

UNIVERSITY OF DAR ES SALAAM

Office of the Deputy Vice Chancellor Academic

DIRECTORATE OF UNDERGRADUATE STUDIES



UNDERGRADUATE DEGREE PROGRAMMES

SYNOPSES

2017

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BACKGROUND

The University of Dar es Salaam (UDSM) is the oldest public university in Tanzania. It is situated on the western side of the city of Dar es Salaam, occupying 1,625 acres on the Observation Hill, and 13 kilometres from the city centre. It was established on 1st July 1970, through Parliament Act No. 12 of 1970. Later, the Universities Act No. 7, of 2005 repealed Act No. 12 of 1970 and all the enabling legal instruments of the constituent colleges. Prior to 1970, the University College, Dar es Salaam had started in 1961 as an affiliate College of the University of London. It had only one faculty – the Faculty of Law, with 14 students. In 1963 it became a Constituent College of the University of East Africa together with Makerere University College in Uganda and Nairobi University College in Kenya. Since 1961, the University of Dar es Salaam has grown tremendously in terms of student intake, academic units and academic programmes.

This booklet is aimed to give highlights of the undergraduate programmes offered by the University. It is expected that the information provided herein will give applicants the necessary facts about various programmes and therefore provide a tool for prudent decision making of their future career choices. Would-be students of the University especially those in secondary schools can use this booklet to determine their own career paths early in their academic life.

COLLEGE OF NATURAL AND APPLIED SCIENCES (CONAS)

The College of Natural and Applied Sciences (CoNAS) comprises eight teaching departments namely; Departments of Botany, Chemistry, Geology, Mathematics, Physics, Zoology and Wildlife Conservation, Molecular Biology and Biotechnology, and Aquatic Sciences and Fisheries. The College through its departments offers various undergraduate degree programmes as follows:

Three-year undergraduate programmes leading to the following degrees:

- Bachelor of Science [B.Sc. (Gen.)]*
- Bachelor of Science with Education [B.Sc. (Ed.)]*
- Bachelor of Science in Botanical Science [B.Sc. Bot. Sci.]
- Bachelor of Science in Chemistry [B.Sc.(Chem.)]
- Bachelor of Science in Petroleum Chemistry [B.Sc. Petro. Chem.]
- Bachelor of Science in Molecular Biology and Biotechnology [B.Sc. (Mol. Biol. & Biotech.)]
- Bachelor of Science in Microbiology [B.Sc. Microbiol]
- Bachelor of Science in Applied Zoology [B.Sc. Appl. Zool.]
- Bachelor of Science in Wildlife Science [B.Sc. (WS)]
- Bachelor of Science in Actuarial Science [B.Sc. Act. Sci.]
- Bachelor of Science in Meteorology [B.Sc. Met.]

Four-year undergraduate programmes leading to the following degrees:

- Bachelor of Science in Geology [B.Sc. (Geol.)]
- Bachelor of Science in Engineering Geology [B.Sc. (Eng. Geol.)]
- Bachelor of Science with Geology [B.Sc. (with Geol.)]
- Bachelor of Science in Petroleum Geology [B.Sc. Petr. Geol.]

*The Bachelor of Science General [B.Sc. (Gen.)] and Bachelor of Science with Education [B.Sc. (Ed.)] degree programmes are managed at college level while other degree programmes are managed by different departments of the college as described below.

COLLEGEWIDE PROGRAMMES

BACHELOR OF SCIENCE [B.SC. (GEN.)]

B.Sc. (Gen.) is a three-year degree programme offered in the College of Natural and Applied Sciences (CoNAS) by combining two major Science subjects from the following courses: Physics, Chemistry, Mathematics, Geography, and Biological Sciences (Botany, Molecular Biology and Biotechnology, Zoology and Wildlife, and Aquatic Sciences and Fisheries).

The Bachelor of Science General degree programme offers a wide range of subject combination, therefore, equipping our graduates with professional skills that are needed in the modern local and global job markets.

Subject combination for the Bachelor of Science General Degree Programme are as follows:

- Applied Microbiology and Chemistry

- Applied Microbiology and Botany
- Applied Microbiology and Aquatic Sciences
- Applied Microbiology and Zoology
- Aquatic Sciences and Botany
- Aquatic Sciences and Zoology
- Aquatic Sciences and Chemistry
- Botany and Zoology
- Botany and Geography
- Botany and Chemistry
- Chemistry and Statistics
- Mathematics and Chemistry
- Mathematics and Statistics
- Physics and Chemistry
- Physics and Mathematics
- Zoology and Chemistry
- Zoology and Wildlife Science and Conservation

CAREER PROSPECTS

Graduates with a B.Sc. (Gen.) degree are eligible for employment in a wide range of professions depending on the combination of their subjects. Potential employers for Scientists with Biological Sciences include institutes dealing with natural resources (National Parks and Game Reserves e.g. TANAPA), agricultural sectors, medical institutes, research institutes (National Institute for Medical Research, and Universities).

There are several government organisations and institutions including ministries and research institutions that need graduates with an in-depth knowledge in aquatic sciences, fisheries and aquaculture. These include Ministry of Livestock and Fisheries Development, Ministry of Natural Resources and Tourism, Ministry of Water, Division of Environment in the Vice President's Office, National Environment Management Council, Marine Parks and Reserves Unit, Tanzania Fisheries Research Institute, National Museum of Tanzania, National Service and Prisons (Aquaculture Sections), and universities. Non-governmental organisations (e.g. WWF, IUCN, Sea Sense) involved in advocacy for conservation of aquatic resources are also potential employers. The programme also equips graduates with skills needed for self-employment initiatives and career advancement in the academia.

Graduates equipped with Chemistry related subjects have access to a variety of career opportunities in private and public sectors, including all chemical and food related industries (e.g. brewing and bottling, paints manufacturing, mining, plastic, food processing, agricultural products), research institutes, and environmental management and impact assessment agents. Graduates with Physics and Mathematics can work with the Atomic Energy Commission, aviation, research institutes etc.

BACHELOR OF SCIENCE WITH EDUCATION [B.SC. (ED.)]

B.Sc. (Ed.) is a three-year degree programme offered in the College of Natural and Applied Sciences (CoNAS) by combining Education with two major Science subjects from the following courses: Physics, Chemistry, Mathematics, Geography, and Biological Sciences (Botany).

Education is combined with any of the following two major Science subjects:

- Biology and Chemistry
- Biology and Geography
- Mathematics and Chemistry
- Mathematics and Information Science
- Mathematics and Geography
- Physics and Chemistry
- Physics and Mathematics

CAREER PROSPECTS

Graduates with B.Sc. (Ed.) are highly demanded in the labour market to teach science subjects in government and private schools and colleges in the country and in the region. Other professional opportunities include working with research institutes (Universities, NIMR), government and non-governmental institutions.

DEPARTMENT OF BOTANY

BACHELOR OF SCIENCE IN BOTANICAL SCIENCES (B. SC. BOT. SC.)

This is a three-year degree programme and is tailored to cover a wide range of botanical sciences that aim to produce graduates who have a good understanding of the botanical sciences, and the forces and factors behind environmental degradation, conservation and biodiversity at all levels (local, national, regional and global).

CAREER PROSPECTS

Bachelor of Science in Botanical Sciences degree programme intends to provide the labour market with graduates that are competent in botanical sciences. Thus, such graduates are eligible for employment in a wide range of professions associated with botanical sciences including agricultural, natural resources and tourism, medical, conservation and environmental research institutions. Furthermore, the applied courses offered provide opportunities for self-employment such as mushroom and seaweed cultivation.

Specifically, graduates from the department are readily employable by government agencies and parastatals, regulatory agencies, non-governmental organisations, private sector, research and higher learning institutions, as well as regional and international organisations. They can as well engage in self-employment.

DEPARTMENT OF GEOLOGY

The Department of Geology currently offers three 4-year undergraduate degree programmes; these include the following:

- B.Sc. in Geology
- B.Sc. with Geology (with any other science subject offered by CoNAS or CoSS)
- B.Sc. Engineering Geology (which is offered by CoNAS and CoET)

- B.Sc. in Petroleum Geology (to be offered from October 2013).

Geo = the Earth, logy = science or study of. Hence Geology is a field of science that deals with the study of the Earth. It focuses on both the Earth's composition (rocks and minerals, soils, surface and groundwater, natural gas and oil), and processes that operate on and beneath the Earth's surface and how these processes have changed the shape of the Earth as we see it today.

A Geologist is therefore a scientist who studies the solid, liquid and gaseous forms of matter that constitute the Earth as well as the processes that have shaped it throughout history.

Other fields related to Geology are Geography, Oceanography, Meteorology and Astronomy. Geography deals with the study of various aspects of the Earth's surface; Oceanography deals with the study of oceans; Meteorology deals with atmospheric studies including weather; and Astronomy deals with studies of the outer space.

Sub-Disciplines of Geology

Name	Subject of Study
Petrology	Rocks and their formation
Mineralogy	Chemical and physical properties of minerals
Sedimentology	Sediments and their deposition
Geophysics	Physical characteristics of the whole Earth (such as Earth's magnetic and gravity fields) and forces in the Earth
Geochemistry	Chemical composition of materials in the Earth and chemical reactions in the natural environment
Geomorphology	Landscape formation and evolution
Hydrogeology	Groundwater, its movements and reaction with rocks and soil
Geochronology	The age (in years) of geologic materials, the Earth, and extra-terrestrial objects
Paleontology	Fossils and evolution of life
Seismology	Earthquakes and Earth's interior as revealed by earthquake waves
Stratigraphy	The arrangement (succession) of rock layers
Structural Geology	Rock deformation in response to application of force
Tectonics	Regional geologic features such as mountain belts, and plate movements and their consequences

Engineering Geology	Stability of geologic material on the Earth's surface for such purpose as controlling landslides and building tunnels
Environmental Geology	Interaction between the environment and geologic material, and the contamination of geologic material

B.SC. IN GEOLOGY

Students intending to pursue the B.Sc. in Geology programme must have a good background in Physics, Chemistry and Mathematics. The programme prepares geoscientists with relevant skills and knowledge in the exploration and exploitation of minerals and groundwater. It is a field-based programme and students are expected to spend a substantial amount of time in the field where they learn and acquire skills in geological mapping. **Our curriculum** enables the student to understand the general principles and aspects of Geology with special emphasis on the Geology of Tanzania which is home to various metallic and non-metallic minerals, including Gold, Diamond, Iron, Nickel, Copper, Silver and Pb ores. Gemstones found in Tanzania are Tanzanite, Ruby, Garnet, Sapphire, Emerald, Rhodonite and Amethyst. Tanzania also has large reserves of Coal, oil and gas, Kaolin, Limestone, Gypsum, Magnesite, dimension and construction stones, Uranium, Geothermal Energy and Clays.

B.SC. WITH GEOLOGY

The major difference between B.Sc. in Geology and B.Sc. with Geology is that students intending to pursue the B.Sc. with Geology programme are expected to study all fundamental courses in Geology and one other subject (e.g. Mathematics, Physics, Chemistry, Botany, Geography, or Statistics) offered in CoNAS or CASS. Thus, the prospective candidate is expected to have passed the other subject of choice. All other requirements and programme outcomes are similar to the B.Sc. in Geology degree programme.

B.SC. IN ENGINEERING GEOLOGY

Students intending to pursue the B.Sc. in Engineering Geology programme must have good background in Physics and Mathematics. Students are expected to study fundamental courses in Geology (offered in CoNAS) and Civil Engineering (offered in CoET). The programme prepares geoscientists with relevant skills and knowledge in site investigation for mining and civil engineering construction (e.g. roads, tunnels, dams), appraise the geological conditions with respect to the stability of foundations, dams, slopes and underground constructions. It is a field-based programme and students are expected to spend a substantial amount of time in the field where they learn and acquire skills in geological mapping, slope stability and dam construction, etc. B.Sc. in Engineering Geology also offers the opportunity to understand the geology of Tanzania and its mineral wealth.

B.SC. IN PETROLEUM GEOLOGY

Students intending to pursue the B.Sc. in Petroleum Geology programme must have good background in Physics, Chemistry and Mathematics. The programme prepares geoscientists with relevant skills in the exploration and development of oil and gas. The programme equips students with skills in all fields of Geology with particular emphasis on the areas of Stratigraphy and Paleontology, Seismic Stratigraphy, Sedimentary basin analysis, Petroleum Geophysics and Geochemistry. Students are expected to spend some time in the field where, apart from learning the

routine geological mapping, they will also be exposed to various techniques employed in the exploration of oil and gas and seismic data analysis.

CAREER PROSPECTS

Geology graduates find employment in the following fields, among others:

- Mineral exploration and mining
- Coal, gas and oil industries (Exploration and Production)
- Groundwater (Hydrogeology)
- Engineering (Civil & Construction)
- Environmental Impact Assessment companies
- Cement production industries
- Universities and research laboratories (as teaching and research staff)
- Government Agencies (Geological Survey), TPDC, Ministry of Water, and Ministry of Energy and Minerals.

Recent trends are such that our graduates in B.Sc. Geology, B.Sc. with Geology and B.Sc. Engineering Geology find employment in mining and exploration companies locally, in the African region (e.g. South Africa, DRC, Kenya, Sierra Leone, Ivory Coast, Ghana, Liberia) and some even work abroad (e.g. Australia, Oman).

The discoveries of natural gas in the off-shore eastern coast of Tanzania have opened room for many oil and gas exploration companies to invest in Tanzania, and the career prospects are high for the B.Sc. in Petroleum Geology graduates.

ADDITIONAL QUALIFICATIONS:

In order to be admitted to study any branch of geology as stated above, a student must be physically fit. This is necessary because of the field demands during the training, and later during their carrier undertaking.

DEPARTMENT OF ZOOLOGY AND WILDLIFE SCIENCES

B.SC. IN APPLIED ZOOLOGY

The main challenges facing our country today include poor health, food insecurity, environmental degradation and unchecked population growth. The B.Sc. in Applied Zoology programme can contribute immensely to solving these four challenges. The leading causes of poor health in Tanzania are parasitic diseases (malaria, schistosomiasis, sleeping sickness, geohelminths, lymphatic filariasis etc.). The control of many tropical diseases requires sound understanding of the biology of the causative organisms and the vectors involved. The challenge on food security has implications: about 40% of all harvested food is lost through insects and other pests in stores. Knowledge of the pests and their management is part of the field of Applied Zoology. Although poverty and ignorance play a leading role in environmental degradation, Zoology can contribute significantly to the solution of this problem. Sound ecological understanding of ecosystem processes and the consequences of human activities is primary to the conservation of our environment. Biodiversity inventories and Environmental Impact Assessment require properly trained ecologists and taxonomists.

The programme intends to train zoologists who are suited to current market needs and capable of undertaking research and related activities in Biomedical Sciences, Agriculture, Biodiversity and Conservation, Ecology, Environmental Impact Assessment (EIA) and many more. The programme aims to equip students with knowledge and skills in Applied Zoology and animal adaptation to environmental changes, in addition to Basic Zoology.

CAREER PROSPECTS

The B.Sc. in Applied Zoology programme contributes towards furnishing a wide spectrum of potential employers with skilled personnel in the field of Zoology. Sectors that will benefit include government departments, research institutions, public and private organisations, and multilateral and bilateral organisations.

