responsibility of the candidate to draw the attention of the invigilator to any paper or material on his/her seat, table or on the floor around him/her to ensure that such materials are removed before the commencement of the examination.
- xvi. A candidate who arrives late shall not be allowed extra time.
- xvii. A candidate shall deposit any handbag, brief case, books, handouts, etc. outside the examination venue or in front of the invigilator before the commencement of the examination. A student coming into the examination hall with material(s) other than writing material(s) will be doing so at his/her own risk.
- xviii. A candidate shall comply with the instructions to candidates as set out on a question paper and answer booklet or other materials supplied.
- xix. Candidate(s) shall also comply with any lawful instruction(s) given by the invigilator.
- xx. A candidate shall only use the answer booklet or other materials provided by the invigilator. All rough works must be crossed out neatly.

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- xxi. Rough works shall only be done on the answer booklet.
- xxii. Supplementary answer sheets or booklets, even if they contain only rough work, must be neatly packed into the answer booklet.
- xxiii. Under no circumstance shall a candidate write anything other than his/her admission number and name on the question paper.
- xxiv. Where attention of the invigilator is required, hand should be raised to indicate the need. Absolute silence must be maintained.
- xxv. There should be no writing on examination card and the question paper unless a student is asked to do so.
- xxvi. Nursing mothers are not allowed to take examinations with their babies
- xxvii. Female students wearing face covering are required to be appropriately identified before they are admitted into the Examination Hall and may be required later for identification.

B. Taking of Examinations on Hospital Beds

- i. A hospitalized student shall apply for permission to take examination on his/her hospital bed through his/her physician. The application should reach the Head of Department at least 7 days before the examination of the affected course.
- ii. The Head of Department shall, within 24 hours of receipt of the application, forward his recommendation to the Dean of his Faculty.
- iii. Subject to availability of facilities, the Dean approves the application and notifies the University Authority through the Registrar.

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- iv. A copy of the approval shall be made available to the Chairman, Examinations Monitoring Committee, before the commencement of the examination for necessary action.
- v. The approval shall be communicated to the student at least 24 hours to the examination.
- vi. A minimum of ₦1,000.00 and a maximum of ₦5,000.00 shall be paid by the student, being expenses for the conduct of the examination per paper.
- vii. Examination materials (question papers and scripts) for the student should leave the main examination hall within 2 minutes of commencement of the examination and should reach the hospital within 45 minutes of commencement.

C. Guidelines for Re-Marking of Examination Script(s)

- i. When a student applies for his/her scripts to be re-marked, Senate is to approve the assessor on the recommendation of the Vice-Chancellor.
- ii. The assessor should be paid an appropriate honorarium to be determined by Senate.
- iii. A student who wishes to apply for his/her paper (s) to be re-marked, should do so within one week of release of examination results by his/her Faculty.
- iv. A student should pay, in cash and in advance, the full expenses for the re-marking (to be estimated by Registry) before his/her script (s) is/are sent out. The payment should be done within one week of Senate's approval of the assessor.

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- v. The verdict of the assessor, which would be reported to the Senate before being known to the student, will be final.
- vi. All such requests should be routed through the complainant's Faculty Board, which should, within two weeks of the receipt of the complaint, investigate and present to the Senate their findings and recommendation (s).
- vii. If the complainant is however, not satisfied with the decision taken at this stage, he/she would then be free to apply for his/her script (s) to be remarked by another external assessor in accordance with the above guidelines.

D. Calculation of Grade Point Average (GPA) and Cumulative Grade Point Average (Cgpa)

- i. Letter grades and grade points are earned from percentage scores in the final examination in a given course as follows:

Percentage Score	Letter Grade	Grade Point
70 - 100	A	5
60 - 69	B	4
50 - 59	C	3
45 - 49	D	2
40 - 44	E	1
0 - 39	F	0

GPA and CGPA are not calculated for DVM and MBBS programmes nor are these degrees classified at the end of the training. For this reason, the minimum pass grade is a "C" for all courses and any score below fifty percent (50%) is graded "F".

