Prospectus 2022/2023

MUST
WHERE EXCELLENCE REIGNS

MALAWI UNIVERSITY OF SCIENCE AND TECHNOLOGY

www.must.ac.mw
@mustmalawi
@mustmalawi

NOTE: The information contained in this booklet was very current at the time of publishing. However, some of the things may change from time to time. Those looking for current positions on some of the issues may wish to contact the university with specific inquiries.

The Malawi University of Science and Technology (MUST), however, reserves the right, without prior notice, to change some regulations, courses, fees, and structures during the course of the academic year.

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VICE CHANCELLOR'S MESSAGE

President Chakwera being installed as Chancellor

I welcome you all to the Malawi University of Science and Technology (MUST), Malawi's fourth public university based in the cool tea growing district of Thyolo in Southern Region of Malawi. As our motto says, this is where excellence reigns and because we are the youngest public university in this country, we have learnt a lot from our older colleagues and we have decided to "do business unusual" so that we fill the gap that our colleagues have not been able to fill. This means we are unique.

Being a relatively new university brings with it advantages and disadvantages and either way, they are many. However, this Prospectus seeks to address one of the disadvantages that come with being new. That is lack of information among stakeholders. It is, therefore, my hope that you will find this Prospectus informative and that it will answer most of your pressing questions about MUST and learning at this university.

The fact that you are interested in studying

The current Council members with the Chancellor

at MUST is a big motivation for us because it shows that we are meeting some of the community needs hence meeting our mandate. You will notice that our programmes are carefully thought through, especially as we try to align them to global development aspirations although with a strong focus on Malawi. We realise that in the modern world, science, technology and innovation are the drivers of many developed countries' economies and for our region to realise real development, we need to focus on these three aspects by ensuring that our graduates have the prerequisite skills and knowledge and an entrepreneurial mind for self-employment.

But MUST also realises that the scientists we train will not work in a vacuum hence the need to instil humanity in them. This is why the university also runs programmes in humanities to complement the science. Technological innovations can also be achieved in these humanities programmes. As such, MUST has a school that focuses on culture and heritage.

Despite being new, MUST has decided not to use that as an excuse for mediocrity. We want to compete on equal terms with those that have been in the business longer and beat them in their own game. As such, from the outset, we decided to only recruit those with experience and where they are not available, especially owing to our novel programmes on the market, we can engage fresh graduates with great potential and immediately send them for further training. We are also inculcating a culture of research and outreach among our faculty so that the university's impact among the community is noticeable and felt. As a student at MUST, we also expect you to distinguish yourself and all we can do is to provide an enabling environment for you to realise your full academic potential.

Graduating Students

We are a university that believes in being relevant to the community and despite our age, we have already heralded some innovations and in so doing, breaking records. For example, we are the first university to organize open days targeting secondary school students and a Girls Science Camp specifically targeting girls from secondary schools. These innovations are a direct response to challenges in the sector. For example, the open day seeks to bridge the information gap among secondary school students about university education in areas such as what is required for them to be selected to university, what programmes are best suited for them, and what university education generally entails. On the other hand, the Girls Science Camp accords the target groups to experience university life by staying on campus and live like a student with the aim of motivating and inspiring them to work harder and aim higher in their education endevours. It also aims at increasing the number of girls that go for science and technology related university programmes. All this for a new university is surely no mean achievement.

Once again, let me reiterate my hope that you will find this Prospectus more informative. Where you identify some information gaps, please contact us for more and specific information. I look forward to welcome you in the near future as a student of the beautiful Malawi University of Science and Technology.

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Vice Chancellor: Professor Address Mauakowa Malata

Professor Address Malata is the first Vice-Chancellor of the Malawi University of Science and Technology, and the first female to hold such a high position in Malawi's public higher education sector. She is also Vice President of International Confederation of Midwives and adjunct faculty for Michigan State University in the US.