Specifically, potential employers will include:

- Ministry of Health and Social Welfare (disease control programmes).
- Ministry of Livestock and Fisheries Development (Veterinary Division)
- Ministry of Agriculture, Food Security and Co-operatives (Crop Protection, Forestry and Bee-keeping Divisions)
- Ministry of Natural Resources and Tourism (Wildlife Divisions)
- Government Agencies and Parastatals; these include:
 - Chief Government Chemist Agency
 - Tanzania Bureau of Standards (TBS)
 - National Museums
 - Commission for Science and Technology (COSTECH)
 - National Environmental Management Council (NEMC)
 - Tanzania Food and Nutrition Centre (TFNC)
- Research and Higher Learning Institutions; these include:
 - National Institute for Medical Research (NIMR)
 - Ifakara Health Research and Development Centre (IHRDC)
 - Tanzania Wildlife Research Institute (TAWIRI)
 - Tanzania Pesticide Research Institute (TPRI)
 - Universities
 - National Malaria Control Programme (NMCP)

B.SC. IN WILDLIFE SCIENCES AND CONSERVATION

Tanzania is one of the richest and most diverse countries in Africa, and among the fourteen world's biodiversity hotspots in terms of habitats, species diversity and abundance of wildlife, presumably due to the variety of climate and landscapes. Currently, wildlife alone contributes about 17% of the country's GNP.

However, due to increasing human pressure around the protected areas, conflicts between conservation and human activities are common. This usually results into loss of wildlife habitat, decline of wildlife populations, biodiversity and general environmental degradation. This calls for the need to examine human impact on biodiversity and to develop practical approaches to prevent the extinction of species and habitat destruction and degradation. Tanzania being a signatory to various international agreements related to environmental conservation including the Biodiversity and Wetlands Conventions (which seek to promote the protection and conservation of biological

diversity and wetlands, respectively) has pledged to integrate policies, strategies, and programmes for the conservation of biodiversity into relevant sectoral and cross-sectoral programmes. Considering the biological values and importance of wildlife to the national economy, and vastness of the protected area network, the need for well-trained and specialised wildlife scientists and managers cannot be overemphasised. The B.Sc. degree in Wildlife Sciences and Conservation aims at achieving this goal by running a programme that covers sufficient depth required of a career in the expanding wildlife profession and industry.

The degree in B.Sc. in Wildlife Sciences and Conservation is a three-year programme aimed at training professional wildlife scientists and managers for research and administration of conservation areas and the related wildlife industry. The programme has been designed to provide students with a detailed perspective of the principles and practical aspects of conservation biology and wildlife management in the national, regional and global context.

The programme therefore seeks to enhance the quality of wildlife training so as to make it more relevant in contemporary wildlife research and conservation. The programme also seeks to integrate practical and field training, and provide students with a detailed perspective of the principles of wildlife science and conservation.

CAREER PROSPECTS

The degree in Wildlife Sciences and Conservation was intended to broaden wildlife graduates' opportunities for employment as researchers and wildlife managers in the expanding wildlife and environment sectors. Career opportunities exist in the following ministries, institutions and organisations:

- Ministry of Natural Resources and Tourism (Wildlife Division, Tanzania National Parks, Ngorongoro Conservation Area, Department of Tourism)
- Research institutions (Tanzania Wildlife Research Institute; Tropical Pesticides Research Institute, National Institute for Medical Research)
- Tanzania Commission for Science and Technology (COSTECH)
- National Environment Management Council (NEMC)
- Training institutions (College of African Wildlife Management, Mweka; Pasiansi Wildlife Training Institute; National College of Tourism)
- Universities
- NGO's (WWF, IUCN, Wildlife Conservation Society of Tanzania, and African Wildlife Foundation)
- Other research and conservation groups in the country, regionally and globally.

With the expanding prospects in the wildlife industry, especially in ecotourism, graduates from this programme have very good opportunities for entrepreneurship and self-employment.

DEPARTMENT OF CHEMISTRY

The Chemistry Department of the University of Dar es Salaam (UDSM) was established in 1965 as an academic unit under the then Faculty of Science, entrusted to knowledge generation, teaching, pursuit of scholarly research and provision of public services in the field of Chemistry. At present, the Department offers two taught undergraduate degree programmes, namely, B.Sc. in Chemistry (B.Sc.

Chem.) and B.Sc. in Petroleum Chemistry (B.Sc. Petr. Chem.). Apart from running these programmes, the Department offers Chemistry course packages and service courses that form parts or components of other UDSM degree programmes.

Chemistry can be viewed from multiple orientations ranging from theoretical to eminently practical perspectives. In either view, the importance and uniqueness of Chemistry is that it serves as the interface to practically all other sciences, as well as to many other areas of human endeavour. It is because of this reason, that Chemistry is often referred to as "a central natural science". In short, Chemistry is a field of natural science that deals with the study of the composition, properties and behaviour of matter. Chemistry is considered as a central natural science because it bridges other natural sciences such as Physics, Geology, Biology, Medicine, Pharmacy, Engineering and Manufacturing. Chemistry can be divided into several major sub-disciplines that have several main cross-disciplinary and more specialised fields. Some of the major branches of Chemistry that are offered in the Department of Chemistry at UDSM include the following:

- **Organic Chemistry:** The study of the structure, properties, composition, mechanisms, and reactions of organic compounds. An organic compound is defined as any compound based on a carbon skeleton.
- **Inorganic Chemistry:** The study of the properties and reactions of inorganic compounds. The distinction between organic and inorganic disciplines is not absolute and there is much overlap, most importantly in the sub-discipline of Organometallic Chemistry.
- **Analytical Chemistry:** The study of the Chemistry of matter and the development of tools used to measure properties of matter.
- **Physical Chemistry:** The study of physical and fundamental basis of chemical systems and processes. Important areas of study include chemical thermodynamics, chemical kinetics, electrochemistry, statistical mechanics, and spectroscopy.
- **Biochemistry:** The study of the chemicals, chemical reactions and chemical interactions that take place in living organisms.
- **Petrochemistry:** A branch of Chemistry that studies the transformation of crude oil (petroleum) and natural gas into useful products or raw materials. Petrochemicals are an essential part of the chemical industry.

B.SC. IN CHEMISTRY

The B.Sc. in Chemistry degree is a three-year programme that aims at preparing graduates with a wide range of skills and knowledge of chemical principles. This degree equips our graduates with problem solving skills that are applicable in industrial processes and research. Graduates also learn basic skills in ICT relevant to the chemical and allied industries and research. The programme is designed to help empower chemistry graduates with the necessary competences required to establish and manage business in the chemical and allied industries. B.Sc. in Chemistry graduates are also prepared to be conversant with the concepts of environmental conservation and management.

CAREER PROSPECTS

B.Sc. in Chemistry graduates have access to a variety of career opportunities in both the private and public sectors, including all chemically related industries. The programme also helps prepare graduates for self-employment. The following are some of the fields in which B.Sc. in Chemistry graduates can find employment.

- Pharmaceutical industries
- Research institutions
- Agricultural products processing and agricultural pest control agents
- Food processing industries
- Textiles industries
- Plastics industries
- Mining industries
- Government agencies, authorities and institutions
- Construction industries
- Fertiliser manufacturing industries
- Brewing and bottling industries
- Pulp and paper industries
- Paints manufacturing industries
- Metal works industries
- Environmental management and impact assessment agents

B.SC. IN PETROLEUM CHEMISTRY

The B.Sc. in Petroleum Chemistry degree is a three-year programme that aims at producing graduates with requisite skills for the sustainable development and management of petroleum (oil and gas) production and allied industries. The programme is designed to develop competencies in Petroleum Chemistry and allied fields and prepare experts that can apply and use petroleum science equipment. It also provides a foundation for further studies in petroleum sciences and technology.

CAREER PROSPECTS

The demand for petroleum chemists in Tanzania is high. Graduates of the B.Sc. in Petroleum Chemistry programme can readily find employment or engage in self-employment in the growing sectors of petroleum and natural gas and allied industries. Specific areas where graduates of this programme can find employment include, but are not limited to:

- Oil-refining and formulation industries
- Oil exploration companies
- Petrochemicals and allied industries
- Government Ministries dealing with energy, minerals, the environment and tax revenue
- NGOs and consultant companies dealing with environmental management and impact assessment and other environmental issues
- Government agencies, authorities and institutions such as TPDC, TBS, TRA, TGCLA, NEMC and COSTECH
- Higher learning and research Institutions

DEPARTMENT OF MOLECULAR BIOLOGY AND BIOTECHNOLOGY

The Department of Molecular Biology and Biotechnology (MBB) at University of Dar es Salaam was established in 2005 to offer training programmes at the level of Bachelor of Science in Microbiology, Molecular Biology and Biotechnology, and at the level of Master of Science and Doctor of Philosophy (Ph.D.) in Microbiology, Molecular Biology and Biotechnology. The undergraduate programmes hosted by the department are outlined below:

B.SC. IN MICROBIOLOGY

This is a three-year programme, by which students acquire adequate knowledge in Microbiology and have introductory skills in entrepreneurship. The major objective of this programme is to produce graduates with competitive advantage to meet local and international market demands and who are capable of undertaking microbiological research both at national and international levels. The main focus of the programme is basic knowledge on microorganisms, their diversity and the roles they play in nature; handling microorganisms; flow of genetic information in microorganisms and the role of microorganisms in the food industry and biomedical industry; as well as the role of microorganisms in the environment and their application in industry and biotechnology. Graduates of the Microbiology programme compete for professional jobs and can also engage in self-employment, e.g. becoming technical advisors (consultants) in the cultivation of mushrooms; production of biofertiliser, biogas and worms; processing of juices and production of wine.

Microbiology is a study of micro-organisms which are unicellular or cell-cluster microscopic organisms. These include eukaryotes such as fungi and protists, and prokaryotes such as bacteria. Viruses, though not strictly classed as living organisms, are also studied. Microbiology is a broad term, which includes many branches like Bacteriology, Virology, Mycology, Parasitology and others. The fields of basic and applied microbiology can generally be divided into several sub-disciplines: (i) Microbial Physiology, (ii) Microbial Genetics, (iii) Medical Microbiology, (iv) Veterinary Microbiology, (v) Environmental Microbiology, and (vi) Aquatic and Aeromicrobiology. Other fields of Microbiology include (vii) Evolutionary Microbiology (viii) Soil and Agricultural Microbiology (ix) Industrial Microbiology (dealing with the use of microorganisms in industries including, among others: food processing, food production, beverages, paper and pulp, mining, pharmaceuticals, detergents and bioenergy production, and biofertilisers), and (x) Microbial entrepreneurship.

CAREER PROSPECTS

Microbiologists find jobs in many places like research and development laboratories of government and private hospitals, research organisations, pharmaceutical companies, and food, fish, beverage and chemical industries. Universities, research institutes and industrial companies employ microbiologists to do basic, environmental, healthcare and agricultural research. Medical microbiologists also work in hospitals and Health Protection Agency laboratories. Industrial microbiologists work in a range of companies – from big pharmaceutical, biochemical, biotechnology and food businesses through to smaller firms that develop biopharmaceuticals or specialist products. Microbiologists can find employment in regulatory authorities such as bureau of standards, drugs and food authorities, water and wastewater authorities etc. Self-employment is also a very good option for microbiologists to start professional careers. They can set up microbiological laboratories of their own and can help in diagnosing diseases, and can also direct their own research. There are large, private research institutes that conduct microbiological/epidemiological studies for

government agencies where there is a sudden outbreak of any epidemic disease. Microbiologists can set up brewing, water quality, science writing, food and feeds production ventures.

B.SC. IN MOLECULAR BIOLOGY AND BIOTECHNOLOGY

This is a three-year degree programme and has been established in order to cope with the new biotechnological developments in this field. The programme focuses on basic concepts in microbiology, biotechnology, and molecular biology, and expose students to knowledge in genetics, cell biology and biochemistry. It aims also at equipping students with knowledge on molecular biology, forensic DNA, bioinformatics, fermentation, downstream process, biomedical sciences, applied mycology, biosafety and bioethics, environmental biotechnology, agricultural biotechnology etc. Graduates of the Molecular Biology and Biotechnology programme compete at national, regional and international levels for professional jobs and can also engage in self-employment in the production of beverages and can become technical advisors (consultants) in environmental biosciences.

Molecular Biology is the study of Biology at a molecular level. It deals with interactions between the various systems of the cell, including the interactions between DNA, RNA and protein synthesis, as well as learning how these interactions are regulated. The molecular life sciences are at the forefront of scientific discovery. Over the past decade, an ever growing arsenal of techniques has helped researchers dissect the innermost secrets of the cell and develop new ways to detect and attack disease. These techniques have also been used to produce vast amounts of once rare drugs and vaccines, trace the path of evolution, create instant tests for a host of illnesses, warn people when their children might inherit a deadly disease, and identify criminals and victims of disasters. Biotechnology is defined generally as the use of living organisms to produce products beneficial to mankind. This broad definition includes everything from the production of biomedical useful recombinant human proteins and vaccines, to mass production of antibiotics, to mass fermentative production of industrially important solvents, enzymes, green chemicals, to molecular diagnostic tools used to diagnose HIV infection or determine paternity, to the creation of genetically modified herbicide-resistant varieties of crops/genetically modified organisms. The fields of Biotechnology include, but not limited to, the following sub-disciplines: (i) Environmental and Health Biotechnology, (ii) Bioinformatics, (iii) Bioseparation and Enzyme Biotechnology, (iv) Agricultural Biotechnology, (v) Industrial Biotechnology, (vi) Marine Biotechnology, (vii) Molecular Biology and Genetic Engineering, (viii) Forensic Science such as Forensic DNA, (ix) Food Biotechnology, (x) Bio-safety, Bio-ethics and Bio-policy, (xi) Biotechnology Entrepreneurship, (xii) Biosensors and Nanotechnology, (xiii) Biochemistry and other emerging biosciences.

CAREER PROSPECTS

Graduates of Molecular Biology and Biotechnology find employment in regulatory agencies/authorities such as bureau of standards, drugs and food authorities, environmental management and waste water authorities, non-governmental organisations (waste management), medical research and medical institutions, agricultural research institutes, proteomic and genomic research, genomic companies, research and higher learning institutions, as well as regional and international organisations. Other career opportunities include Virology and Immunology, [Molecular Genetics laboratories utilise a person's nucleic acid (DNA or RNA) to discover the relationship between genetics and personal health], biotechnology industries, molecular technicians, molecular biology, and clinical molecular genetics. Agriculture and related industries create genetically engineered crops that are more resistant to frost, drought, spoilage, diseases and pests.

Graduates are able to develop diagnostic agents and tools for bioremediation (removal of contaminated material from the environment). Through Forensic Science (Crime Lab Science) they can also work on criminal investigation by examining biological samples. Moreover, they engage in science education as Biology or Chemistry teachers, professors, or museum curators. Assay analysts prepare, maintain, and test tissue and cell cultures- groups of these materials are grown in scientifically controlled environments. Self-employment /job creation is also an option for molecular biologists and biotechnologists to start their professional career in sectors such as science policy, science writing, science reporting, and biological and medical illustration, fermentation, food processing, mycology, plant breeding, mass production of biotechnology developed products/goods, bioinformatics and even molecular modelling.

DEPARTMENT OF MATHEMATICS

B.SC. IN ACTUARIAL SCIENCES

The discipline of Actuarial Science is based on the evaluation of the financial, economic and business implications of future contingent events. By applying knowledge and skills in probability, statistics, mathematics and finance, actuaries provide prudent commercial and financial advice on the management of assets and liabilities - especially where long-term management and planning are critical factors. Thus, they primarily work in finance, investment and risk management, general insurance, life insurance, pensions and social security.