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- ii. The performance of a student in a semester is reported as (GPA), while the overall performance at the end of the session (and/or at any point in his/her study programme) will be reported as CGPA.
- iii. A weighed Grade Point (GP) is determined for the performance in each course by multiplying the grade point obtained by the credit unit of the course.
- iv. Adding the weighed grade point obtained in all courses offered in that semester and dividing the sum by the total value of credit of all the courses, determines the GPA for the semester.
- v. Cumulative Grade Point is calculated by adding the weighed grade points obtained in all courses offered up to the end of a given session (and/or up to a point in a student's programme or end of the programme) and dividing the sum by the total value of credits of all courses at that point.
- vi. To qualify for a Bachelor's degree, a student must obtain a minimum number of credit units for each level of study (core and elective courses) and the total units required for his/her programme as well as the credit units for General Studies courses.

E. Classification of Degrees

Degree classes will be designated with reference to Grade Point Average as follows:

4.50 – 5.00	First Class Honours
3.50 - 4.49	Second Class Honours (Upper)
2.40 –3.49	Second Class Honours (Lower)
1.50 – 2.39	Third Class Honours
0.00 – 1.49	Fail

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F. Probation, Withdrawal And Inter-Faculty/Programme Transfer

- i. If a student's GPA falls below 1.00 during one session, he/she would be placed on probation (warning period) in the hope that the student will improve in the following session.
- ii. If in the following session, the student's GPA still falls below 1.00. he/she shall be withdrawn from the programme. However, if a student's GPA falls below 0.50 at the end of any session, he/she shall be withdrawn without any probation.
- iii. A student so withdrawn for poor academic performance in one programme may be considered for another programme on application, provided he/she obtains a CGPA of not less than 0.75 at the end of the probation period. Application forms for such transfers are available in the Academic Secretary's Office upon payment of prevailing charges.

G. Regulations Guiding Withdrawal from Academic Programmes

1. **Voluntary Withdrawal:** The University has no objection to any student withdrawing from any programme voluntarily. However, the University is not under any obligation to accept such student into any other programme. Nonetheless, only students from College of Health Sciences, Faculties of Agriculture, Law, Medical Laboratory Sciences, Pharmaceutical Sciences or Veterinary Medicine may be considered for transfer after he/she must have satisfied the following conditions:

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- i. he/she must have spent two (2) academic sessions in the former Faculty;
- ii. he/she must present a letter of consent from the sponsor;
- iii. he/she must present written evidence of interaction with the student adviser, or the University Guidance and Counseling Officer;
- iv. he/she must present positive recommendation from Departmental and Faculty Boards attaching relevant minutes and other genuine evidences; and
- v. (ii-v) must be obtained before the expiration of registration period to facilitate registration of the accepted student.

2. **Withdrawal Due to Academic Incompetence**

For any student withdrawn due to academic incompetence from the College of Health Sciences, Faculties of Agriculture, Law, Medical Laboratory Sciences, Pharmaceutical Sciences or Veterinary Medicine to be considered on transfer to another Faculty, the following conditions must be satisfied:

- i. *at the end of the probationary period a student must have attained a CGPA of 0.75;*
- ii. transferring student must satisfy the entry requirements of accepting Department/Faculty;
- iii. under no circumstance should a student be considered for transfer for more than

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once throughout the period of his/her studentship; and

- iv. any student who fails to graduate after exhausting his/her maximum period of studentship will not be considered for transfer to any Faculty.

H. Spill Over

- i. Students who are not able to graduate at the end of their approved period of study shall be allowed to carry over such courses into the following session. This period shall be referred to as "First Spill Over".

All grades scored in that session shall be fully credited to the student and scored class of degree awarded.

- ii. Students who could not graduate at the end of the second spill over would be withdrawn from the University. It should be noted that the period of study of any undergraduate student shall not exceed the normal period prescribed for the study by more than four semesters. Diploma students have only two additional semesters.