She joined MUST, initially as Deputy Vice Chancellor in early 2016 and was later appointed to her new post in mid-2016. A trained nurse and midwife and career academic, she was Principal of Kamuzu College of Nursing (KCN) under the University of Malawi between 2008 and February 2016. She holds a BSc in Nursing from University of Malawi, and MSc and PhD in Nursing from Edith Cowan University in Australia.

While at KCN she spearheaded the development and implementation of six Masters programmes and three PhD programmes as well as diversification of undergraduate programmes and upgrading of BSc programmes from six in 2008 to 19 in 2015. Furthermore, she promoted faculty capacity building, increasing the number of Kamuzu College of Nursing faculty with PhDs from five to 30 during her time of leadership.

Professor Malata has been actively involved in resource mobilization which saw Kamuzu College of Nursing students receive scholarships for both undergraduate and postgraduate training, as well as infrastructure development at Lilongwe campus and new Blantyre campus at Kameza.

Kamuzu College of Nursing was designated as a World Health Organization (WHO) Collaborating Centre for Interprofessional Education and Practice, one of only 43 WHO Nursing and Midwifery Collaborating Centers in the world. She spearheaded the process and held the position of Director for the Centre.

She is past president of Africa Honour Society of Nursing of Sigma Theta Tau International (STTI) and is also a Virginia Henderson Fellow of STTI. She received a Doctor Honaris Cuasa by University of Oslo in Norway, and an Award of Excellence in Nursing and Midwifery by the National Organization of Nurses and Midwives of Malawi. Professor Malata has been a Fellow of the American Academy of Nursing since 2014 and was awarded a Medal of Distinction by the University of Malawi for being one of the first female professors. She received a Customer Focused Executive of the Year Award by the Chartered Institute of Customer Management.

Prof Malata is also former VP of the International Confederation of Midwives (ICM) and serves as supervisor and external examiner for postgraduate students programmes for various universities, including University of Cape Town, University of South Africa, University of Western Cape, University of Manchester, and Michigan State University, among others.

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Deputy Vice Chancellor: Professor Jonathan Makuwira

Professor Jonathan Makuwira

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Professor Jonathan Makuwira is the Deputy Vice Chancellor (DVC) of the Malawi University of Science and Technology (MUST). His joining of MUST in September 2017 followed an international academic career in four different universities, three of them in Australia. Soon after completing his PhD in International Development Studies at University of New England in Australia, Professor Makuwira was appointed as lecturer in Peace Studies (2003-2005). Two and half years later, he moved to Central Queensland University (2005-2007) where he taught Comparative Indigenous Studies, before he was offered a position of Lecturer in International Development at the Royal Melbourne Institute of Technology (RMIT) University, between 2007 and 2014. In September 2014, he came back to Africa, this time in South Africa where he was appointed to the position of Associate Professor and full Professor in Development Studies, at Nelson Mandela Metropolitan University (now Nelson Mandela University).

Later, Professor Makuwira was appointed Head of the Department of Development Studies for the Nelson Mandela University. This is one of the largest departments of development studies in South Africa. During his time, he spearheaded the department into formulating an ambitious 'Strategic Intent', endorsed by the university as reflecting new thinking in development studies. It was during this time that he also acted as Director of the School of Economics, Development and Tourism.

From a humble beginning as a primary, secondary and teacher educator, Professor Makuwira holds a Diploma in Education from University of Malawi (Chancellor College), Bachelor of Education with Honours (BEd Hons.) and Master of Philosophy (MPhil) both from University of Nottingham, UK; and Doctor of Philosophy (PhD) in International Development Studies from University of New England, Australia.

As an academic, he has supervised PhD candidates to completion, over 30 Masters by Research candidates, and published extensively. Some of his scholarly work includes three books, 17 book chapters, 22 peer reviewed international journals and numerous non-peer reviewed articles.

He comes into this position with a wealth of teaching experience and numerous accolades in the academia. In 2010 with several awards for excellence in teaching and research.