The overall objective of the programme is to train candidates in the application of probability and statistical theory to solve problems in insurance, investment, pension, and financial risk management.

CAREER OPPORTUNITIES

The graduates are expected to possess competencies and abilities to work in top and middle technical and managerial levels in:

- Financial institutions - particularly insurance companies, pension funds and banks in valuing financial contracts and annuities as well as investing funds
- Consultancy and advisory services to institutions and individuals
- Government service - particularly in regulatory and supervisory roles
- Other areas such as in stock exchange, industry, commerce and universities.

The graduates are also expected to have sufficient preparation to successfully sit for professional examinations in actuary offered by different professional bodies (Institutes of Actuaries)

DEPARTMENT OF PHYSICS

B.SC. IN METEOROLOGY

Meteorology is a branch of physical science that has wide applications and services in the following four main areas:

- Agricultural Meteorology: This area consists of applications of the interaction between meteorological, climatic and hydrological factors and biological systems to practical uses in agriculture, horticulture, animal husbandry, and forestry.

- **Aviation Meteorology:** This second area consists of the study, analysis and forecasting of the influence of the atmosphere (especially that of hazardous weather) on the operation of aircraft.
- **Marine Meteorology:** This third area provides, to marine users at sea and the coast, the marine meteorological and related oceanographic information they require with the intention to maximize safety of marine operation and promoting the efficiency and economy of marine activities. It also contributes towards efficient exploration and optimal exploitation of coastal and marine resources and protection of coastal and marine environment.
- **Environmental Meteorology:** This area is concerned with the utilisation of meteorological information (weather, climate and air quality) and related scientific findings to environmental concerns (including air and water pollution, climate change, ozone depletion or harmful solar radiations) in a manner intended to optimise the use of resources and strengthen human health and security. It is also concerned with various processes in the atmosphere and interrelation of the atmosphere with the solid Earth and liquid phases of the Earth, natural ecosystem and outer space.

The main objective of the B.Sc. in Metrology programme is to produce skilled meteorological scientists. Upon successful completion of the programme, the graduates are expected to have competencies in Weather Forecasting, Agricultural Meteorology, Aeronautical Meteorology and Marine Meteorology. They are also expected to be able to apply and use meteorological equipment.

CAREER OPPORTUNITIES

The B.Sc. Meteorology programme is career-oriented and has enormous employment potential and operational duties. Professionals and technicians with various competencies to perform various duties in the four branches of Meteorology are needed. Graduates with competency in Agricultural Meteorology will be employed as experts in various areas including those dealing with issues of the impact of weather and climatic factors on agriculture, crop modelling and offering agricultural advice. Aeronautical meteorologists will provide services to the aviation industry such as weather monitoring and forecasting. Marine meteorologists will provide services for navigation for example marine climatology and forecasting. Environmental meteorologists will be employed in organisations dealing with impacts of climate change and mitigation. Employment opportunities for meteorologists exist in Tanzania and in the region in national meteorological agencies, the military, aviation industry, marine industry and in research institutions.

B.SC. IN AQUATIC SCIENCES AND FISHERIES

The B.Sc. in Aquatic Sciences and Fisheries programme is intended to train students in aquatic systems focusing on the interaction of humans and the aquatic environment. It also trains students on aquatic biota in their natural environment and under controlled conditions. Graduates from the programme are expected to be knowledgeable in various aspects of aquatic sciences, fisheries and aquaculture. The programme contributes towards building human capacity on rational utilisation of aquatic resources, and promotes aquaculture industry and conservation of the aquatic environment.

CAREER PROSPECTS

There are several government organisations and institutions including ministries and research institutions that need graduates with an in-depth knowledge in Aquatic Sciences, Fisheries and Aquaculture. These include the Ministry of Livestock and Fisheries Development, Ministry of Natural Resources and Tourism, Ministry of Water, Division of Environment in the Vice President's Office, National Environment Management Council, Marine Parks and Reserves Unit, Tanzania Fisheries Research Institute, National Museum of Tanzania, National Service and Prisons (Aquaculture Sections) as well as universities and other higher learning institutions. In addition, non-governmental organisations (e.g. WWF, IUCN, Sea Sense) involved in advocacy for conservation of aquatic resources are also potential employers. Other potential employers include fish processing industries and large aquaculture farms. The programme also equips graduates with skills needed for self-employment initiatives and career advancement in the academia.

B.SC. IN BEEKEEPING SCIENCE AND TECHNOLOGY

Tanzania is endowed with a favourable environment for production of honey, beeswax and other bee products. The country has about 48 million hectares of forests and woodlands that are scattered throughout the country and are ideal for developing beekeeping industry. The training programme aims at providing knowledge and skills in Beekeeping science and technology and Environmental Conservation.

CAREER PROSPECTS

The main objective of this program is to equip graduates with requisite knowledge in beekeeping in order to meet the human resource demand in the government and various research institutions and industries in Tanzania. Graduates from this programme are expected to have sufficient scientific and technological skills to provide leadership in areas of production, processing, marketing and research in beekeeping science. The programme will also equip graduates with skills needed for self-employment initiatives.

B.SC. IN FOOD SCIENCE AND TECHNOLOGY

This is a four years programme aimed at producing all round well trained personnel in all aspects of food science and technology capable of efficient and sustainable utilization of agricultural resources. The key objective of this degree programme is to serve the manpower needs of the food industry and related sectors in Tanzania and the region. It is designed to offer students a well balanced

knowledge and equip them with essential skills to enable them reach their full potential in their careers in food science and technology. More specifically, the programme aims at:

- a) Imparting knowledge and skills for ensuring safety, quality and production of nutritious, convenient and economical food products.
- b) Offering graduates in-depth understanding of agricultural produce handling, transportation, processing and storage for purposes of attaining highly productive and profitable agro-value chains through value addition and minimal postharvest losses.
- c) Providing graduates with adequate knowledge and skills to enable them develop novel products and processes.

CAREER PROSPECTS

1. Food scientists and technologists can be employed in different food processing and manufacturing industries, in research institutions, universities and various government agencies responsible for food safety, quality and governance.
2. Through the offered entrepreneurial skills graduates can establish their own businesses
3. Graduates have potential to pursue postgraduate research programmes at home and abroad in areas relevant to the food industry.

B.SC. IN AGRICULTURAL AND NATURAL RESOURCES ECONOMICS AND BUSINESS

The general objective of Bachelor of Science (B.Sc.) in Agriculture and Natural Resource Economics and Business programme is to train students on applied economics and business of agricultural and natural resources. This program, among other objectives, aims to create a paradigm shift from government-driven production programme to market-centered business; from agricultural graduates looking for employment after college to agri-business innovators and job creators; from basic research to applied research among other transformations in the agriculture and natural resources industry. The B.Sc. in Agricultural and Natural Resources Economics and Business offers a combination of Agriculture, Natural Resources, Business and Social Sciences skills required for the management of agribusiness and related institutions.

CAREER PROSPECTS

Graduates will be able to start new businesses and perform business and economic policy analysis, Apply economic and business analysis tools to solve problems in various fields of agriculture and natural resources. The program offers better prospects for employment in the upcoming agro-industries and natural resources that may not have the resources to employ specialists in Economics, Human Resource Management, Accounting, Production and Marketing.

COLLEGE OF ENGINEERING AND TECHNOLOGY (COET)

WATER RESOURCES ENGINEERING DEPARTMENT

The Water Resources Engineering Department (WRED) was established in 2001 from the water section of the then Faculty of Engineering (FoE) following the latter's re-organisation into the College of Engineering and Technology (CoET). The department runs an undergraduate degree programme (Civil and Water Resources Engineering).

B.SC. IN CIVIL AND WATER RESOURCES ENGINEERING

The undergraduate degree programme of B.Sc. Civil and Water Resources Engineering offers an introduction of the basic knowledge required for professionals in water resources and environmental engineering. The major specifications are hydrology, water supply, sanitation and water resources planning and management. The programme provides a strong foundation for further studies in water and related fields.

FACILITIES AVAILABLE

There are two science laboratories (Hydraulics Laboratory and Water Quality Laboratory and a computer Laboratory). The science laboratories are equipped with state-of-the-art water quality analysis equipment and physical models for fluid flows simulation. The computer laboratory is equipped with modern desktop computers for engineering computation and modelling, Geographical Information System (GIS) and Remote Sensing Data Processing.

In the future, the Department intends to operate a Hydrologic and Climate Simulation Laboratory which will provide further capacity for research in hydrological cycle modelling and climate system observation and analysis. With state-of-the-art equipment, the laboratory will ultimately advance training and research in hydrologic cycle and climate system analysis for water resources management, and prediction of water related natural disaster (flood, droughts).

CAREERS PROSPECTS

Graduates from the Civil and Water Resources Engineering programmes are employed by central government, local government, public and private companies, special projects and non- government organisations (NGOs). Several graduates have joined postgraduate degree programmes at the department or overseas. Career opportunities available for our graduates are as listed and described below:

National and regional agencies: Such agencies include the National Environment Management Council (NEMC), Energy and Water Regulatory Agency (EWURA) Urban Water Supply and Sewerage Authorities (UWSAs in all major towns in Tanzania), Water Department in Municipal and District Councils, National Water Board and Basin Water Boards.

Water resource design and protection: This involves design of urban water supply networks, feasibility studies for water resources projects, design of drainage systems in urban areas and for highways, and design of municipal wastewater treatments systems.

Computer simulation of water and pollution transport: This is concerned with simulating fate and transport of pollutants in lakes (Victoria, Tanganyika, etc), modelling studies for major rivers (Pangani, Rufiji), and predicting impact of climate change on water resources and projects related to water resources.

DEPARTMENT OF CHEMICAL & MINING ENGINEERING

B.SC. IN CHEMICAL AND PROCESS ENGINEERING

Chemical Engineering deals chiefly with industrial processing to produce value-added products from raw materials. The processing of organic (crude oils, natural gas, lumber), inorganic (ores, air, salts) and biological (starches, cellulose, fats) materials into a wide range of useful commodity products, such as fuels, plastics, pharmaceuticals, fertilisers and food is carried out within a framework of environmental sustainability and concern for the safety of workers/customers. The major objective of the B.Sc. in Chemical and Process Engineering degree programme is therefore to impart knowledge and skills to students on the design, construction and economic operation of equipment in the mentioned areas.

The training involves development of practical skills that are obtained both at the college and in the industry. The students get hands-on training in the workshops at the College of Engineering and Technology and at the end of each academic year they go to the industry for field attachment, for periods of not less than 8 weeks. They get exposure to the same working environment as that in which they will be working as practising engineers. Chemical engineers can work in the whole range of food processing industries spanning from flour milling to juice making. The beverage industry including soft drinks, beers and wines are all part of the food industry. The building materials industry producing cement and paint, roofing and plastering materials do all offer the chemical engineer opportunity to practice. Further, the pharmaceutical and general chemical industries also require chemical engineers in their processes; not to forget the cosmetic and domestic hygiene industry that supplies a wide range of products to the consumers. The list is endless.

B.SC. IN METALLURGY AND MINERAL PROCESSING

Metallurgists and mineral processing engineers are trained to be able to process raw minerals into valuable end products that are needed by various industries and other consumers. They are therefore required to have the requisite skills in the design of equipment and plants, design of processes, operation of processes and extraction processes of minerals. The major objective of the programme is therefore to give the students these and other supporting skills to enable them fulfil these requirements.

Metallurgy and Mineral Processing is a traditional engineering programme just like Civil Engineering and Mechanical Engineering that have existed for years in the world. The programme produces professionals who have a distinct and defined role in the mining industry that cannot be replaced by any other without consequences to the efficient operation of the industry. It is worthwhile mentioning, however, that this programme shares some of its basic elements with other

programmes most notably Geology and Mining Engineering. These three disciplines work closely together in all major mining operations. It is not surprising, therefore, that common courses are found that enable the harmonisation of operations in the mines.

B.SC. IN MINING ENGINEERING

Mining engineers have the duty to extract resources containing valuable minerals from the earth's surface and from underground, ready for processing. This responsibility requires knowledge of the resources, their existence, methods of collecting them and transporting them to proper destinations, ready for further processing. It demands knowledge about the design of the mines, safety procedures and environmental considerations. The programme therefore is specifically tailored to provide these skills to the trainee to prepare them to undertake these and many more tasks related to extraction of minerals.

Mining engineers design mines both open cast and underground, so they have to have good understanding of the ore distribution, and choice of appropriate extraction techniques. Their background may be in Physics, Mathematics and Geography or Physics and Chemistry and Mathematics. A mining engineer naturally undertakes some courses in mineral processing to give them the knowledge needed for smooth operation of the mines. The mining engineering discipline as we know it, can be broken down into other specialisations such as Underground Mining, Surface Mining, Mine Ventilation, Rock Mechanics, Drilling and Blasting.

B.SC. IN PETROLEUM ENGINEERING

The objective of the programme is to train human resource with the requisite engineering knowledge and skills needed for the development and management of oil and gas resources.

Petroleum Engineering (PE) is a broad-based discipline primarily concerned with the exploration, development, and conservation of oil and gas resources. Petroleum engineers plan and supervise drilling and well-completion programmes, design and select drilling and production equipment, estimate and manage reserves, and manage oil and gas facilities.

A petroleum engineering graduate may be charged with a responsible position within an Oil and Gas Company, may establish a consulting business (after acquiring the necessary experience), or become an independent oil and gas producer locally or internationally. In general, a petroleum engineer may find employment with any industry or institution which requires a specialist in activities related to producing and injecting fluids by means of wellbores.

Petroleum engineers work in the extraction of petroleum products from the earth. They have roles and functions quite distinct from those of geologists, geoscientists or geotechnical engineers. This programme, however, still gives a reasonable and balanced dose in Geology and midstream processes to enlighten their understanding of this wide and complex industry. This new programme targets primarily the upstream sector of the petroleum industry with some insight into the midstream sector. The downstream subsector is better covered by the traditional Chemical Engineering and Mechanical Engineering and therefore it is not dealt with in detail, in this programme.

B.SC. IN CIVIL AND TRANSPORTATION ENGINEERING

The Civil and Transportation Engineering programme at the College of Engineering and Technology - University of Dar es Salaam was formally introduced in the 2000/01 academic year. The programme is currently being phased out gradually after the re-introduction of the Civil Engineering degree programme. It was designed to provide solid background and focus on one of the following areas: Soil Mechanics, Surveying, Construction Management, Traffic Management, and highway, railway, harbour, and airport pavement design. Graduates in these areas may find jobs as transportation or geotechnical engineers for infrastructure, project engineers for construction projects, or clients and contractors representatives. They can also find employment opportunities in government offices such as in district and regional engineer's offices and TANROADS, construction companies, civil engineering consulting firms, civil engineering training institutions and universities, and non-governmental institutions dealing with provision of infrastructure services to the community.

OBJECTIVES OF THE DEGREE PROGRAMME

The B.Sc. in Civil and Transportation Engineering is aimed at meeting the national demand of engineers with knowledge and skills in Civil Engineering. After successful completion of studies, the graduates should be able to effectively carry out the planning, analysis, design, implementation, operation and maintenance of civil engineering structures and infrastructure. Graduates of this programme are capable of solving civil engineering problems within a greater societal context by doing the following:

1. Act professionally and ethically;
2. Apply knowledge, strong reasoning, and quantitative skills to design and implement creative and sustainable solutions;
3. Engage in life-long learning to meet the challenges facing the profession and nation at large;
4. Exhibit strong communication, interpersonal, and resource-management skills as leaders in the civil engineering profession; and
5. Exhibit ability to identify, formulate, and solve engineering problems.