I. Graduating With an 'F' Grade In A Course

- i. To graduate, the University expects students to pass all registered courses. However, in exceptional circumstances, they may apply to graduate with an "F" grade in an elective course irrespective of the session of registration of the course.

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- ii. The application is made through the Head of Department and Faculty to the Chairman of Senate, provided the course is not a core course.
- iii. Such students are also expected to meet minimum requirements for graduation in terms of credit units at different levels.
- iv. For other conditions required for the consideration of such applications, students are advised to contact their Heads of Department.
- v. It should be noted that the provision is not a right but a privilege.

J. Notification of Examination Result

1. The Dean of the Faculty shall on the semester grade sheet/MIS grade slip, communicate to the students as soon as possible, Senate approved results.
2. A student may also request, in writing to the Dean of the Faculty, for his/her result slip or semester grade sheet or statement of result (Postgraduate students) if the need arises.
3. Students shall report immediately to the Head of Department or the Dean through Examinations Officer any discrepancies in the grades communicated to them.

K. Regulations Governing Conduct and Discipline of Students

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- a) General Conduct**
- i. Students are advised to take good care of their personal belongings. The University will not be responsible for any damage to, or loss of personal effects.
 - ii. Any breach of peace or social nuisance within the University premises should be reported to the appropriate University authority (Porter, Caretaker, Matron, Hall Administrator, Security Division, etc.).
 - iii. Absence from lectures, tutorials or practical classes requires the approval of the Heads of Department and the Deans concerned.
 - iv. Students are prohibited to buy, sell, keep, and consume alcoholic drinks in the University premises. Any student caught contravening this provision shall be restricted for two semesters/contact sessions and also be deboarded from the halls of residence throughout his/her stay in the University.
 - v. Students are prohibited from consuming, keeping, selling or otherwise dealing in illicit drugs within the University premises. Students caught indulging in this act shall be rusticated for two semesters and handed over to the National Drug Law Enforcement Agency (NDLEA).
 - vi. Students caught with firearms and or dangerous weapons within the premises of the University shall be expelled and handed over to the Police.

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- vii. Students are responsible for the conduct of their visitors within the premises of the University.
- viii. Students and visitors are only allowed access into the campuses of the University after 10.00 pm on proper identification.
- ix. Visitors to the female hostels are not allowed to be at the premises beyond 10.00 pm.
- x. All unauthorized vehicles and their owners should vacate the premises of the halls of residence before 10.00 pm.
- xi. Loitering around the halls of residence and shelterbelts beyond 10.00 pm is not allowed. Students who violate this provision shall be disciplined accordingly (ranging from warning to rustication for one semester/contact session).
- xii. Under no circumstance should students receive visitors of opposite sex in their rooms. Violation of this provision shall lead to two-semester/contact sessions rustication for the students and the lost of University accommodation throughout their stay in the University.
- xiii. Students shall not indulge in physical combat in the University. Students who violate this provision shall be rusticated for two semesters/contact sessions and in addition, forfeit University accommodation for the following session.

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- xiv. No student shall take the laws into his/her hands. Students who take laws into their hands shall be rusticated for two semesters/contact session.
- xv. Any student caught with inappropriate possession of items within the University community shall be handed over to the University Security Division for further necessary action. Once the security division establishes a case of theft, he or she would be suspended and handed over to the police; where a report indicates conviction by a court of law, he or she shall be expelled.
- xvi. A student arrested by security agencies and charged for a non-bailed criminal offence shall be suspended immediately until when investigations are concluded, where a report indicates conviction by a court of law, he or she shall be expelled.
- xvii. Political parties and their activities are not allowed on campus but as citizens of the country, students are free to belong to any political party of their choice.
- xviii. Any student accused of rape, sodomy and/or bestiality/lesbianism shall be handed over to the Police and liable to expulsion should judicial authorities prove the allegation.
- xix. Any student caught forging any document relevant to his/her admission shall be expelled from the University.