Professor Makuwira is an editorial member of numerous Journals and a member of International Society for Third Sector Research; and former Board Member of Africa Think Tank.

Before his doctoral studies, Professor Makuwira worked for Council for NGOs in Malawi (Congoma), Malawi Institute of Education (MIE), the then Domasi Teachers College, Chiradzulu Secondary School, and Mkanda Primary Schools in Mulanje.

University Registrar: Mr Alfred Chinombo

Mr Chinombo is a seasoned higher education administrator, manager and leadership practitioner with thirteen years of combined and progressive leadership and management experience in the Malawian higher education sector. He has held various portfolios in university leadership and management, including academic planning, governance and advising; strategy formulation and implementation, human resources management and development; staff and student support; implementation and management of ODeL admissions; marketing; quality assurance, institutional planning and reporting.

Mr Chinombo has a proven and progressive track record of success from the University of Malawi (UNIMA) and Lilongwe University of Agriculture and Natural Resources (LUANAR) in shaping strategy and academic policies, initiating and implementing management and operational reforms, establishing enabling procedures and creating an environment and culture that values teamwork and the continuous improvement of academic and administrative processes. He has also been a key member of the ICT team that has established various innovative processes and systems at the National Council for Higher Education (NCHE) regarding the Harmonised Public University Selection.

Before joining MUST, Mr Chinombo worked as the Acting Deputy University Registrar at LUANAR. He successfully championed LUANAR's digital transformation and streamlining of routine and complex academic and student admission administrative functions. He holds a Bachelor of Business Administration from the University of Malawi and a Master of Business Administration from the University of the Witwatersrand in South Africa.

Mr Alfred Chinombo

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Director of Finance and Investment: Mr Macdonald Hudge

Mr Hudge was appointed as the Director of Finance and Investment from February 1, 2014. He has a plethora of financial skills which is critical to the management and operation of the financial department having worked in accounting, finance and grants management functions at Commercial Bank of Malawi, Small Enterprise Development Organisation (SEDOM), LWF/Evangelical Lutheran Development Programme, AFDB funded development projects (Ministry of Health and Population and Ministry of Water and Irrigation Development) and University of Malawi (College of Medicine).

Macdonald holds a Masters in Development Finance (2011), Stellenbosch University, Cape Town, RSA; an Advanced Diploma in Management Accounting (2002), Chartered Institute of Accountants (CIMA) and a Bachelor of Accountancy (1995), University of Malawi.

Macdonald is responsible for the financial and investment management functions of MUST and is a member of the Institute of Chartered Accountants of Malawi (ICAM) and the Malawi Accountants Board.

Mr Macdonald Hudge

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MUST administration block during construction

The University's teaching hospital

MUST IN PICTURES

The imposing MUST library

The teaching area

HISTORICAL BACKGROUND

MUST founder, late Professor Bingu wa Mutharika laying a foundation stone for construction of the University. With him is former president, Professor Arthur Peter Mutharika who was then Minister of Education

The Malawi University of Science and Technology (MUST) was established by an Act of Parliament Number 31 of 2012 with the aim of promoting the development, adaptation, transfer and application of science, technology and innovation for macro- and micro-economic development of Malawi.
Its vision is to be a world class centre of science and technology education, research and entrepreneurship which is being realised through the provision of conducive environment for quality education, training, research, and entrepreneurship, and outreach activities.

The University enrolled its first cohort of students in April 2014 but was officially opened on October 24, 2014 by then President and Chancellor, HE Professor

Arthur Peter Mutharika.

MUST has four schools which include Malawi Institute of Technology (MIT), Ndata School of Climate and Earth Sciences (NSCES), Bingu School of Culture and Heritage (BISCH), and Academy of Medical Sciences (AMS). These schools are led by Executive Deans and further divided into departments and sections.