CAREER OPPORTUNITIES

Most graduates of this programme work for engineering firms, industrial businesses, or agencies within Tanzania and abroad. The following are a few examples of the positions that could be held by a graduate of this programme: Transportation Engineer, Geotechnical Engineer, Civil Engineer, Construction Engineer, Environmental Engineer, Facility Engineer, Structural Engineer, Project Engineer, Site Engineer, and Health and Safety Engineer. The need of application of Civil Engineering knowledge at this time of keen awareness of the decaying national infrastructure, as well as environmental and energy concerns, keeps graduates of civil related programmes in high demand both nationally and internationally. Opportunities are expected to grow as the result of growth in the construction industry and the need to replace retiring workers.

Therefore, studying this programme provides one with the kind of skills and experiences that will ultimately prove very useful in any career, whichever direction one takes in future.

B.SC. IN CIVIL AND STRUCTURAL ENGINEERING

The Civil and Structural Engineering programme at the College of Engineering and Technology - University of Dar es Salaam is designed to provide the basic undergraduate education required for private and public service in Civil Engineering. Emphasis is placed on the fundamentals of civil engineering principles and design techniques. The programme leads graduates to opportunities as structural designers for buildings and infrastructure, project engineers for construction projects, or representatives for owners or contractors. Employers include consulting firms, contractors, industry, and the government.

OBJECTIVES OF THE DEGREE PROGRAMME

The B.Sc. in Civil and Structural Engineering programme is aimed at meeting the national demand of engineers with knowledge and skills in Civil Engineering. After successful completion of studies, graduates should be able to effectively carry out the planning, analysis, design, implementation, operation and maintenance of civil engineering structures and infrastructure. Graduates in the Civil and Structural Engineering programme from UDSM should solve civil engineering problems within a greater societal context by doing the following:

1. Act professionally and ethically;
2. Apply knowledge, strong reasoning, and quantitative skills to design and implement creative and sustainable solutions;
3. Engage in life-long learning to meet the challenges facing the profession and nation at large;
4. Exhibit strong communication, interpersonal, and resource-management skills as leaders in the civil engineering profession; and
5. Exhibit ability to identify, formulate, and solve engineering problems.

CAREER OPPORTUNITIES

Most graduates of Civil Engineering programmes work for engineering firms, industrial businesses, or agencies within Tanzania and abroad. The following list provides examples of the jobs available for graduates: Civil Engineer, Construction Engineer, Environmental Engineer, Facility Engineer, Structural Engineer, Project Engineer, Site Engineer, Transportation Engineer, Municipal Engineer, and Health and Safety Engineer. The significance of Civil Engineering at a time of heightened awareness of the decaying national infrastructure, as well as environmental and energy concerns, places graduates of civil related programmes in high demand. Opportunities are expected to grow and many of the job openings will result from employment growth as well as the need to replace retiring workers.

Civil Engineering is distinguished by construction projects related to the formation of vital infrastructure. Civil and other related engineers perform duties in planning, designing, and supervision of heavy construction and maintenance of structures and facilities, in addition to systems for transportation, information, water, and other resources. The broad scope of work typically performed in the professional Civil Engineering discipline includes highways projects, railroads, bridges, tunnels, airports, dams, harbours, channels, irrigation systems, oil and gas extraction, pipelines, power plants, water and sewage systems, and waste disposal units. General

civil or site engineers spend much of their time visiting project sites, developing community consensus, and preparing construction plans. Civil Engineering graduates are also found in areas where they serve as technical consultants or technical writers, such as in government, education, law, or sales.

B.SC. IN CIVIL ENGINEERING

The Civil Engineering programme at the College of Engineering and Technology- University of Dar es Salaam, was re-introduced in the 2012/2013 academic year. It is designed to respond to the societal need for civil engineers with broad knowledge in general civil engineering rather than specialisation within Civil Engineering. Emphasis is placed on the fundamentals of civil engineering principles and design techniques. This programme is designed to provide learners with solid background and focus on one of following areas of concentration: Water Resources Engineering, Structural Engineering, Transportation Engineering, Geotechnical Engineering and Surveying/Geomatics. Graduates of this programme would be employed as structural designers, transportation engineers, geotechnical engineers, water/energy engineers, bridge engineers, project engineers for construction projects or clients, or contractors' representatives. They can also find employment opportunities in government offices such as district and regional engineer's offices and TANROADS, construction companies, civil engineering consulting firms, civil engineering training institutions and universities, and non-governmental institutions dealing with provision of infrastructure services to the community.

OBJECTIVES OF THE DEGREE PROGRAMME

The B.Sc. in Civil Engineering programme is aimed at meeting the national demand of engineers with knowledge and skills in Civil Engineering. After successful completion of studies, graduates should be able to effectively carry out the planning, analysis, design, implementation, operation and maintenance of civil engineering structures and infrastructure. Graduates of this programme are capable of solving civil engineering problems within a greater societal context by doing the following:

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CAREER OPPORTUNITIES

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DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING

B.SC. IN INDUSTRIAL ENGINEERING

Industries approach universities to provide graduates with a holistic outlook to cope with new approaches to problem solving. From the technical viewpoint, emergence of new engineering specialisations has its origins in the way industry evolved. This in part has changed the way universities used to operate and is now mandating symbiosis with industry in the education process. The 20th century has experienced change from an old civilisation to a new civilisation. This shift is providing the direction of change towards a “knowledge-based society” and reaffirms universities as centres of knowledge dissemination and generation. In the 21st century knowledge is an ever increasing means of wealth generation and is therefore intimately involved with commercial enterprises – the industry. Thus, educators and industry have vested interests in each other mandating their collaboration. It is implicit that such collaboration is of benefit to both partners as well as students, ensuring relevance of the curriculum to the educators and providing employers with graduates whose skills are not only wanted but who are immediately deployable.

The main objective of the B.Sc. in Industrial Engineering programme is to have graduates who possess the skills and knowledge to design, install and maintain efficient and effective operating systems and who are capable of improving productivity and production effectiveness of systems. Its principal strength is the blend of Mathematics, Physical Sciences and Business applications. The methodology foundation is built on probability, optimisation, statistics, computing, engineering economics, and human factors engineering. This blend produces the flexibility that provides B.Sc. in Industrial Engineering graduates with a wide array of career opportunities.

CAREER OPPORTUNITIES

Industrial engineers have a wide range of career opportunities in industries, government agencies, consulting firms, hospitals and institutions of high learning. Their principal role is to increase productivity through the management of the people, methods of business organisation, and technology by determining the most effective ways to use the basic factors of production - people, machines, materials, information, and energy - to make a product or provide a service. Industrial engineers deal with the following areas of specialisation:

- Increasing productivity through the management of people, methods of business organisation, and technology;

- Maximizing efficiency by studying product requirements carefully and then designing industrial and information systems to meet those requirements with the help of mathematical methods and models;
- Developing control systems to assist investment planning and cost analysis, and designing operations planning and control systems to coordinate activities and ensure product quality;
- Designing or improving systems for the physical distribution of goods and services and determining the most efficient plant location;
- Developing wage and salary administration systems and job evaluation programmes; and
- Constantly looking for ways to make anything in life work better, more efficiently and more productively.



Pillars of the Industrial Engineering Programme

B.SC. IN MECHANICAL ENGINEERING

The B.Sc. in Mechanical Engineering is a four-year degree programme aimed at meeting the need for broad-based professionals in Mechanical and Industrial Engineering. After successful completion of the programme, graduates will be able to carry out analysis of mechanical engineering problems, operational planning and implementation, product design and manufacturing, testing of mechanical systems, and maintenance of various mechanical engineering systems.

CARRIER OPPORTUNITIES

Mechanical Engineering is one of the most diverse fields of engineering, with a tremendously wide variety of career opportunities. Mechanical engineers design and manufacture engineering products, power plants, airplanes, automobiles, and heating and air-conditioning systems. They are also involved in development of technologies for energy sources including solar and wind energy. Mechanical engineers work in industry, consulting practice, government, and other institutions as engineers, managers, designers, or researchers. Some of the mechanical engineers work in sales and product quality control. In Tanzania mechanical engineers are employed in all engineering-related industries and services. These include manufacturing and processing industries; land, sea, and air

transportation; construction; mining; telecommunication; electricity generation; energy industries; petroleum and oil industries, as well as service industries. Mechanical engineers also are widely needed in the military and police forces.

B.SC. IN TEXTILE DESIGN AND TECHNOLOGY & B.SC. IN TEXTILE ENGINEERING

Textile is a vibrant and innovative industry, with consistent demand for top-quality graduates. The industry provides exciting opportunities, embracing the high demand for quality clothing and industrial products such as medical textiles, ballistic textiles and civil work fabrics like geotextiles, not forgetting end products in automobile and aerospace industries. To prepare and respond to the requirements of the aforementioned beneficiary fields, two degree programmes were introduced at the University of Dar es Salaam with effect from 2011/2012 academic year.

The two degree programmes take into account the technological development in science and engineering and how that can support the textile and allied industries in the country with a view to supplying to industry, graduates:

- with the right scientific and technological skills;
- with managerial and entrepreneurial skills; and
- who can transform the textile industry into a competitive and innovative industry.

CAREER OPPORTUNITIES

Graduates find employment in the textile manufacturing sector, chemical and polymer industries, universities and research institutions, teaching and vocational training institutions, paper and pulp industry, leather and tanneries industry, shoe and footwear industry, standardisation industries, Tanzania Revenue Authority, financial institutions, garment and fashion design industry, government and public institutions, self employment, and many more.

DEPARTMENT OF ELECTRICAL ENGINEERING

B.SC. IN ELECTRICAL ENGINEERING

The B.Sc. in Electrical Engineering programme is a general electrical engineering degree programme aimed at meeting the current and future challenges set by developments in technology, and the need for a broad-based professional in electrical engineering. This programme takes into account the emergence of a significant number of industrial automated systems and advanced power industry controls as a result of advancement in microelectronics, power electronics and technology. The wide use of power electronics in the electrical power industry (i.e. generation, transmission and utilisations) and manufacturing drives controllers, calls for new areas of competence and skills for electrical engineers. Upon successful completion of the programme, graduates should be able to carry out effective planning, analysis and design, implementation, operation, testing, maintenance and management of various electrical engineering systems.

The undergraduate programme in electrical engineering, which leads to the Bachelor of Science in Engineering degree, provides a broad foundation in electrical engineering through combined classroom and laboratory work, and prepares graduates for entering the profession of electrical engineering as well as for further study at the postgraduate level.

The Electrical Engineering Department, in conjunction with other departments in the College of Engineering and Technology, has established the following educational objectives. Graduates will be expected to:

- possess a strong foundation in mathematics and basic sciences, and core electrical engineering fundamental knowledge and abilities necessary for specialisation in all areas of electrical engineering;
- have developed problem solving and design skills for devising and evaluating solutions to electrical engineering problems, including design of components, systems, and experiments;
- be well-informed about present and emerging technologies significant to electrical engineering;
- be well-prepared for graduate education;
- embrace and foster an environment that encourages creativity and enthusiasm for life-long learning; and
- possess professional attributes that include communication skills, teamwork, ethics, and appreciation for other disciplines, both technical and non-technical, in order to deal with the impact of technology in a global, societal, and organizational context.

Electrical Engineering addresses the high-technology needs of business and industry by offering a rich academic programme that includes analog and digital integrated circuits, power electronics, control systems, electrical power systems, power transmission and distribution, high voltage engineering, electrical machines and drives, communications and information theory, circuit theory, computer-aided design, and solid-state devices. Our nationally recognized programme combines the rigor of theory with the reality of engineering practice.

To strengthen students' applied knowledge, laboratory work is an integral part of many courses. The highlights of the applied engineering experience are covered in the senior project undertaken during the fourth year of study. Students work on a challenging project under the supervision of an experienced department adviser. While experiencing the satisfaction of completing an interesting project, students present their project and ideas to a diverse audience of students and staff of the department.

The first two years of the curriculum are devoted to establishing foundations in mathematics, engineering science, hands-on engineering workshops and basic electrical engineering courses that are essential to the study of Electrical Engineering. In basic engineering courses, students learn about electrical engineering principles such as fundamentals of circuits analysis and electronics systems, engineering electromagnetics and computer programming. Workshop-based courses introduce students to electrical engineering and other engineering practices and computer-aided design (CAD) tools that are used throughout the four-year programme.

In the third and fourth years, students focus on the subjects that form the core of electrical engineering, e.g. courses in circuits, electrical machines and drives, electronics and telecommunications, electrical measurements and control systems, power systems operations and controls, and high voltage engineering.

B. SC. IN COMPUTER SCIENCE

This programme aims at equipping students with the necessary knowledge and skills required in the computing world. It emphasises mathematical as well as theoretical foundations of computing.

Graduates of this programme will be expected to have attained:

- knowledge and skills that will enable them to be professionals in the IT industry;
- understanding of the theoretical background of computer science such as algorithm design an analysis, data structures, operating systems, computer networks, database systems, computer programming, etc.;
- good communication and organisation skills necessary to make the computing field make direct impact to the society;
- enough understanding of the ethical and global issues associated with the computing world;
- the necessary competence and knowledge for advanced studies(graduate or post graduate); and
- analytical and problem solving skills that will help them apply computation solutions to real world problems.

CAREER OPPORTUNITIES

The programme opens up opportunities in several areas of computer science such as development and implementation of software, designing of new ways to use computers and effective ways to solve computing problems. A graduate of this programme could work as one of the following experts:

- Systems Analyst
- Systems Administrator
- Network Engineer/Consultant
- User Interface Designer
- Web Master
- Information Systems Manager
- Internet Application Programmer
- Chief Information Officer

B. SC. WITH COMPUTER SCIENCE

This programme enrolls students to do Computer Science with Mathematics, Statistics, Education, or Physics. The graduates are expected to have mastery of heavy doses of computer science and IT courses including sufficient and appropriate doses of specific disciplines such as Statistics, and Mathematics. Graduates are expected to satisfactorily handle and effect applications of a wide spectrum of computer Science and IT knowledge, best fit to industries, and handle research projects in a wide range of software development.

CAREER OPPORTUNITIES

Graduates from this programme can assume any of the following roles in the society:

- Statistician
- Software Developer
- Business Analyst
- Web Developer
- Systems Administrator
- Project Manager
- Network Engineer
- Chief Information Officer
- Information Systems Manager

B. SC. IN COMPUTER ENGINEERING AND IT

This programme aims at training students to become computer engineers that have the knowledge, skills and ability of designing, implementing and maintaining computer software, hardware as well as information systems that are needed today. It is concerned with the design and construction of computers and computer-based systems. It is a very broad discipline which addresses the relationship and interaction between software and hardware in solving real engineering problems. It involves the study of hardware, software, communications, and the interaction among them.

Graduates of this programme will be expected to have acquired:

- foundations and necessary knowledge and skills, to practice as computer engineers;
- ability to think critically, analyse and use computation skills to solve problems related to both fields;
- enough understanding of the ethical and global issues associated with the computing world;
- the necessary competence and knowledge for advanced studies (graduate or post graduate);
- analytical and problem solving skills that will help them apply computation solutions to real world problems; and
- skills in leadership and innovation in the Computing and IT field.