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- xx. A student caught forging any document of the University or any other document in a bid to cheat or gain undue advantage in the University shall be expelled.
 - xxi. Students who indulge in sexual harassment of fellow students and other members of the University community shall be liable to rustication for two semesters/contact sessions or expulsion.
 - xxii. **Cultism is prohibited in the University.** Students who belong to any cult shall be expelled from the University and handed over to the police.
 - xxiii. No student is allowed to institute a case (civil or criminal) against a fellow student while the University is in session without prior notice to the Dean of Student Affairs.
 - xxiv. In the event of a student having a case in a court of law or the police station while the University is in session, the student shall liaise with University for out of court or police settlement provided it is not a criminal case.
 - xxv. No student shall indulge in any conduct that would bring the good name of the University to disrepute. Violation of this provision shall attract rustication for two semesters/contact session or expulsion.
- b) Sport and Sport Equipment**
- i. Students are encouraged to participate in sporting activities.

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- ii. Sport equipment may be issued to students whenever necessary, be it on individual or club basis or through associations/societies.
 - iii. Any student who fails to return sport equipment issued to him/her at the stipulated time will be made to pay a prescribed fine.
 - iv. In the event of the lost of any equipment issued to student(s), the student(s) or club(s) shall be made to replace it and pay a fine of not less the cost.
- c) Mail**
- d) The University shall not be responsible for any missing mail.
- e) Identity Cards/Identification**
- 1. The possession of University identity cards by students` is compulsory.
 - 2. A student must identify himself/herself by providing his/her identity card when required to do so.
 - 3. Identity card is to be obtained from the students` Affairs Division on payment of prescribed fees.
 - 4. Students who do not have identity card may be denied University facilities or other benefits meant for students.
 - 5. Upon completion of their studies or termination of studentship, the identity card should be surrendered to Chief Security Officer.

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6. Students who have vehicles shall obtain University stickers from the Tollgate Management Committee on payment of prescribed fees. The stickers shall be pasted boldly on their vehicles for easy identification.
7. Students who have vehicles and residing in the halls of residence shall register their vehicle with the security post at the hostel or the campus as the case may be.
8. Vehicles with tinted glasses are not allowed into the University except those permitted by law.
9. Reckless driving is prohibited within the premises of the University Defaulters shall have their cars impounded, in addition to any other disciplinary measures deemed fit by the University.

f) Collection of Money In the University

- i. Individual students or students' organizations shall not solicit for donations in respect of any function held by them within and outside the University except with the express permission of the Dean of Students Affairs and upon the recommendation of their Staff Adviser.
- ii. Registered students' associations are allowed to charge a token as registration or annual dues from their members. However, the charges shall be within the limit approved by the University Management.
- iii. When it is necessary to make a charge to cover the expenses for programmes organized by

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students' associations, printed tickets of programmes can be offered for sale on approval by the Student Affairs Division.

- iv. The Executives of any association that contravene the regulations on collection of money shall be dissolved forthwith, in addition to any disciplinary measure deemed fit by the University.
- v. Any student or group of students who collects money or donation under any false pretence shall be expelled from the University.
- vi. Withdrawal of money from the account of students' associations requires express permission of Staff Adviser(s).
- vii. Any student or group of students who embezzles (mismanages) any money or property belonging to a registered union/association/club/society or the Students Union shall be made to refund the money, replace the property or have their results/NYSC call up letters withheld or be liable to two-semester/contact sessions rustication or expulsion, as the case may be.

NB: Students rusticated in the first semester will henceforth have the portal opened to enable them register in the second semester of a session.

L. DRESS CODE

Nudity and the following forms of indecent appearance are not allowed in any of the University Campuses;

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1. Wearing of any dress that exposes the chest, unbuttoned or half-buttoned shirts.
2. Use of tight fitting, transparent dresses, sleeveless short blouses, heavy make-ups, and excessive use of jewelry.
3. Use of worn out or sliced trousers/skirts, T-shirts with provocative messages, and wearing of short/mini skirts at academic functions. In addition, female students are not allowed to wear shorts outside their hostels.
4. Wearing of earrings and necklaces or perming and weaving of hair by male students.
5. Wearing of dark glasses during lecture (except on medical grounds).
6. Students should always appear neat and tidy.
7. Contravention of any of the above attracts appropriate punishments, ranging from warning for first offenders and rustication for subsequent violation.