Currently, four schools—MIT, NSCES, BISCH and AMS are operational. MIT was the first to open in 2014 and NSCES followed a year later in 2015. BISCH opened its doors in 2016 while AMS was opened in 2017 but targeted the 2018/19 academic year to roll out more academic programmes. Currently, AMS has four programmes and is also establishing a diagnostic centre and medical research centre at the University's teaching hospital.

From three undergraduate programmes and two postgraduate

Then Chancellor of MUST and former President, HE Professor Peter Mutharika, cutting a ribbon to mark official opening of the University

programmes during its first year in 2014, within six years the University has grown these numbers to 21 undergraduate programmes with the initial two postgraduate programmes maintained.

MIT has seven undergraduate programmes and the two postgraduate programmes while the NSCES has seven undergraduate programmes and BISCH has three undergraduate programmes. AMS, as earlier indicated, has four programmes. All these schools will be adding more programmes as the years go by.

With seven intakes so far, both at undergraduate and postgraduate levels, MUST now has a student enrolment of over 2000. In the early years, there were fewer girls enrolment but their numbers are slowly picking up, currently standing at around 40 percent.

Apart from academic schools, MUST also has the Directorate of Postgraduate Studies, Research and Outreach, headed by Dr Alfred Maluwa, which is responsible for research and outreach activities. Some outreach activities in the first two years of existence of the University included hosting the University open day in 2015 and the first ever national all-girls science camp in 2016 and an international Women in Science (WiSci) girls camp in 2017.

MUST is also working on various research projects, both on its own and with partners. It is also hosting a Technology and Innovation Support Centre (TISC) whose main objective is to assist researchers access global information on prior work in different technological fields.

The University also boasts of a research wing called the Malawi Institute of Industrial Research and Innovation (MIIRI), formerly known as the Malawi Industrial Research and Technology Development Centre (MIRTDC), which has been involved in industrial research, technology development and transfer programmes for over 20 years with the aim of improving the quality of life for Malawians.

Past research and technology development and transfer efforts by the MIIRI include development and implementation of technologies for agro-processing, irrigation, portable water supply, energy and transport.

Starting 2017, MUST is now enrolling international students at undergraduate level and has implemented three entry points for all undergraduate students, namely generic, mature and those able to pay economic fees.

While other public universities in the country took more than a decade to achieve these feats, MUST has demonstrated that despite the uncomplimentary tag of being the youngest and smallest public university in Malawi, it is ready to herald a new thinking in higher education by aligning itself to Malawi's development aspirations.

Vision:

A world class centre of science and technology education, research and entrepreneurship.

Mission:

To provide a conducive environment for quality education, training, research, entrepreneurship and outreach to facilitate economic growth in Malawi and beyond.

Core Values:

Commitment
Professionalism
Integrity
Competitiveness
Openness to diversity
Entrepreneurship
Innovativeness

Objectives:

The specific objectives are four-fold:

i) To equip students with the theoretical knowledge and applied skills required to contribute in creating innovative technologies at local, regional and international scales;

ii) To enhance greater understanding of issues

relating to drivers of innovation and technology development and management in a competitive world economy and knowledge economy;

iii) To enhance students' capacity and capability to undertake advanced study by research and manage the R&D functions within high-technology firms; and

iv) To develop skills and competences for confronting /addressing the social, ethical, legal and financial constraints within the technological environments.

Mandate

i) To provide quality learning opportunities for students in science and technology for economic development;

ii) To encourage advancement of knowledge dissemination and commercialisation of research products;

iii) To promote industrial growth through research and knowledge dissemination;

iv) To establish and support science and technology centres of excellence for industrial production and growth;

v) To develop partnership with industry for the generation, transfer, adoption and application of technologies;

vi) To develop into an institution of excellence in teaching, learning, training, research, consultancy and dissemination of knowledge in science, engineering and technology;

vii) To promote entrepreneurship amongst students and staff;