CAREER OPPORTUNITIES

Graduates from this programme can assume any of the following roles in the society depending on one's area of specialisation.

Computer Engineer	System Administrator	Software Engineer
<ul style="list-style-type: none">• Application Programmer• Systems Analyst• IT Professor/Teacher• IT Expert• Multimedia Expert	<ul style="list-style-type: none">• Systems Programmer• Computer Communication Expert• Database Manager/Administrator• IT Manager• Webmaster / Web Designer	<ul style="list-style-type: none">• Network Administrator• IT Security Officer• Technology Officer• E-Commerce Solution Provider

CAREER OPPORTUNITIES Graduates of this programme work in the following companies, institutions and firms:

- IC design companies
- Network equipment companies
- Network providers companies
- Data centres of finance companies
- Any companies that need networking skills to plan or operate their networks
- Software development companies
- Education and technology transfer institutions
- Public and private sector on Research and Development (R&D)
- Technology consulting firms.

DIPLOMA IN COMPUTER SCIENCE

This programme is intended to provide the basics of computers to students and train them to become full technicians in IT and semi-professionals in computing.

Graduates of this Programme will be expected to have attained:

- basics and fundamentals of computing;
- basics of design, implementation and maintenance of computer communication systems;
- basics of how to develop, support and maintain basic software;
- enough knowledge to enable them pursue further studies (at degree level); and
- the necessary competence to perform duties as full technicians who can practice ethical values in providing services to the recipient.

CERTIFICATE IN COMPUTER SCIENCE

This programme is intended to provide the basics of computers to students and train them to become basic technicians in IT.

Graduates of this programme are expected to be experts in:

- the basics and fundamentals of computing;
- performing duties as semi-technicians who can practice ethical values in providing services to the recipient; and
- skills and knowledge enough to pursue further studies (at diploma level).

B. SC. IN TELECOMMUNICATION ENGINEERING

Development in the telecommunications industry, which is coupled with the ever-growing use of telecommunications systems in Tanzania and worldwide, calls for new areas of specialised competence and skills in the engineering profession. This programme aims at training students to become telecommunication engineers that have the knowledge, skills and ability of designing, implementing and maintaining the telecommunication systems that are needed in this world.

Graduates of this programme will be expected to have acquired the following competencies:

- Solid foundation in the basic sciences, engineering mathematics, and general electrical engineering, which are the foundations to practice as a telecommunication engineer.

- Ability to think critically, analyse and use telecommunication skills to solve problems related to both fields.
- Enough understanding of the ethical and global issues associated with the telecommunication world.
- Knowledge and skills needed for advanced studies (graduate or post graduate).
- Analytical and problem solving skills that will help them to apply telecommunication solutions to the real world problems.
- Leadership and innovation qualifications in the telecommunication world.

CAREER OPPORTUNITIES

- Graduates have the opportunity of working in the following places: Government agencies (Ministry of Communication, Science and Technology; Regulation and Policy formulation; COSTECH; TCRA; TTCL, etc.)
- Mobile Companies
- Internet Service Providers (ISPs)
- Television Stations (Transmission Engineers)
- Railways (Communications Engineers)
- Universities and research laboratories
- Private and Government Agencies (ICT support)

B. SC. IN ELECTRONICS SCIENCE AND COMMUNICATION

Economic prosperity of society depends on its ability to compete effectively in the constantly changing national and global markets. Industries have to exploit opportunities offered by new technologies to remain competitive. Employers need a creative and innovative workforce equipped with knowledge, skills, and understanding to face these challenges effectively and efficiently. This programme has been designed to produce graduates who will satisfy the needs of employers as well as engage in self-employment, in the 21st century in the electronics and communication fields. The graduate from this programme will be able to meet challenges of the job market or industry. The programme also addresses national needs articulated through various higher and technical education policies.

Graduates of this programme will be expected to have acquired:

- appropriate basic practical skills and proper utilisation of electronics and telecommunication systems and accessories;
- thorough understanding of the fundamental principles associated with engineering applications;
- initiatives, imagination, perception and confidence sufficient to cope with new situations, problems and ideas by critical analysis of situations, synthesis of practical solutions and application of new idea;
- potential knowledge for creative and critical thinking, including critical self-awareness; and
- ability to communicate with members of any organisation at the same, higher and lower levels of expertise or responsibility.

CAREER OPPORTUNITIES

Graduates have the opportunity of working in the following places:

- Government agencies (Ministry of Communication, Science and Technology; Regulation and Policy formulation; COSTECH; TCRA; TTCL, etc.)

- Mobile Companies
- Internet Service Providers (ISPs)
- Television Stations (Transmission Engineers)
- Railways (Communications Engineers)
- Universities and research laboratories
- Private and Government Agencies (ICT support)

COLLEGE OF HUMANITIES (COHU)

CASS offers many and varied degree programmes which are constantly revised with the aim of offering more specialisation while exposing students to new paradigms in their respective disciplines, as summarised in the following sections

COLLEGEWIDE PROGRAMMES

BACHELOR OF ARTS WITH EDUCATION (SHARED WITH COLLEGE OF SOCIAL SCIENCES)

This is a three year degree programme that aims at preparing graduate teachers. The degree programme equips the graduates with skills and knowledge on various disciplines including Kiswahili, Geography, Economics, French, Linguistics, English Literature, History, and Political Science. Furthermore, graduates in the B.A. (Education) programme are equipped with skills and knowledge on Curriculum Design and Implementation, Teaching Methodologies, as well as skills in Education Management and Administration.

SPECIALISATIONS IN B.A. EDUCATION DEGREE PROGRAMME

Students enrolled in the B.A. Education programme are required to take two teaching subjects (content courses) and Education courses. Therefore, the degree programme produces teachers specialised in two of the following courses or subjects:

- Geography
- History
- Economics
- Kiswahili
- French
- Political Science
- Literature
- Linguistics
- Fine and Performing Arts

CARRIER PROSPECTS

Basically, the B.A. (Education) degree programme produces graduate teachers who can be employed in teaching institutions including schools and colleges. They can also work with government institutions and research institutions that deal with education matters.

DEPARTMENT OF CREATIVE ARTS

B.A. IN THEATRE ARTS

The Programme is oriented towards training students who will facilitate in the development of the Nation in general and theatre arts in particular. Emphasis will be on the applied use of theatre practices, knowledge and skills for the development of Tanzania and the globe at large. Hence, the

programme blends the learning of theories and factual information from the very start to let the student learn while doing.

CARRIER PROSPECTS

It provides sufficient knowledge and skills for self-employment in the market of theatre industry such as acting for stage, stage play writing, theatre production, and stage directing. Also the programme provides an opportunity for being employed as a cultural officer in public sector, and a teacher of Theatre subject in government and private schools.

B.A. IN ART AND DESIGN

The Art and Design programme is aimed at preparing students who will work skilfully and professionally in the area of art and design. In this sense, the training will be strongly based on the development of both theoretical knowledge and practical skills in art and design. Such training will have ample inputs in the social, cultural and economic development of the nation. Graduates of Bachelor of Arts Degree in Art and Design will have well developed skills in:

- a) Drawing, Painting, Sculpture and Printmaking. Other emphasis will be on designing skills and software application.
- b) The development and creation of design solutions for both the industry and individual requirements.
- c) Managing, administering and promoting Art and Design production.

CARRIER PROSPECTS

It provides sufficient knowledge and skills for self-employment in the market of creative products such as textiles, jewellery, artefacts of painting, sculpture, drawing and media related design. Also it is an opportunity for being employed as a cultural officer in public sector and a teacher of Fine Art subject in government and private schools

B.A. IN MUSIC

The Programme has an orientation towards providing training to students to serve the Nation through Music Industry, for example, filling job requirements in the creative production/performance of music and the applied use of music-culture knowledge and skills for the development of Tanzania and the globe at large. The programme has a 'minds-on' approach, the learning of theories and factual information that from the very start combines with a 'hands-on' approach where the student is doing while learning.

Graduate of Bachelor Degree in music will have well developed skills:

- a) For creating music
- b) For performing music
- c) For analyzing music works
- d) For gathering music, evaluating and presenting findings

- e) For documenting and preserving musical traditions of Tanzania and the globe at large.

CARRIER PROSPECTS

It provides sufficient knowledge and skills for self-employment in the market of music industry such as songs composing, studio recording, keyboard playing, guitar playing, singing, conducting, brass instrument playing, drumming, performance analyzing, music researching and documenting. Also the programme provides an opportunity for being employed as a cultural officer in public sector, and a teacher of Music subject in government and private schools.

B.A. IN FILM AND TELEVISION STUDIES

Individuals studying in the Programme will be absorbed in the creative industries with specific focus in film production, acting, directing, writing, financing, marketing, distribution and exhibition. Emphasis will be on the applied use of film, knowledge and skills for the development of the film industry in Tanzania and beyond. Hence, the programme blends the learning of theories and practice information from the very start to let the student learn while doing. Graduates of Bachelor of Arts Degree in Film and Television will have well developed skills in:

- a) Acting, screenplay writing, production designing, producing, directing, editing, and cinematography.
- b) The analysis of film and the production processes.
- c) Writing, producing, editing, and marketing their own original works.
- d) Adopting stories from other literary forms such as short stories, novels, plays, etc. into films.
- e) Managing production companies.

CARRIER PROSPECTS

It provides sufficient knowledge and skills for self-employment in the market of film and television industry such as acting, screenplay writing, video-film production, directing, cinematography, editing, and distributing. Also it is an opportunity for being employed as a cultural officer in public sector and as a presenter in government and private Televisions.

DEPARTMENT OF FOREIGN LANGUAGES AND LINGUISTICS

B.A IN LANGUAGE STUDIES

The Bachelor of Arts in Languages (BALS) is a three-year programme that aims at preparing graduates with a wide range of skills and knowledge in languages and linguistics. Students registered for BALS study two languages chosen from English, French and Kihwahili or they may choose to study one language and a specialisation in Linguistics.

Depending on the specialisation students prefer, they will undertake advanced skills, in both English and French, such as listening, reading, speaking and writing, English and French semantics, phonetics and phonology, English for business communication, English Pragmatics, English Rhetoric, Second Language Acquisition, Discourse Analysis, Francophone Literature, Functional French, Translation and Interpretation (Kiswahili / English / French), Linguistic Structure, Critical Chinking and Argumentation, Sign Language and Editing. German language is also offered an a series of elective courses.

CAREER PROSPECTS

Graduates in BALS have access to a wide labour market, both in public and private sectors. In the public sector the programme opens up opportunities in language teaching and training, coordination of language programmes, development of English as Second/Foreign language content, computational linguistics, lexicography and dictionary compilation, and government careers such as information officers, public liaison officers and cultural officers in ministries and government agencies. In the private sector the programme opens up opportunities in technical writing, publishing, editing, consultancy, and corporate communication. The following matrix provides a summary of areas where a student with a degree in language studies can seek employment.

AREAS	EMPLOYEE AREA	EMPLOYERS	STRATEGIES
Business	Sales, Management, Human Resources/Personnel, Labour Relations, Public Relations, Customer Service, Training and Development, Writing/Editing, Consulting, Negotiator/Mediator	Business, Industry, Corporations, Consulting firms, Hospitality industry, Travel Organisations, Airlines	Develop strong verbal and written communication skills. Demonstrate excellent interpersonal skills. Participate in activities to build team-player skills. Master's degree in Communications/Linguistics required for some positions.
Publicity/ Public Relations	Publicity, Advertising/Marketing, Lobbying, Corporate Public Affairs, Media Analysis/Planning, Creative Directing, News/Informational Writing, Audience Analysis, Public Opinion Research	Private corporations, Public service organisations, Public opinion research firms, Public relations firms, Advertising agencies, Public opinion organisations, Radio and television companies, Sports and entertainment organisations, Hospitality and tourism industry, Non-profit organisations, Publishing firms, Consulting organisations	Develop excellent writing skills. Complete practical training in area(s) of interest. Serve as public relations officer of organisation. Develop portfolio. Join related professional association(s).
Media	Writing, Editing, Copywriting, Public Relations, Script Writing, Publishing, Managing/Directing, Research	Television and radio stations, Film industry, Publishing firms including newspaper, magazine and book	Develop excellent interpersonal and presentation skills. Take optional courses in Journalism, Broadcasting, Public Relations and Advertising.
Social and Human	Community Affairs, Recreation, Advocacy,	Local and national levels of government, National	Learn local, state and federal government job application

AREAS	EMPLOYEE AREA	EMPLOYERS	STRATEGIES
Services	Writing/Editing, Counselling	programmes, Community centres, Non-profit organisations	process. Take courses in counselling techniques. Volunteer with community/campus organisations.
Government	Public Information, Campaigns, Programming, Research, Elected Official, Lobbying, Conflict Resolution	All branches of local and national government, Political parties, Legislative offices and committees	Learn local, state and federal government job application process. Take courses in conflict management and develop skills.
Medical	Administration, Grant Writing, Public Relations, Training, Publications Editing, Health Communication, Research	Medical schools, Hospitals, Health care facilities	

At postgraduate level, candidates can specialise in linguistic analysis, English language Teaching, translation, interpretation, mass communication and speech communication.

DEPARTMENT OF HISTORY

The Department of History is one of the oldest establishments at the University of Dar es Salaam. Upon its creation in 1964 the department boasts the footmarks and influence of renowned historians of Africa, such as Terrence Ranger, John Iliffe, Walter Rodney, Isaria Kimambo, Arnold Temu, Ernest Wamba-dia-Wamba, Abdul Sheriff, Frederick Kaijage, Kapepwa Tambila, Yusufu Lawi, and Eginald Mihanjo, to mention just a few. A combination of scholarly initiatives and an enabling social context in 1960s and 1970 resulted in the development of the much-acclaimed Dar es Salaam School of Historiography. The Department continues this tradition today. It is the best Department of History in Tanzania which is internationally recognized for its excellence in the teaching, creation and dissemination of historical knowledge. Its human resource strength is rapidly growing based on high quality staff training at postgraduate and post-doctoral levels. The number of academic staff members now stands at 10 PhDs and 11 MAs.

The Department offers two undergraduate degree programmes, namely:

1. BACHELOR OF ARTS IN HISTORY
2. BACHELOR OF ARTS IN HISTORY AND POLITICAL SCIENCE

BACHELOR OF ARTS IN HISTORY

The Bachelor of Arts in History, BA (History), is a three-year programme that aims at preparing graduates with a wide range of knowledge, skills and competence in History. The rationale for studying this programme is that genuine knowledge of any reality entails grasping its historicity by understanding the conditions, agencies and mechanism by which it became what it is. In studying history one comes into grips with this reality about the true nature of human existence and experience, whether economic, social or political. Guided by this conception, the Department of History offers a variety of courses in the BA (History) programme designed to provide an understanding of how and why Africans in particular and humanity in general became what they are today. They explore the changing interactions and connections between Tanzania, Africa, and the world. In addition, they highlight selected human past experiences and relate them to our present circumstances. In brief, the BA (History) programme takes stock of the past in the effort to understand the present and thus improve our capacity to address the challenges posed by our present day circumstances. Learning History gives students abilities to gather and interpret large amount of data, develop clear and feasible projects, communicate persuasive arguments, recreate plausible scenarios based on clues from the past, and define the cultural and historical contexts of institutions, whether public or private. These important skills make historians employable in public and private institutions all over the world.