M. ACADEMIC MISCONDUCT

1. Once a student is accused of any examination misconduct he or she shall be requested to write a statement. Refusal to do so shall attract two-semester/contact sessions rustication.
2. A student accused of examination misconduct shall be invited to appear before the Faculty/College/School Examination Misconduct Committee. Failure to honour the invitation shall attract expulsion.
3. A candidate shall not take into examination hall/room or have pre-programmed electronic device in this or any

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- other form of printed or written material or audio recording or an organized electronic(s) on his or her body or clothing items, whether relevant to the examination or not except as may be stated in the rubric of the question paper, or he/she is specifically authorized to do so. An invigilator or a security officer present has the authority to confiscate any such unauthorized document(s) or material(s) and shall duly forward the same un-tampered document(s) or material (s) to the appropriate officer or authority for necessary disciplinary action in accordance with these regulations and applicable law.
4. Any student caught with material(s) described in regulations 3 above and which material(s) is/are capable of giving him/her undue advantage on the examination being conducted shall be liable to rustication for not less than two semesters in the first instance and expulsion on the misconduct.
 5. Any student caught with material(s) described in regulation 3 above but not relevant to the examination being conducted shall have that examination cancelled. Provided, that the conclusion that such a material is not capable of giving a candidate undue advantage in the examination being conducted shall be the preserve of the appropriate Examination Misconduct Committee investigating the particular matter.
 6. Possession of telephone handsets and other unapproved electronic devices such as MP3 player and others during the examination is prohibited. Any candidate caught with such devices in the course of examination shall be rusticated for one semester/contact session.

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7. Any attempt to suppress, mutilate or destroy any evidence of misconduct (including chewing or swallowing or burning or concealing of the written material, question paper, answer script, etc) by a student is considered to be as grave as the misconduct alleged and shall attract rustication for at least two-semester/contact session.
8. A candidate shall deposit any handbag, briefcase, etc outside the examination hall/room or a place(s) designated by the invigilator before the commencement of the examination. The Invigilator shall ensure that the regulation is complied with and any candidate who fails or refuses to leave his/her handbag or briefcase etc outside the examination hall/room shall not be allowed into the examination hall/room or the designated place(s).
9. A candidate shall comply with all lawful instructions given by the invigilator(s) and other officers of the University charged with the responsibility of the conducting examination.
10. A candidate shall sign the attendance list/register at the commencement of the examination and at the end while submitting his answer scripts. In the event of any dispute arising as to whether or not a candidate sat for the examination and/or submitted his answer scripts the signatures on the attendance list/register shall be conclusive proof thereof.
11. A candidate shall use only the answer booklet provided by the Invigilator. All rough works must be crossed out neatly. Supplementary answer booklets even if they

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contain only rough works, must be tied together with the main answer booklet.

12. Under no circumstances shall a candidate write anything on the question paper or any other material. All rough work shall be done on the answer booklet. Contravention of this regulation (conclusive) proof of which shall be the question paper of the candidate in question shall attract rustication for a semester/contact session.
13. A candidate shall not remove or mutilate answer booklet or any other material/paper supplied, whether used or not, except that he may remove from the examination hall/room at the end of the examination, the question paper (if this is not required by the invigilator in furtherance of the purpose of regulations 3, 4 and 5 above) and such other items authorized by the invigilator. If the removal or mutilation relate to answer booklets the candidate shall be liable to rustication for 2 semesters / 2 contact sessions.
14. Until candidates are allowed to leave the examination room, no copy of any question paper shall be removed from the examination hall/room. Any candidate who removes any question paper from the examination hall/room before the time candidate are allowed to leave the examination hall/room shall be liable to rustication for one semester /one contact session.
15. In the event that a candidate, for good cause, has to leave the examination hall temporarily, the invigilator or security personnel shall accompany him on duty.
16. A candidate shall neither sit for, nor arrange with another person to sit for him or her or other candidates in any

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examination conducted by this University. Such conduct shall attract expulsion for both students involved.