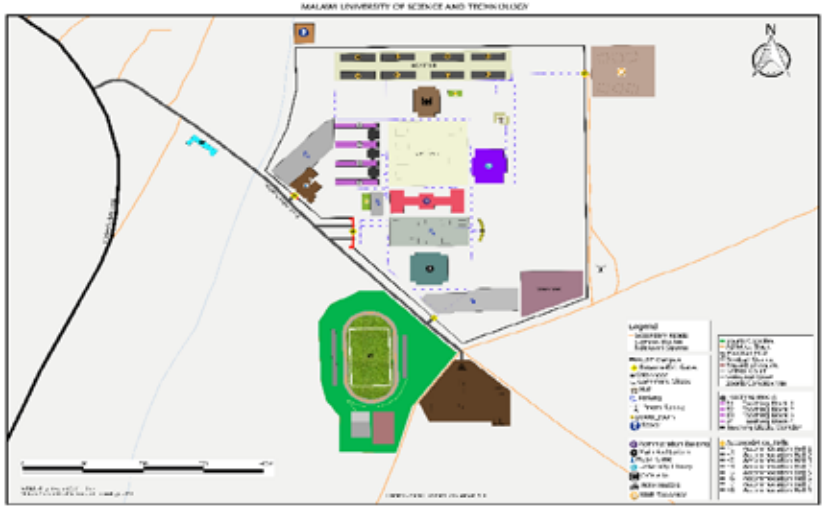
viii) To provide specialised training in such subjects as may be deemed desirable for such purposes by the Council.

Lecture rooms during construction

VISITING MUST

The Malawi University of Science and Technology (MUST) was established on December 17, 2012 by the Malawi University of Science and Technology Act No. 31 of 2012 as the fourth public university in Malawi, after University of Malawi (Unima), Mzuzu University (Mzuni) and Lilongwe University of Agriculture and Natural Resources (Luanar).

Situated near Ndata Farm in the tea growing district of Thyolo, MUST is some 27km from Limbe, Blantyre. It overlooks Malawi's "Island in the Sky", Mount Mulanje with its Sapitwa Peak, the highest peak in Malawi. The university sits on a piece of land that was initially part of former president, Professor Bingu wa Mutharika's Ndata Farm. Bingu is the University's founder who also donated part of his farm's land for the construction of the University. Funding for the construction of MUST came from the People's Republic of China through a loan. The University was also built by Chinese contractors and is regarded as one of the most beautiful institutions of higher learning in Malawi and the region, with state of the art infrastructure and facilities.



It comprises three functional areas of teaching and learning; sports, and living service. The teaching area includes the teaching block comprising 60 classrooms, the teaching hospital, the administration complex, the library and science and technology building and the auditorium. The sports area includes sports facilities such as an outdoor track field, basketball and volleyball courts and a football field.

The living area includes student hostels and the service area.

MUST campus occupies a total plot area of 215,000m^2 and has total building area of 46,000m^2. The seating capacity of this University is 3000 but can accommodate about twice that capacity. Evidently, MUST will hugely contribute towards government of Malawi's efforts to widening access to higher education.

Currently, MUST has four schools: Malawi Institute of Technology (MIT), Ndata School of Climate and Earth Sciences (NSCES), Bingu School of Culture and Heritage (BISCH) and the Academy of Medical Sciences (AMS). It also has MUST Institute for Industrial Research and Innovation, Centre for Biological Sciences, Centre for Business and Entrepreneurship Management and Centre for Climate Change and Disaster Risk Managment.

Students in a Computer Laboratory

WHY STUDY AT MUST

The Malawi University of Science and Technology (MUST) is the only public university in Malawi with the specific mandate to focus on science, technology and innovation. As such, the University delivers programmes that are unique in terms of focus with the aim to develop skills and knowledge that would help graduates lead in production through manufacturing and entrepreneurship. The University recognizes that in this age of technology and high unemployment, its graduates should be tech savvy and be able to establish businesses and create employment instead of waiting for employment.

All the programmes offered by the University are recognized across the globe, which means MUST will be producing international graduates who can share their knowledge and demonstrate their skills with the international world without feeling any sense of inferiority complex.