CAREER PROSPECTS

Students in B.A. in History learn the knowledge, skills and competencies that are transferable and applicable to the following employment opportunities:

- i. Working as professional cultural heritage tour guides;
- ii. Working in private and public historical museums;
- iii. Working in archives;
- iv. Working in intelligence and security institutions;
- v. Working in the foreign affairs and service;
- vi. Working as cultural officers in public and private institutions;
- vii. Carrying out consultancy works for public as well as private institutions using historical insights in operating their businesses;
- viii. Pursuing further studies to become university as well as college lecturers and researchers;
- ix. Teaching of History and General Knowledge at College and High School levels; and
- x. Creation, development, and management of archives and historical museums

BACHELOR OF ARTS IN HISTORY AND POLITICAL SCIENCE

The Bachelor of Arts in History and Political Science, BA (History and Political Science), is a three-year programme that aims at preparing graduates with a wide range of knowledge, skills and competence in History and Political Science. This programme brings together historical analysis and the science of politics and public administration. Studying the interplay between history and political science deepens an understanding of the essence of humanity and enhances capacity to deal with current challenges facing humanity and human relations, nationalism and nation building, changing international relations, diplomacy, and global peace and security. The programme empowers graduates with the knowledge and skills to articulate the existing political situations, public administrative challenges, international relations and diplomatic dynamics as historical processes. It

prepares a cadre of specialists who will have the competencies to interpret politics, public administration, and to place international relations in their proper historical contexts and subsequently to produce correct knowledge/analyzes/interpretations about those issues based on concrete historical precedence.

CAREER PROSPECTS

Students in BA (History and Political Science) learn the knowledge, skills and competencies that are transferable and applicable into the following employment opportunities:

- i. Working as professional historians
- ii. Working as political scientists and public administrators
- iii. Working in defence, security and intelligence institutions
- iv. Working as historians and political scientists in national and international institutions/organizations
- v. Working as cultural officers in public and private institutions
- vi. Teaching History and General Studies in schools and colleges
- vii. Working in foreign and international relations
- viii. Pursuing further studies to become university lecturers in History or Political Science
- ix. Working in political and administrative positions as experts and advisors
- x. Working as researchers and consultants in historical, political science, and public administration related projects
- xi. Working in cultural heritage institutions such as archives, cultural tourism and historical museums
- xii. Working in the field of media and journalism to provide historically and critically informed opinion on matters of history, politics, nation building, and international relations

DEPARTMENT OF ARCHAEOLOGY AND HERITAGE STUDIES

The Department of Archaeology and Heritage studies offers undergraduate degrees as well as non-degree programmes.

Non-Degree Programmes include:

- Certificate in Heritage Management and Tour Guidance (1 years)
- Diploma in Heritage Management and Tour Guidance (2 years)

Undergraduate Degree Programmes: include:

- B.A. Archaeology (3 years)
- B.A. Archaeology and History (3 years)
- B.A. Archaeology and Geography (3 years)
- B.A. Heritage Management (3 years)

CAREER PROSPECTS FOR GRADUATES IN ARCHAEOLOGY AND HERITAGE MANAGEMENT STUDIES

Majority of our graduates work as:

- Career opportunities for Archaeology and Heritage Management majors as well as minors include the following:

- cultural officers,
- field coordinators,
- archaeologists,
- palaeontologists,
- ethnographers,
- environmentalists,
- researchers,
- museum curators,
- cultural and heritage tour guides,
- heritage conservators
- heritage consultants,
- cultural tourism officers,
- managers in tourist attractions.
- researchers and lecturers (in academic institutions in Tanzania, Africa and beyond).
- Above all, some graduates have become entrepreneurs by establishing cultural centres, heritage tour companies, as well as consultancy firms mainly undertaking cultural heritage impact assessment (CHIA), which is a requirement prior to any land development project in the country.

DEPARTMENT OF LITERATURE

B.A. IN LITERATURE

Our country's academic sector is faced with many challenges such as multiplication of poorly edited text books in both secondary and primary schools, insufficient number of literature teaching staff in secondary schools, low level of verbal ability among primary, secondary and college graduates and lack of confidence in writing and analysing both the written and spoken word.

B.A. in Literature is a three-year programme that can contribute immensely to solving these challenges. A good number of English texts published for use in both primary and secondary schools' curricula need thorough editing. Many youths who assume leadership responsibilities in different fields and sectors need to develop their level of verbal ability to enable them to participate in local, regional as well as international fora and discussions with more confidence. The programme provides graduates with connections to a wider range of courses such as Drama, Theories of Oral Literature, Professional Communication and other kinds of social cultural enquiry. Graduates are prepared to be useful citizens of their country, proud of their own culture and who respect socio-cultural differences of others. The programme draws on a variety of texts and approaches aimed at bracing graduates with necessary skills and talents ready to face the 21st century global challenges with vigour.

CAREER PROSPECTS

B.A. in Literature graduates who take advantage of the skills and talents obtained during the programme may have opportunities in various careers such as:

- Teaching literature in secondary schools and colleges (after a one year postgraduate diploma)

- Educational Publishing and Editing
- Advertising
- Copy Writing
- Web Writing
- Working on behalf of authors of plays to get the plays published using reading and analysis skills acquired
- Working in the Media - TV and Radio (Professional Communication)
- Standing in as Literary agency.

PHILOSOPHY UNIT

MINOR IN PHILOSOPHY AND POLITICAL SCIENCE AND PUBLIC ADMINISTRATION AND MINOR IN PHILOSOPHY AND SOCIOLOGY

Philosophy seeks answers to such fundamental questions as: What is ultimately real? What is the nature and extent of our knowledge? What is the source and nature of our moral obligations? Students majoring in Philosophy explore these types of questions and develop answers that can be defended in the arena of reasoned controversy. Philosophy covers many areas of human experience, including the study of reality, existence, logic, and moral and social issues.

Philosophy graduates pursue careers in business, education, government, and the non-profit sector. Future career options may be determined not so much by the choice of the philosophy major, but by interests, skills, values, and types of work experiences acquired during university education.

Regardless of career aspirations, marketability to employers come through internship, related work experience, good grades, advanced coursework, and involvement in campus activities. Many careers do not require a specific major, but rather a wide range of demonstrated skills, accomplishments, and work experience while at university – and Philosophy provides that, to a large extent.

MINOR DEGREE IN PHILOSOPHY UNIT

This is a three-year minor degree with Political Science and Public Administration and Sociology combinations. The programme allows student to graduate with two degrees in one, and for the major part it enhances their capacity for deep reflective and philosophical thinking. The students in this programme study a wide array of courses including Critical Thinking Argumentation, Metaphysics and Epistemology, Modern Philosophy, Moral Ethics, Professional Ethics, Philosophy of Religion, Philosophy of Mind and African Philosophy.

CAREER PROSPECTS

There are many career opportunities in the job market, some of which include the following: admissions counsellor, employee relations officer, paralegal officer, professor/educator, psychologist, public information officer, copy writer, public relations specialist, corporate trainer, public service official, editor/writer, social worker, etc.

A full degree programme will replace the minor degrees in 2014. The Unit now offers departmental service courses.

COLLEGE OF SOCIAL SCIENCES (COSS)

DEPARTMENT OF ECONOMICS

The Department of Economics (DoE) offers programmes at Undergraduate, Masters and PhD levels. Currently, the department offers two Bachelor degree programmes, as summarised in the following sections:

B.A IN ECONOMICS AND B.A IN ECONOMICS AND STATISTICS

The core courses offered at the department include Microeconomics, Macroeconomics, Quantitative Methods and Econometrics. Others include Monetary Economics, Public Finance, Economic Policy, Planning and Programming, Environmental and Natural Resources Economics, Labour Economics, Industrial and Production Economics, Development Economics, Agricultural Economics and International Economics. Every academic year, more than 500 students are registered to study various economics courses at the department.

EXPERIENCE

The experience of the Department of Economics in central/national, sectoral, and LGA planning processes is unparalleled. The Department (or its staff members individually) have been actively working with the government in various assignments, including the preparation of the following:

- Tanzania's Development Vision 2025
- Poverty Reduction Strategy Papers
- Partnership for Growth (2011)
- Five-Year Development Plan
- Long-term Perspective Plan
- Big Results Now (BRN) Labs.

The department also supports the teaching of economics courses in other departments within the University of Dar es salaam. In this case, either students from other departments register for the economics courses offered at the department or sometimes staff from the department go and teach economics-related topics in other departments offering courses with elements of economics. Students registering for economics courses come from other departments including Computer Science, Mathematics, Statistics, Geography and Education. Departments where staff from the department offer economics-related courses include Zoology and Wildlife Management, UDSM Business School and the Institute of Resource Assessment (IRA).

CAREER OPPORTUNITIES

Most graduates from the Department of Economics are employed either in the public and private sectors. There is big high demand of economics graduates in all areas of economics and this has been attributed to the implementation of economic liberalisation in the country. Our graduates are demanded in most sectors such as financial enterprises, agriculture, environment, natural resources,

education, health, labour and many other service-related sectors. Specific institutions with employment opportunities to most graduates include Tanzania Revenue Authority (TRA), Bank of Tanzania (BOT), all commercial banks, Pension Funds, Capital Market, Dar es Salaam Stock Exchange, National Bureau of Statistics (NBS), and many other government agencies. In addition, graduates from the Department of Economics are employed by NGOs dealing with economic research such as the Economic and Social Research Foundation (ERSF), and Research on Poverty Alleviation (REPOA). Graduates are also employed by higher learning institutions as academic staff. Such institutions include the Institute of Finance management (IFM), College of Business Education (CBE), University of Dodoma, and Ardhi University. Others may decide to become self-employed, by opening private consulting firms in economics-related matters.

DEPARTMENT OF GEOGRAPHY

Geography is a practical and spatial science discipline. It describes, explains and analyses the spatial associations of human activities on the surface of the earth. The Department of Geography offers a B.A. (Geography and Environmental Studies - BAGES) degree programme, which builds students' knowledge and skills in the fields of Physical and Human Geography.

B.A. IN GEOGRAPHY AND ENVIRONMENTAL STUDIES (BAGES)

This is a three-year degree programme that focuses on nature-society interactions, distribution and management of physical and human resources, and techniques of geographical analysis. The degree programme is tailored to equip graduates with pertinent skills to identify, describe, explain, analyse, and present problems and solutions related to the development process. The BAGES degree programme ensures a strong product that meets the aspirations of students, demands of employers and knowledge advancement in environmental issues at local, national, regional and global levels.

CAREER OPPORTUNITIES

Graduates in BAGES are eligible for employment in a wide range of professions associated with development planning, especially in the assessment, management and conservation of natural /environmental resources; and the teaching career. Employment opportunities include, among others, environmental officers, urban planning, rural development and settlement planning, land use planning, water resources, forestry, GIS and remote sensing specialists and teachers in secondary schools and colleges of education.

Graduates from the Department of Geography find employment in government institutions, NGOs, private sectors, research and higher learning institutions, and some are self-employed. There are also research and training opportunities locally and abroad in the fields of Eco-environmental Tourism, Environmental Economics, Urban and Regional Planning, Agricultural Development, and Geographical Information Systems (GIS) for regional and urban planning.

SERVICE TO OTHER DEGREE COURSE PROGRAMMES

The Department of Geography offers service to other degree programmes. Some students pursuing the Bachelor of Arts in Education (B.A. Education) degree programme, in the College of Arts and Social Sciences; Bachelor of Science with Education (B.Sc. Education), in the College of Natural and Applied Sciences (CoNAS); and Bachelor of Education (B.Ed.) degree programme, in the School of

Education select Geography as their teaching subject and therefore take courses in the Department of Geography.

DEPARTMENT OF POLITICAL SCIENCE AND PUBLIC ADMINISTRATION

The Department of Political Science and Public Administration is one of the oldest and largest departments at the University of Dar es Salaam. The department offers various undergraduate and graduate degree programmes. At the undergraduate level it offers a Bachelor's degree in Political Science and Public Administration.

Political Science is the study of political behaviour, governance and power relations and how these are shaped by institutional settings, and by the ideas, interests and resources of political actors. It is about the authoritative allocation of resources and values, and conflict management and resolution. Political phenomena happen at all levels: personal, local, sub-national, national, regional, and global. Politics is about who gets what, when, how and why.

International Relations, which is a sub-discipline of Political Science focuses on politics at the transnational or global level. Other important sub-disciplines of Political Science include Public Administration, Organisation Theory, Human Resources Management, Public Policy, Comparative Politics, Political Economy, and International Political Economy. The discipline of Political Science employs a diversity of approaches and different theoretical and analytical traditions.

CAREER PROSPECTS

An undergraduate major in Political Science develops the ability to understand, investigate, and analyse political phenomena. The study of Political Science will equip students with transferable skills for careers in areas such as the following:

- Government institutions (local, state, national, and international)
- Foreign and international affairs
- Secondary and tertiary education
- Intelligence and security
- Journalism and the media
- Civil society organisations
- Business
- Policy advocacy
- Policy design and analysis
- Political and social research
- Political advisors
- Politics
- Public relations and lobbying

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

Sociology as a discipline focuses on "Critical Science of Society". The subject matter is on development, structure and functioning of human society and social problems. Society is ever changing hence it calls for a critical mind to study, understand, predict future trends and get prepared for them. Research and Planning are therefore major arms of Sociology.

The sister and older discipline to Sociology is Social Anthropology. The latter is concerned with the study of mankind, especially its societies and cultures. There is also Biological Anthropology which is the study of the structure and evolution of the human being. Both Sociology and Anthropology attempt to formulate definite suppositions concerning the relation between human groups, societies and cultures.

The training in the subjects of Sociology and Anthropology involves the study of Research Methods and Techniques used in sociological research. This is the kind of knowledge which can guide students of sociology in studying, analysing and presenting coherently human development and laws and problems pertaining to social events and progress of society. The disciplines of Sociology and Anthropology are in themselves interesting and intellectually worth their while.

B.A. IN SOCIOLOGY

The Department of Sociology offers a variety of courses within a broad area of options depending on the interests of students. The areas of option-cum-specialisation covered are:

- Health and Population Studies
- Social Policy and Administration
- Community Development
- Labour and Industrial Relations

Undergraduate students may wish to know that while the arrangement of the courses offered in the Department of Sociology takes into consideration the trend of the job market, it does not compromise the quality of the standards.

CAREER PROSPECTS

While the job market is very competitive, there is a heavy sociological input in the following sectors:

- Social Administration
- Industry (especially Personnel Management and Organisation of Labour)
- Trade Unionism and settling of labour disputes
- Social Work
- Welfare services
- Research and particularly related to:
 - Urbanisation and industrialisation
 - Health and family issues
 - Gender division of labour
 - Housing
 - Education
 - Employment
 - Environment
 - Poverty and poverty alleviation

Furthermore, Sociology offers job opportunities in Social Planning, Industrial Organisation, Civil Service, Journalism, Personnel Welfare, Counselling, Community Work and in NGOs.

Areas that are most likely to draw sociologists after successful academic training and scholarship include:

- Community Development, Women and Children Affairs
- Labour and Youth Development (Department of Social Welfare)

- Home Affairs
- Foreign Relations
- Education Institutions
- Rehabilitation Centres
- Correctional Institutions
- Defence and National Service
- Research Institutions
- Non-Governmental Organisations
- Development Trust Funds and Development Associations
- Teaching Options (e.g. Rural Sociology, Medicine (Medical Sociology and Anthropology), Military Sociology, Social Work, Community Development and Journalism).