17. In the course of taking an examination conducted by this University, a candidate shall neither give nor accept any assistance whatsoever from any other candidate or person within or outside the examination hall/room. A breach of this regulation shall attract rustication for one semester / one contact session in case of student(s).
18. Smoking is not permitted inside the examination hall/room and the cigarettes /pipes` are liable to be confiscated by the invigilator or any authorized security personnel. The erring candidate shall be liable to rustication for a semester/one contact session.

At the end of the time allocated for an examination, a candidate shall gather his/her booklets neatly and shall hand over it to the invigilator. A candidate is responsible for the proper return of his/her scripts.

19. Talking to any other candidate in the course of the examination without permission of the invigilator shall attract rustication for one semester /one contact session.
20. A candidate shall not, either before or after an examination, threaten or blackmail an invigilator, lecturer, examiner, member of Senate or committee or any other officer connected with the examination. Such conduct shall attract rustication for at least 2 semesters / 2 contact sessions.
21. For the avoidance of doubt, examination misconduct regulated by these rules shall include the following: -

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- i. Substitution of /or alteration of answer scripts by any means after it has been submitted to the Invigilator at the end of the examination.
 - ii. Breaking into the house, office or vessel of any examiner, lecturer, invigilator or any other officer having anything to do with marking or evaluation or the performance of candidates or processing at an Examination Center conducted by the University.
 - ii. Obtaining, procuring or possessing by any means, a preview of questions intended for any Examination being conducted by this University before it's due date and time.
 - iv. Impersonation in the course of any examination conducted by any institution or official Examination bodies in Nigeria by a student of this University.
 - v. Any other misconduct related to examination conducted by the University, which the Vice-Chancellor may from time-time, consider as examination misconduct.
22. Any candidate found to have breached or committed any of the examination misconducts in regulation xxiii above shall be liable to rustication for at least 2 semester / 2 contact sessions or expulsion.

N. PROCESSING OF APPLICATION FOR DEFERMENT

It has been observed that most Faculties treat application for deferment of period of study with such levity that some even recommend application in respect of students

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who had since exhausted maximum period of study but could not graduate for one reason or the other. Some Faculties do not even treat the applications until the period for which deferment was sought had lapsed. In some cases, the applications are simply misplaced thereby subjecting the affected student(s) to unnecessary hardship at the point of graduation. To avoid some of the problems stated above and to facilitate prompt consideration of such applications, the following guidelines would assist:

O. DEFERMENT OF SESSION OR FIRST SEMESTER ON PERSONAL GROUNDS

Procedurally, any student wishing to defer a whole session or the first semester thereof on personal/financial grounds should apply at the beginning of that session and certainly not later than two weeks after the end of registration exercise.

P. PROCESSING OF APPLICATIONS

Upon receipt of applications (which should be written to the Dean of Faculty, through Head of Department), Department should consider, recommend and forward it to the Dean for consideration by the Faculty Board. The decision of the faculty Board would, thereafter, be communicated to Senate for information. The memo to be submitted to senate should be accompanied by the photocopy of the applications.

Q. DEFERMENT ON MEDICAL GROUNDS

Application for deferment of period of study on medical grounds could be considered at any point within the

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session provided the University is notified immediately the applicant takes ill. Where a student is even incapacitated to apply, application by proxy is allowed.

The application should be written to the Chairman of senate through, Head of Department and Dean of faculty. Upon recommendation by the department, the Faculty Board will consider the application and forward recommendation to senate.

The memo to be sent to senate will be accompanied by the original application and medical report, authenticated by the Acting Director, Health Services.

It should be noted that:

- a) Where a student falls ill at the beginning of a session and did not notify the University before the end of the first semester of the same session, he/she shall be deemed to have voluntarily withdrawn him/herself from the University.