MUST is a University with state of the art infrastructure and resources required for serious academic engagement. Located in the tea growing district of Thyolo, the weather is cool, making it an ideal environment for studies. Situated some 27 kilometres in a rural setup, away from the economic town of Limbe in Blantyre, gives MUST an added advantage as it is unaffected by the hustle and bustle of town life.

The University boasts an array of a well selected team of academic staff members with expertise and experience in their various areas of specialization. This means our students will learn only from the best in the

various programmes of their study.

Again as a new University, MUST has had the advantage of analyzing the strengths and weaknesses of older players in the higher education sector and is implementing a motley of systems that builds on the strengths of the older players and drawing lessons from their challenges and mistakes. This assures our students of a well thought academic excellence.

MUST offers both undergraduate and postgraduate programmes in various areas but mostly in four categories of engineering, medical science, climate and earth science, and culture and heritage.

The four areas of academic concentration were carefully selected following public consultations with a wide range of stakeholders and aim at addressing national skills and knowledge gaps. They are also in line with national, regional and international development aspirations. In other words, they respond to current skills challenges in various sectors of socio-economic development such as health, manufacturing, technology, climate change, innovation and entrepreneurship.

To ensure that our graduates are way above their peers, MUST inculcates a culture of research, with focus on impact research whose outputs go beyond publications to earn qualifications and promotions. This is achieved through emphasis on coming up with products and services that can be patented and/or commercialized so they can change people's lives. MUST also want its graduates to be job creators who can establish businesses to employ themselves and others, thereby reducing youth unemployment, which is currently very high. This is achieved through incorporation of entrepreneurship, technology and innovation in all of the University's academic programmes.

MUST students cannot graduate before they undergo Work Integrated Learning process in the industry through student internship. This takes a minimum of four months and is aimed at equipping the students with industrial experience to build on their theoretical knowledge obtained through lectures on campus. For postgraduate students, especially those doing Masters programmes in Innovation and Entrepreneurship, they are required to come up with bankable business projects that the University can support through incubation.

This far, it shows that the Malawi University of Science and Technology is where science and technology is given a human face. The University strives to change the landscape of higher education delivery and compete on the global stage of academic excellence. If one wants to be "the graduate" and not "one of the graduates", then MUST is a must for them. Enroll with us and experience higher education as you have never seen it before.

A research team receiving UNDP support for a project

Biomedical Engineering students on attachment at Queen Elizabeth Central Hospital in Blantyre

CAREER AND EMPLOYABILITY

The world is changing and needs people who are creative and innovative enough to be able to adapt to changing environments and remain relevant while creating things that can make lives not only bearable but also enjoyable. This is what you get when you study at Malawi University of Science and Technology because with its focus on science, technology, innovation, entrepreneurship, and culture and heritage, you are rest assured that you will acquire the necessary skills and knowledge to make it in this very competitive world.

Our academic programmes are designed to respond to skill and knowledge gaps in our global communities, specifically aligned to development aspirations of the modern world where science and technology are the drivers. We are also cognizant of the fact that employment is a challenge in the modern world, hence our emphasis on innovation and entrepreneurship. The aim is that with their acquired skills and knowledge and the innovative mind developed, our graduates can use this as a capital to establish their own businesses and employ themselves and others, thereby creating job opportunities and spurring economic development.

Most of the programmes at MUST carry with them an element of industrial attachment to complement our students' theoretical acumen with hands-on experience. This is built on our understanding that skills and knowledge without application mean nothing in a competitive world. With that rare combination of skills and experience, MUST graduates are assured of abundance of opportunities in our communities, not only in Malawi but beyond because our curriculum is informed by developments in our global village.