In the last analysis, the recent resurgence of Non-Governmental Organisations (NGO's) has opened another wide area for employment and research for sociologists. In these organisations, sociologists and anthropologists are employed as social administrators, development experts, community workers, researchers, etc.

B.A. IN SOCIAL WORK

Social Work as a profession is in high demand now than ever. It aims at promoting social change solving problems in human relationships, working on empowerment and liberation of people to enhance wellbeing, intervening at points where people interact with their environments, helping millions of people challenge their circumstances and change their lives, and pushing institutions to value and support persons in need. The programme also aims at preparing social workers who are informed and effective leaders in challenging injustice and promoting social and economic change.

CAREER PROSPECTS

Social work is one of those careers in which a graduate can truly make a difference in people's lives. The programme can open many doors. Graduates have not only the knowledge and the skills, but also the compassion and dedication necessary to work in such an important field. There are many positions a graduate with a Bachelor of Social Work degree can fulfil, but here are five of the most popular social work careers: *Medical/Public Health, Fight Against Substance Abuse, Mental Health, Child and Family Welfare and School Social Work*.

B.A. IN ANTHROPOLOGY

The main goal of the Bachelor of Arts in Anthropology Programme is to prepare students for life, work, and research in diverse local communities, in a knowledge-and information-based economy, and in a world that is highly interconnected. Thus, the programme is designed to train and produce dynamic professionals who are competent and skilful to understand and promote the wellbeing of the people. Using the unique anthropological holistic approach, graduates in Anthropology will be prepared to better approach the social, economic and political issues.

CAREER PROSPECTS

The programme train graduates who are not only sensitive, but also observe, commit and apply skills and tools acquired to an array of roles in the realm of employment, thereby contributing directly or indirectly to the development of nation. There is a huge need for anthropologists in the country and therefore employable in various institutions especially in research on development matters.

DEPARTMENT OF STATISTICS

B.A. IN STATISTICS

The discipline of Statistics deals with the collection, presentation, analysis and interpretation of data. Socio-economic, cultural, political, environment, health, and military planning for development need Statistics. It is a cross-cutting discipline for the survival of humankind. There is a saying that 'no statistics, no talking' which is a slogan that features in many fora. One needs statistics in order to convince one's authority to allocate adequate funds for intended recurrent and development undertakings.

In order to acquire statistical knowledge, one is impelled to study the Bachelor of Arts in Statistics degree offered by the Department of Statistics at the University of Dar es Salaam. The programme consists of different sub-disciplines including:

- Operations Research, for decision making;
- Sampling Techniques, for survey;
- Regression Analysis, for relationship establishment among factors;
- Computing, for data management;
- Questionnaire Design, for the construction of research instruments;
- Probability, for the uncertainty world;
- Demography, for population studies;
- Quality Control, for quality management; and
- Design of experiments.

The programme takes three years divided into six semesters. Students are exposed to practical use of statistics during their training. A number of courses have been re-organised in order to produce graduates with the required qualifications to meet the current labour market demand.

CAREER PROSPECTS

Bachelor of Arts in Statistics graduates secure jobs in various government departments (Central and Local governments), higher learning institutions, Non-Governmental Organisations (NGOs), Parastatal Organisations, and private enterprises. A good number of our graduates have been able to establish their own private data management firms which offer consultancy services locally and internationally. For someone who wants to graduate as a statistician, the Department of Statistics is the right place to study.

B.A. IN PSYCHOLOGY

Psychology is the scientific study of behaviour and mental processes in both human and nonhuman animals. Psychologists are interested in how people think, feel and act – from interactions between neurons to interactions between people. As a field of study, psychology spans a variety of subjects from biology to sociology, and is one of the rapidly growing scientific fields in the world.

CAREER PROSPECTS

Given the diverse nature of the psychology field, psychologists work in a variety of settings independently, as well as in teaming up with other professionals. Typically, psychologists work in hospitals, schools, human resource, engineering, law, courtrooms, community, prisons, corporate offices, universities, etc. For example, psychologists work with patients to help them change behaviours that have negative effects on their physical health. Psychologists also work with businesses to reduce employees' stress and increase performance. They work with schools to improve teaching and learning processes, as well as improve children's behaviour. Psychologists work with victims to help them recover from trauma or shock following a disaster such as bombing, car accidents, train crash, etc. Psychologists also work with law enforcements agents to analyse causes of criminal behaviours and help in designing strategies to prevent their recurrence.

B.A. IN LIBRARY AND INFORMATION STUDIES

The main objective of the programme is to train students with advanced knowledge at a bachelor's level in Library and Information Studies to enable them to work in libraries and information/documentation centres as managers. The programme will develop professional information workers with the knowledge and skills at this level who are critical, proactive and adaptive in meeting the information needs of the organizations and individuals in different contexts in the society.

BACHELOR OF COMMERCE IN ACCOUNTING

This is a three-year degree programme which is tailored to cover a wide range of accounting issues. This programme aims at creating graduates who have good understanding of Accounting, Finance, Management and other issues related with accounting such as Taxation, Auditing, Corporate Governance, Corporate Social Responsibility as well Forensic Accounting. Studying Bachelor of Commerce in Accounting exposes students to excellent education in all areas of teaching and learning, student progression and educational resources, as commended by employers and best performance in professional examinations. The graduates from this department have consistently been the best performers in professional examinations conducted by the National Board of Accountants and Auditors for award of the status of Certified Public Accountant (CPA).

The reputation of the department has been further enhanced through our research in the areas of Financial Reporting, Accountability and Governance, Taxation, Public Assets Management, Pension Funds Management, Auditing in the Public Sector, Auditor Liability in Emerging Economies, Accounting in Small and Medium Scale Businesses, Corporate Governance, Corporate Social Responsibility and Accounting Information Systems.

CAREER PROSPECTS

The Bachelor of Commerce in Accounting degree programme intends to provide the labour market with graduates that are competent in accounting issues. Graduates from this programme are eligible for employment in a wide range of sectors including Ministries, Government Agencies, Local Government Authorities, NGOs, Auditing/Accounting Firms, Banks and many others. In addition, the course offers the opportunity for self-employment. .

Graduates of this programme are expected to have acquired:

- fundamental concepts of accounting;
- ability to think critically, analyse and use accounting skills to solve field-related problems;
- basics of design, implementation and maintenance of accounting information systems in all types of organisations;
- enough understanding of the ethical and global issues associated with accounting and management;
- enough understanding of contemporary issues of accounting such as forensic accounting, corporate governance and corporate social responsibility;
- adequate foundation for further studies (both professional qualification and postgraduate studies); and
- skills in leadership and innovation in the fields of accounting, auditing and financial management.

BACHELOR OF COMMERCE IN FINANCE

The programme aims at training students in the field of finance and therefore enabling them to carry out financing and investment decisions in profit and non-profit oriented organisations whether operating at local or global level. Furthermore, the programme enhances the competencies of students in carrying out financial analysis and advising management accordingly.

Graduates of this programme are expected to:

- undertake financial analysis and forecasting;
- evaluate different sources of financing and make decisions on the appropriate capital structure;
- evaluate investment projects and make investment decisions;
- advise organisations on investment and financing of cross-border business activities; and
- advise profit and non-profit oriented organisations on the management of short-term assets, e.g. cash, stock, financial securities, etc, and become the financial manager or director of those institutions.

BACHELOR OF COMMERCE IN BANKING AND FINANCIAL SERVICES

The programme aims at equipping students with knowledge that will enable them to manage finance functions, i.e. financial analysis and forecasting, financing and investment decisions undertaken by financial institutions, more specifically banking institutions. Students are also expected to acquire knowledge on the operations of the financial system, different types of banks, microfinance institutions, the financial market and their linkages with other economic activities.

Graduates of this programme are expected to:

- manage assets and liabilities of banks and other financial institutions;
- be able to manage loan portfolios;
- be able to employ different measures to prevent and control different types of risks facing financial institutions, particularly banks and microfinance institutions;
- advise organisations on investment and financing of cross-border business activities;
- manage other banking operations (lending and price setting); and
- work with financial institutions and execute finance functions in non-financial institutions/organizations.

BACHELOR OF COMMERCE IN MARKETING

This programme aims at providing basic marketing management knowledge and skills to students and therefore enabling them to become marketing managers who can professionally carry out management functions in different categories of organisations, at both local and international levels.

Graduates of this programme are expected to:

- have acquired the basic marketing management knowledge and skills necessary for professionally carrying out marketing functions in both private and public institutions; be able to dynamically assess markets for their organisations and accordingly plan and implement strategies which enhance their organisations competitive positions;
- manage with confidence, marketing and general business functions in Tanzania and elsewhere in the world; and
- become effective and efficient leaders of various institutions, both local and international.

BACHELOR OF COMMERCE IN TOURISM AND HOSPITALITY MANAGEMENT

This programme is intended to provide basic tourism and hospitality knowledge and skills to students and train them to become managers who can professionally carry out tourism and hospitality-related duties in different categories of organisations.

Graduates of this programme are expected to:

- apply their basic knowledge and skills related to tourism and hospitality management in professionally establishing and running tourism enterprises;
- become catalysts for tourism development in both the public and private sectors;
- be able to manage the tourism and hospitality industry in Tanzania and elsewhere in the world; and
- Become successful leaders in tourism and other categories of institutions

BACHELOR OF COMMERCE IN HUMAN RESOURCES MANAGEMENT

The Bachelor of Commerce in Human Resources Management programme equips graduates with the principles and practices of human resource management. It combines theoretical and practical information relating to the most important asset in organisations today – people. Human capital is arguably today's most important area required in order to achieve and sustain competitive advantage. This is based on the fact that organisations are made up of people and function through people. Without people, organisations cannot exist. It is through the combined efforts of people that material and monetary resources are effectively utilised, for attainment of goals. All activities of organisations are initiated and completed by the persons who make up the organisation. Therefore, they are considered the most important resources in organisations hence referred to as human resources. The Bachelor of Commerce in Human Resources Management therefore enables students to understand principles of carrying out different human resources activities (i.e. training, recruitment, job design, compensation, human resources and planning). These are key functions that assist the organisation to attract and retain the right, and quality employees.

Graduates of this programme are expected to:

- acquire the knowledge and skills that will enable them to perform different roles of human resource management in their organisations;
- understand the importance of diversity and the business case for the fair treatment of all people, regardless of protected class status (e.g. origin, race, religion, sex, age, etc.);
- describe and discuss current trends in Human Resources Management that influence strategic and career decisions;
- understand the challenges, trends, and activities related to current Human Resources Management in working organisations; and
- understand the dependencies between the role of the Human Resources Department and other organisational roles.

All these factors intend to produce graduates who will become successful managers and leaders in the future. The programme provides them with different skills, including: overall Human Resources Management, analytical thinking, teamwork, ethics, project planning and management, decision making, and verbal communication.

BACHELOR OF EDUCATION IN EARLY CHILDHOOD EDUCATION (BED-ECE)

The Bachelor of Education in Early Childhood Education (BED-ECE) is a three-year degree programme which aims at preparing experts and practitioners in the fields of early childhood development, care and education with a view to guiding the development and delivery of early childhood services and education in Tanzania and elsewhere in the world.

The programme specifically aims to:

- prepare teachers and practitioners for early childhood educational institutions;
- prepare experts for guiding and promoting early childhood services to meet the challenges of future development;
- generate, promote and disseminate professional information, knowledge, and skills on early childhood development and learning;
- offer parents/caregivers opportunities to support and monitor the developmental process of their children systematically and plan interventions;
- offers children the opportunity to be screened for moderate learning difficulties and handicapping conditions;
- guide the preparation of early childhood intervention services and programmes; and
- promote research and provide consultancy services in early childhood development and learning services.

CAREER OPPORTUNITIES

BED-ECE graduates have access to a variety of professional career opportunities in both the public and private sector. Child education is a growing sector in Tanzania and the government in its various policy documents such as the *Education and Training Policy (ETP) of 1995* and *Primary Education Development Plan (PEDP)* consider pre-school/pre-primary education as the beginning of the education ladder for pupils. As a result of this demand, the government has urged that in every Tanzanian primary school, a pre-school should be attached to provided 2-6 year old children early opportunity to education.

Therefore, the following are career prospects for BED-ECE graduates:

- The BED-ECE degree opens opportunities to teach in various levels of school as a professionally trained teachers. Such opportunities include pre-school teachers, kindergarten teachers, day care centres managers and college managers.
- BED-ECE provides an opportunity to carry out research work in early childhood education and study issues related to early childhood education.
- Graduates are likely to provide consultancy services in relation to early childhood education and counselling services.
- BED-ECE graduates can use the skills and knowledge to open their own private business such as day care centres and teaching facilities.

BACHELOR OF EDUCATION (PSYCHOLOGY) (B.ED. PSYCHOLOGY)

This programme aims at developing student knowledge, understanding and application of empirical research in psychology, as well as to facilitate the mastery of transferable generic essentials in a variety of work settings. The programme exposes students to multiple perspectives in psychology, including educational, biological cognitive, developmental, social and cultural orientations.

The graduates of this programme are expected to:

- acquire general understanding of the basic principles and methods of psychology as a scientific academic discipline;
- acquire and master a range of research skills in psychology – e.g. Clinical Psychology, Cognitive Psychology, Developmental Psychology, Social/Personality Psychology, Cultural Psychology and many others;
- apply psychological principles in facilitating teaching and learning in educational settings, including learning student's behaviours, special needs, learning theories, instructional designs and their reasons, classroom management, child adolescence and cognition; and
- acquire skills necessary to provide psychological community services to the Tanzanian community such as counselling, psychotherapy, screening and diagnosis and psychological testing.

CAREER OPPORTUNITIES

This Psychology degree is one of the auspicious degrees that can be used in many careers and opens wide employment opportunities to its graduates. The graduate of B.Ed. Psychology can find employment opportunities in public and private institutions. Some can be employed to perform the following responsibilities:

- Teachers – they can teach in elementary schools, primary schools, teacher training colleges and colleges.
- Social Service Specialists – they can provide social service to the community such as counselling services for government agencies and non-profit organisations.
- Career counsellors - they can be employed in schools and private institutions as career guidance officers to help people or students to decide on their career choices.
- Psychiatric technicians – they can be employed in centres that are involved in taking care of people with mental health problems or students with learning difficulties, by providing basic life skills and psychotherapy.
- Counsellors – they can offer counselling support to different organisations and NGO's dealing with drug addicts, HIV AIDS, school life and career guidance, etc.

Other career opportunities for B.Ed. Psychology graduates include: market researchers, child care workers, probation and parole officers, advertisement agents and sales representatives.

BACHELOR OF EDUCATION IN COMMERCE (B.ED.COM)

The Bachelor of Education in Commerce is a three-year programme aimed at preparing graduate teachers, educators, planners and managers in the area of Commerce. Students are registered in the School of Education in the Department of Educational Foundations Management and Lifelong Learning. Apart from taking courses in the area of Commerce Education from the Department of Educational Foundations Management and Lifelong Learning, students registered for this programme also take some specified courses (teaching subjects) from the University of Dar es Salaam Business School as well as university-wide courses, proposed in the programme structure.

CAREER PROSPECTS

The Bachelor of Education Commerce degree programme prepares graduate teachers for commerce and business related subjects for secondary schools; teachers' training colleges and other higher education and tertiary education institutions offering academic programmes in business and related subjects such as the College of Business Education, and Institute of Finance Management, etc. The programmes also prepare graduates for work and employment in financial institutions such as banks and related institutions such as human resource management organisations in Tanzania, and in the East African region.