Where a student falls ill during the second semester and did not inform the University before the end of the semester, he/she shall be deemed to have voluntarily withdrawn him/her self from the University.

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6.0 STAFF STRENGTH

6.1 ACADEMIC STAFF

Name of Staff	Rank/Desig. Salary Scale/ Date of First Appointment	F/T	Qualification, Dates Obtained and Specialization, membership of Professional Association and Number of Publication	Post- qualification Work/Teaching Experience and Date, Post held and Organization	Course/ Subject Taught	Teaching load/Lect.Hrs /Wk	Other Respons./ interest in curricular, extra-curricular activities
Y.B Alkali	Reader CONUASS 6	Sabbatical	B.Tech. 1998, M.Tech. 2005 PhD 2014 Biostratigraphy Member; MNMGS. 30 Publications.	Asst. Lec. 2005- to date		10 Hrs/Wk	Head of Department
Hamidu Ibrahim	Professor CONUASS 7 17/12/2012	Visiting	B.Sc. 1996, M.Sc. 2005 PhD 2012 Stratigraphy/Sedimentology Member; MNMGS. 30 Publications.	Grad. Asst. 2001- to date	See table 5	3 Hrs/Wk	
K. M. Yerima	Professor CONUASS 7 11/11/2014	Visiting	B.Sc. 1995, M.Sc. 2005 PhD 2013 Geothermal Member; MNMGS.	Asst Lec. 1998 -to date	See table 5	3 Hrs/Wk	

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Ali Moumouni	Reader CONUASS 6 30/10/2014	Visiting	39 Publications. B.Sc. 1997, M.Sc. 2002 PhD 2010 Geochemistry Member; MNMGS. COMEC, NAPE 30 Publications.	Asst. Lecturer 2003 -Date	See table 5	3 Hrs/Wk	
Halidu Hamza	Professor CONUASS 7 Sept 2016	Visiting	B.Sc. Geology (ABU) 1988, M.Sc. Geology (ABU)1995 PhD(ABU) 2007 Stratigraphy/Sedimentology Member; MNMGS.COMEC, NAPE 35 Publication.	Grad. Asst. 1990 -Date	See table 5	3Hrs/WK	
B.Y Isah	Professor CONUASS 7 17/07/2012	FT	B.Sc. 2002, M.Sc. 2011, PhD 2015, Computational Fluid Dynamics Member; NCS,MSN, IEEE; ACM,SCS 40 Publications.	Lec. I 2012 - Date	See table 5	5 Hrs/Wk	
A.B. Muhammad	Professor CONUASS 7 04/11/2004	FT	B.Sc. 1997, M.Sc. 2004, PhD 2010 Petroleum chemistry 60 Publications	Lec II 2004 – Date	See table 5	4 Hrs/Wk	

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Ahmed Audu	Senior Lecturer CONUASS 5 21/02/2019	FT	BSc 2008, M.Sc 2013, PhD 2019. Statistical Computing and Applications 110 Publications	Grad. Asst. 2010 – Date	See table 5	3 Hrs/Wk	
Abdulkarim Bello	Senior Lecturer CONUASS 5 21/02/2019	FT	BSc 2005, M.Sc 2012, PhD 2017. Software Engineering 14 Publications	Grad. Asst. 2008 – Date	See table 5	3 Hrs/Wk	
Z.I.S Adiya	Senior Lecturer CONUASS 5 21/02/2019	FT	B.Sc. 2001, M.Sc. 2011, PhD 2015 Industrial and Engineering Chemistry 24 Publications	Lec I 2017 – Date	See table 5	6 Hrs/Wk	
S.A Zauro	Senior Lecturer CONUASS 5 21/04/2019	FT	B.Sc. 2001, M.Sc. 2011, PhD 2015 Polymer Chemistry 25 Publications	Grad. Ass. 2012 – Date	See table 5	6 Hrs/Wk	