Most of our programmes are new on the market, meaning our graduates will have unique skills and knowledge in areas where currently experts are lacking despite the market needing such expertise. Since our programmes have elements of innovation and entrepreneurship, our graduates have an edge on the job market because instead of looking for employment, they have the skills and creativity to establish their own enterprises and employ themselves and others, thereby addressing youth unemployment.
The innovation and entrepreneurship modules are especially critical for Malawians. The country has for long predominantly been an importing and consuming nation and time is now, even in the national development discourse, that this trend should be reversed so that we become a net producer and exporter. MUST strives to achieve this in its endevours.

And looking at the majority of countries at the centre of production, manufacturing and export, one thing is clear: They have embraced and are utilising science and technology. For Malawi, this means it too has to take the same route. And for MUST, it is already creating a platform to complement these efforts by producing scientists and technologists but with a human face through inculcation of culture and heritage.
Additionally, the University is focusing its training in science and technology areas that are critical to the local situation. One such area is creating human resources for manufacturing and value addition for our natural resources and dealing with emerging challenges such as climate change and its attendant disasters.

But first things, first. Malawi needs to develop knowledge and skills in science and technology with a focus on innovation and entrepreneurship so that when industries are opened, there is a steady flow of human resources to transform raw materials into technologically inspired usable commodities and items.

It is common these days for employers to ask for several years of work experience from their prospective employees. And newly graduated students, despite having the required knowledge and skills, fail to get most jobs due to lack of work experience. Realising this challenge and as one step of addressing it, MUST makes it compulsory for all its students to undergo a minimum of four months industrial internship before they can graduate. This internship is different in that it is part of assessment and that is why it is called Work Integrated Learning. The host industries, unlike in other cases, are not under any obligation to provide for these students. At the end of such internships, our students gain the much needed practical work experience which when combined with their class theoretical knowledge and skills, makes them more competitive on the job market.

This is probably why MUST really deserves its two mottos of "Where Excellence Reigns" and "Doing Business Unusual".

Secondary school students from across Malawi filled to capacity the 3000 seater auditorium during Open Day

JOINING MUST

MUST enrols students in three categories of generic or normal admission, economic fee paying and mature entry, at least for undergraduate programmes. In the first category, eligible students who have passed the national Malawi School Certificate of Education (MSCE) or its O Level equivalents, apply for a programme through a harmonised selection programme of all four public universities in Malawi coordinated by the National Council for Higher Education (NCHE). NCHE advertises a call for applications and each student is allowed up to six choices of programmes across the public universities. In the second and last categories, the University handles selection on its own.

The second category of economic fee paying students is for those who can pay the full fees because for those that are selected under the NCHE arrangement, their studies are heavily subsidised by the Government. As such, those who miss out on the NCHE selection but are able to pay economic fees, are given a chance to apply and the University does the selection ensuring that the students have somebody or an institution guaranteeing to pay their tuition fees. Of course, the applying students need to meet the criteria for selection of six credits including at Malawi School Certificate of Education (MSCE). However, each programme stipulates its own selection creteria which can be checked under specific programmes later in this Prospectus.

In third category, fills gaps created by those that withdraw for various reasons. It also gives opportunities to those who never had a chance to go to university but have done studies up to certificate or diploma level to join the University. Students under this category, because they already have background knowledge from their certificate or diploma studies, join either in second or third year depending on the strength of their qualification.

ACADEMIC PROGRAMMES AT MUST

Students supporting Chimvu Primary School with sanitary items

From 2020/21 academic year, MUST is offering 21 undergraduate programmes and two postgraduate programmes at masters degree level. All undergraduate programmes are offered on full time basis where students stay on campus and attend classes for five midweek days for a whole semester which lasts for up to four months. There are two semesters in a year running between September and June.

Students learn through lectures, group learning, self-study, peer-group learning and lab-based lessons etc.

The postgraduate programmes are offered on block release where students come on campus for lectures and examinations every two weeks in two months before dispersing to work on assignments. All MUST programmes follow a modular system.

A hostel building at MUST

ACCOMMODATION

All our undergraduate students currently stay on campus in very modern and beautiful hostels. Starting 2017, there are two hostel sites. The eight blocks inside the main campus and another compound outside the main campus. As such, issues of security are guaranteed.