BACHELOR OF EDUCATION IN ADULT AND COMMUNITY EDUCATION (B.ED. ACE)

The Bachelor of Education in Adult and Community Education is a three-year programme aimed at preparing specialists in the area of adult and community education and development, capable of:

- demonstrating knowledge and skills in adult and community education methods;
- designing and developing education and community-based programmes for primary and secondary school dropouts and other categories of people who may not, for various reasons, have access to formal education and training;
- using knowledge and skills learnt to enhance adult and extension outreach education as a field of study and practice;
- demonstrating ability to design, initiate and conduct research on community development needs; and
- extending knowledge and other educational resources and render possible services to the community.

CAREER PROSPECTS

The Bachelor of Education in Adult and Community Education programme prepares human resource specialised in adult and community education for managing extension/outreach programmes in various development areas. The programme also prepares district and regional adult education officers: training officers, community development officers and researchers in adult and community education. Our graduates also work as community educators, specialists in open and distance learning; programme planners, organisers, teachers and counsellors.

BACHELOR OF EDUCATION PHYSICAL EDUCATION AND SPORTS SCIENCES (B.ED.PESS)

This is a three-year degree programme which aims at providing teaching and research in Physical and Sports Sciences in order to produce competent personal capable of spearheading the development and growth of this nation. It is a multidisciplinary subject because it involves many sciences in the course of studying it. It applies both Natural Sciences such as Biology, Physics, and Chemistry in order to understand the Bio-Mechanics of movement; and Social Sciences such as Sociology, Psychology and Philosophy to relate sport to society. It is an interdisciplinary study as it cuts across both the Natural and Social Sciences and between disciplines.

CAREER PROSPECTS

Bachelor of Education (Physical Education and Sport Sciences) implements the curriculum, which mainly targets at producing Physical Education teachers, college tutors and curriculum developers in Physical Education and sports. Moreover, its graduates are employed as sports managers and

administrators in various sports organisations and as sports officers at Ward, District and Regional levels. With the increased demand for fitness, leisure and recreational activities among the different sections of the population in the country and the need for inclusive Physical Education, graduates are prepared to enter a variety of careers other than teaching and coaching and providing unique opportunities for interdisciplinary studies of Physical Education and Sports Sciences and allied subjects.

BACHELOR OF LAWS (LL.B.)

The LL.B. degree is a four-year programme. Upon successful completion of this programme, graduates are eligible to join the Law School of Tanzania for their practical legal training, subject to the arrangements approved by the Government for that purpose.

Our institution's vision is to: *"Remain a centre of excellence and a leading regional institution in training highly skilled society conscious lawyers, inspired by a quest for justice and good governance."* With this vision in mind, our curriculum prepares graduates to become world class lawyers. UDSOL graduates are normally found at the head of a variety of institutions, most notably, academia, financial institutions, government agencies, human rights organisations, in the entire East African region and beyond.

CAREER PROSPECTS

Such is the quality of our curriculum that our graduates find themselves with practically limitless career and professional opportunities, be it in the public or private sectors, national, or global. In particular, our graduates have excelled in the following areas:

- Judiciary
- Attorney General's Chamber
- Office of the Director of Public Prosecution
- Prevention and Combating of Corruption Bureau
- Private Law firms
- Human Rights Organisations
- UN and Other such like International Organisations
- Company Secretaries
- National Revenue Authorities
- Academia
- National Defence Forces, Police and Prison Services

BACHELOR OF ARTS (LAW ENFORCEMENT)

This is a three-year programme, specifically tailored to the needs of law enforcement bodies. However, admission is also granted to personnel from other stakeholder institutions. The overarching objective of the programme is to build capacity of law enforcement agencies to deal with the unique and ever mutating challenges of the fast globalising world. The B.A. in Law Enforcement programme is multi-disciplinary in content, exposing students to essentials of the Law, Political Science, Sociology, Psychology, Cyber and Computer Crime, International Crime, Transnational Crime, Fraud and Forgery, and Criminal Investigation.

CAREER PROSPECTS

The B.A. in Law Enforcement prepares graduates to assume a leading advisory capacity, attached to strategic policy making within law enforcement agencies. In particular, training targets the following key government bodies:

- Prison Services
- Police Force
- Tanzania Peoples Defence Forces (TPDF)
- National Service (*Jeshi La Kujenga Taifa*)
- Security services

CERTIFICATE IN LAW (CTL)

The Programme is run by the UDSM School of Law through countrywide accredited Certificate in Law Centres, and is in fulfilment of the age old public service duty of the institution. The duration of study is for a maximum period of 2 semesters of full time attendance. Candidates who wish to pursue the programme on a part-time basis are required to obtain special permission of the School Board.

CAREER PROSPECTS

The programme is particularly ideal for public servants whose nature of work demands knowledge of the law, but within the respective confines of one's professional duties, and also targets those who additionally, lack the qualifications necessary to join the LL.B. degree programme. Upon successful completion, CTL graduates may either join the Diploma in Law programme, or seek admission to the LL.B. Programme, if they have attained exceptionally high grades.

SCHOOL OF JOURNALISM AND MASS COMMUNICATION (SJMC)

One of the main challenge facing Tanzania today is ensuring that the communication industry is manned by highly qualified and competent personnel. It is towards this end that the SJMC offers the following degree programmes:

- Bachelor of Arts in Journalism
- Bachelor of Arts in Mass Communication
- Bachelor of Arts in Public Relations and Advertising

Each of the following strands offers our students a unique opportunity to specialise in one of the communication areas while being exposed to rudiments of related fields of study as well. Although the B.A. in Journalism programme primarily prepares graduates for the country's print and electronic as well as the now blossoming social media, it also prepares them for working in the communication as well as the public relations and advertising industry. Similarly, those graduating with degrees in Mass Communication and Public Relations and Advertising are also prepared to work in any of the three areas of concentration on offer at the SJMC. The difference, in this regard, has more to do with what one wants to focus on.

Unlike many Schools of Journalism, the SJMC also runs three media outlets under Mlimani Media - *Mlimani TV*, *Mlimani Radio* and the *Hill Observer*. These offer University of Dar es Salaam graduates from the SJMC hands-on experience and exposure that help them to seamlessly fit into the professional world largely as polished articles.

CAREER PROSPECTS

The SJMC contributes towards furnishing a wide spectrum of potential employers with skilled personnel in the fields of Journalism, Mass Communication, and Public Relations and Advertising.

Our graduates have found jobs in the mass media industry generally defined - both print and electronic media. With over 18 daily newspapers, 41 weeklies, 60 radio stations and 15 television stations, our graduates have readily found jobs in the industry. Notable employers include the Tanzania Standard Newspapers (publishers of the *Daily News*, *Habari Leo*) and the IPP Media (publishers of the *Guardian* and *Nipashe*).

In the corporate world, our graduates have been getting competitive jobs in both high profile companies, such as parastatals and cellular network companies, in addition to various government departments, as well as institutions of higher learning. It should be noted that every established private or public organisation needs a public relations officer or manager or director, depending on the size and capacity of that institutions. Some of these institutions have communications officers, who need the kind of training offered at the SJMC.

Also, innovations in advertising, including outdoor advertising, has meant that our graduates specialising in Public Relations and Advertising can also venture into the exciting advertising world in addition to all the other interesting prospects.

Furthermore, the burgeoning communication sector, capped by the Tanzania Communications Regulatory Authority (TCRA) means that employment prospects will continue to grow. In fact, the

rapidly expanding mass media has also led to the establishment of the Tanzania Media Council, and Tanzania Media Fund, all of which are potential employers for our graduates.

More significantly, SJMC graduates in all our three strands - Journalism, Mass Communication, Public Relations and Advertising - also establish their own media companies, including consultancies, and end up being job creators themselves in print and electronic media as well as public relations and advertising. In short, our courses open the doors wide for both formal and non-formal (self) employment.

Taasisi ya Taaluma za Kiswahili inazo idara mbili zinazofundisha: Idara ya Lugha ya Kiswahili na Isimu (kifupi: LUKII) na Idara ya Fasihi, Mawasiliano na Uchapishaji (kifupi: FAMU). Idara ya LUKII inafundisha masomo yanayohusu lugha katika nyanja zake mbalimbali, na Idara ya FAMU inafundisha masomo anayohusu fasihi, taaluma ya mawasiliano na uchapishaji wa vitabu.

PROGRAMU YA SHAHADA YA KWANZA KATIKA TAALUMA ZA KISWAHILI (B.A KISWAHILI)

Programu ya B.A. Kiswahili ni ya miaka mitatu. Inafundisha kozi mbalimbali zinazolenga kuwawezesha wahitimu kuwa weledi wa lugha ya Kiswahili katika nyanja zake zote. Kwa kuwa lugha ni mhimili na nyenzo muhimu katika shughuli zote za mwanadamu, Idara ya LUKII inalenga kuwapa wanafunzi maarifa, misingi na uelewa wa kina kuhusu sayansi ya lugha na nadharia zake, historia na maendeleo ya lugha ya Kiswahili na uhusiano wake na lugha nyingine za Kiafrika, na matumizi ya lugha katika miktadha mbalimbali. Idara ya FAMU inatoa mafunzo katika nyanja za fasihi simulizi na andishi ya Kiswahili, tanzu zake na nadharia zake, na uhusiano wake na fasihi ya Kiafrika na ya Ulimwengu. Aidha, Idara inafundisha stadi za mawasiliano, uhariri na uchapishaji kwa wale watakaopenda kuingia katika sekta hizo baada ya kuhitimu.

MASHARTI YA UDAHILI

Mwombaji anayetaka kudahiliwa katika Programu ya B.A. Kiswahili, mbali na kutimiza masharti ya udahili ya Chuo Kikuu cha Dar es Salaam, anapaswa awe amesoma somo la Kiswahili Kidato cha 5 na 6, na awe amefaulu kwa angalau gredi ya D, **au** awe na sifa zinazofanana na hizo.

MATARAJIO YA AJIRA KWA WAHITIMU

Kiswahili ni lugha inayokua haraka; hivi sasa inazungumzwa na zaidi ya watu milioni 100. Ni lugha ya mawasiliano mapana katika nchi za Maziwa Makuu, ni lugha rasmi ya Umoja wa Afrika na UNESCO, na ni mojawapo ya lugha za Kiafrika zinazofundishwa na kutumika katika nchi nyingi duniani. Hivyo wahitimu wa digrii ya B.A. Kiswahili wanaweza kuajiriwa au kujiajiri katika nyanja na shughuli anuwai zinazohitaji matumizi ya Kiswahili. Mathalan wanaweza kupata ajira zinazohusiana na ufundishaji, utafiti, uenezi na uandishi wa habari, uandishi, teknolojia ya habari na mawasiliano, sanaa za maonesho na filamu, uhariri na uchapishaji, tafsiri na ukalimani, utamaduni na uratibu na upangaji lugha katika asasi za kiserikali na hata za binafsi.

BACHELOR OF ARTS IN DEVELOPMENT STUDIES

The aim of the proposed degree programme is to provide opportunity for multi-disciplinary study of development with a view to produce competent graduates with holistic knowledge and skills to interpret development theory, process and analyze, formulate and manage effective development plans and policies toward inclusive, equitable, and sustainable development.

CAREER PROSPECTS

Graduates of the programme will readily find market in the development industry in the areas of development planning, development policy analysis, management of development projects and programmes, monitoring and evaluation, and community development. Potential employers include central and local governments, government agencies, international organizations, non-governmental organizations, United Nation agencies and the private sector. This degree programme will also prepare graduates for self-employment and postgraduate studies.

BACHELOR OF EDUCATION IN ARTS) (B.ED.-ARTS)

This is a three-year degree programme tailored to cover a wide range of educational courses and minor subject content components selected from Arts subjects. It aims at creating graduates who have a good understanding of educational issues in the country, region and the world in general. The degree programme requires students to take many educational courses and one teaching subject from Arts subjects depending on their education background and performance. Students admitted in this degree programme should have a background in Arts subjects in their advanced secondary school education or equivalent education qualifications.

CAREER PROSPECTS

The programme focuses on preparing educational managers and teacher educators who can teach in teacher education colleges and serve as educational experts in Arts related areas of education management, administration and research. This programme prepares specifically school managers, planners, administrators, inspectors, curriculum developers and educational officers in various levels of education institutions.

BACHELOR OF EDUCATION IN SCIENCE (B.ED.-SCIENCE)

This is a three-year degree programme tailored to cover a wide range of educational courses and minor subject content components selected from Science subjects. It aims at preparing graduates who have a good understanding of educational issues in the country, region and the world at large. The degree programme requires students to take educational courses and one teaching subject from Science subjects depending on their education background and performance. Students admitted in this degree programme should have a background in science subjects in their advanced secondary school education or equivalent education qualifications.

CAREER PROSPECTS

This programme focuses on preparing educational managers and teacher educators who can teach in teacher education colleges and serve as educational experts in science related areas of education management, administration and research. This programme prepares specifically school managers, planners, administrators, inspectors, curriculum developers and educational officers in various levels of education institutions.

BACHELOR OF SCIENCE WITH EDUCATION (B.SC. (ED.))

This programme offers courses leading to an award of Bachelor of Science with Education Degree (B.Sc. (Ed.)). The overall objective of the programme is that over the three years, a student should

develop sufficient mastery of subject matter and competence in two teaching subjects as well as in pedagogy.

Students admitted into B.Sc. (Ed.) programme shall select two major Science subjects from the following seven combinations:

1. Biology and Chemistry with Education
2. Biology and Geography with Education
3. Mathematics and Chemistry with Education
4. Mathematics and Geography with Education
5. Mathematics and Information Science with Education
6. Physics and Chemistry with Education
7. Physics and Mathematics with Education

CAREER PROSPECTS

Basically, a B.Sc. (Ed.) graduate is a professional teacher who can teach Ordinary and Advanced Secondary School levels and hence very marketable in the education sector, both public and private.

Further, the teaching profession is a fountain of human resource worldwide due to the ability of professionals to interceptively adapt and transform into any profession at minimum cost and time.

The following is a list of some of possible employers for B.Sc. (Ed.) graduates.

1. Teaching (Ministry of Education and Vocational Training) for both public and private sectors.
2. Research institutions – National and International related, but not limited to:
 - Agricultural and wildlife sectors
 - Medical
 - Veterinary
 - Nutrition
 - Environmental
 - Information and Communication Technology (IT)
 - Tourism

BACHELOR OF ARTS WITH EDUCATION (B.A EDUCATION)

This is a three-year degree programme that aims at preparing graduate teachers. The degree programme equips the graduates with skills and knowledge on various disciplines including Kiswahili, Geography, Economics, French, Linguistics, English Literature, History, and Political Science. Furthermore, graduates in B.A. (Education) programme are equipped with skills and knowledge on curriculum design and implementation, teaching methodologies, as well as skills in education management and administration.

SPECIALISATIONS IN B.A. EDUCATION DEGREE PROGRAMME

Students enrolled in B.A. Education programme are required to take two teaching subjects (content courses) and education courses. Therefore, the degree programme produces teachers specialising in any two of the following courses or subjects:

1. Geography
2. History
3. Economics

4. Kiswahili
5. French
6. Political science
7. Literature
8. Linguistics

CARRIER PROSPECTS

Basically, the B.A. (Education) degree programme produces graduate teachers who can be employed in teaching institutions including schools and colleges. These graduate teachers can also work with government institutions and research institutions that deal with education matters.