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D.O Akpootu	Senior Lecturer CONUASS 5 21/10/2012	FT	B.Sc. 2010, M.Sc. 2014, PhD 2019 Atmospheric/Solid State Physics 87 Publications	Grad. Ass. 2012 – Date	See table 5	3 Hrs/Wk	
Y.M. Ahijjo	Senior Lecturer CONUASS 5 1/11/2012	FT	B.Sc. 2010, M.Sc. 2014, PhD 2019 Nuclear Physics 25 Publications	Grad. Ass. 2012 – Date	See table 5	6 Hrs/Wk	
S.M. Yelwa	Lecturer I CONUASS 5 13/07/2010	FT	B.Sc. 2003, M.Sc. 2014 Hydrobiology	Grad. Ass 2010 - Date	See table 5	3Hrs/Wk	
Dauda Mohammed	Lecturer I CONUASS 04 9/10/2014	FT	B.Sc 2001, M.Sc 2012. Hydrogeology Member NMGS, NAH. 8 Publications	Lec. I 2014 - Date	See table 5	15 Hrs/Wk	Project Coordinator
N.A. Yelwa	Senior Lecturer CONUASS 05 9 th August 2012	FT	B.Sc Geology (ABU) 2005, M.Sc (Uk) 2009, PhD 2023. Petroleum Geoscience Member NMGS, NAH, COMEC 20 Publications	Lec. II 2012 – Date	See table 5	15 Hrs/Wk	Seminar Coordinator

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Mutari Lawal	Lecturer II CONUASS 03 06 February, 2013,	FT	B.Sc. 2008, M.Sc. 2016, PhD 2023 Stratigraphy/Sedimentology 15 Publications	Grad. Ass. 2013 - Date	See table 5	15 Hrs/Wk	Fieldwork Coordinator
K.I. Mbitsa	Lecturer I CONUASS 04 26 th June,2013,	FT	B.Sc. 2008, M.Sc. 2016 Structural Geology 12 Publications	Grad. Ass. 2014 - Date	See table 5	Study leave	
H.M. Grema	Lecturer I CONUASS 04 11 th November,2013,	FT	B.Sc. 2012, M.Sc. 2016 Economic Geology NMGS, NAPE 8 Publications	Grad. Ass. 2015 - Date	See table 5	Study leave	
H.A Ibrahim	Lecturer II CONUASS 03 22 February 2017	FT	B.Sc. 2008, M.Sc. 2022 Environmental Geology MNMGS, MNEAGE 23 Publications	Grad. Ass. 2017 - Date	See table 5	15 Hrs/Wk	Examination Officer

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6.2 LABORATORY STAFF

Name	Rank/Designation Date of first appointment	Qualification, Date obtained, Membership of Professional Association	Duties Performed/Course Taught
Hassan Hamidu	Principal Technologist 4 th July 2013	B.Sc. (Geology) 1998, M.Sc. Geology (ABU) 2013. Member NMGS, NAH, Member National Ins. Of Science Lab Technology	Gen Lab Mgt. Supervision of Conducting practical. Installation and Maintenance of equipment's
Falalu Bello Halilu	Senior Technologist 13 th June 2014	B.Sc. Geology (ABU) M.Sc. Environmental Geology Member NMGS	Gen Lab Mgt. Supervision of Conducting practical. Installation and Maintenance of equipment's
Shehu Abdullahi	Senior Lab. Assistant 3 rd Jan 2017	Diploma (SLT), 2022	Maintenance of equipment's
Muslim Sidi Buhari	Lab Assistant 1 st Jul. 2019	Diploma (SLT), 2023	Maintenance of equipment's
Mubarak Umar	Lab Assistant 1 st Jul. 2019	SSCE	Maintenance of equipment's

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6.3 SECRETARIAL/SUPPORTING STAFF

S/No	Name of Staff	Rank/Designation	Qualification, Date Obtained	Post Qualification, Work Experience
1	Ishaq Gambo Hassan	Data Processing Officer	Diploma	8 years
2	Samira Gambo	Clerical Officer I	Sec. School Cert	5 years
3	Abubakar Muhammad Sabir	Caretaker (Terminal)	Sec. School Cert	5 years