With some 27 kilometres from the nearest town of Limbe in Blantyre, the University ensures that some of the basic things are found within campus or just outside it. As such, the University has sporting facilities to cater for football, volleyball, basketball and netball. Other indoor games are also available. There is also a gym for students.

MUST students also access free WiFi on campus to enable them use technology for their studies. The University also has computer laboratories that are accessed by students and these too are Internet connected.

CLUBS AND SOCIETIES

Our students are allowed to start or join clubs and societies of their choice as long as their objectives are deemed legal and complementary to their lives as students. The University believes that clubs and societies are a great way of helping students to explore interests, talents and skills or developing new ones. MUST students have clubs or societies cutting across disciplines such as religion, sports, philanthropy, health and leisure. Some of the existing clubs and societies are as follows:

Football
Netball
Volleyball
Basketball
Tennis
Chess
Choir
Student Christian Organisation of Malawi (SCOM)
Young Catholic Students (YSC)
Seventh Day Adventist Youth
MUST Muslim Students Association (MUMSA)
United Christian Congregation (UCC)
Christian Students Organisation (CSO)
Christian Gun (CG)
Word Alive Campus Ministries
Church of Central African Presbyterian Students Organisation (CCAPSO)
Redeemed For A Purpose (RFP) Ministries
Young Muslims
Way of the Spirit
Cross Culture
Drama
Debate
School Magazine
Wildlife Club
Environment Club
HIV/AIDS
Physical Fitness
One Society One Goal (OSOG)
MUST Association of Computer and IT Students
The MAESTROS
Malawi Institution of Engineers (MUST Chapter)

Students planting trees on campus to conserve the environment

A nurse at the University clinic assisting a sick student

STUDENT SUPPORT

All student affairs are the responsibility of the office of Dean of Student Affairs (DOSA), currently Mr Saizi Kimu who works together with offices of the Clinical Officer, Nursing Sister, Wardens, Security, Chaplain and Buildings Liasons, Chaplain and Students Liasons, to ensure that life for students on campus is enjoyable and free of challenges. The students themselves operate under the Students Representative Council, a student leadership body headed by a president but has other offices responsible for finances, religious affairs, female and male students affairs, sports, publications, entertainment etc. The student leaders are elected annually in the most transparent and democratic manner possible.

The University also recognises that some students come from very poor backgrounds and struggle to pay tuition fees and meet their basic requirements for a comfortable stay on campus. These students have ended up withdrawing due to their poverty despite the majority of them being brilliant in class and the only hope for a better life in their families. Led by Professor Address Malata, the Vice Chancellor, MUST decided to go out of the way to mobilise resources and support such students. Various companies were approached and an annual corporate charity golf tournament introduced in 2017 aimed at establishing a scholarship fund for needy students.

Some companies, apart from supporting the gold tournament, also introduced their own scholarships. However, in all these scholarships, the prospective beneficiary students need to be both needy and outstanding in class. During the first year of its establishment, the scholarship fund raised around K300 million kwacha and many students, who would

Student leaders with management team after taking an oath of office

have withdrawn from university, are still on campus studying to realise their life dreams. The fund was meant to compliment Government's students loan scheme under the Higher Education Students Loans and Grants Board (HESLGB).

Students Medical Scheme

Knowing that the health of our students is paramount, the University puts all students on a contributory medical scheme but their contribution is minimal as the institution subsidises it. This means that our students can attend superior medical care or treatment even in times when they do not have funds or their parents or guardians are unable to support them.

The University also runs a clinic with fully trained and well qualified clinical officers and nurses. These health personnel attend to both students and staff. However, when there are more serious cases, the University clinic refers them to bigger hospitals such as Thyolo District, Nguludi Mission and Queen Elizabeth Central hospitals, all within a 30 kilometre radius from MUST campus.

Disability Friendliness

The Malawi University of Science and Technology is a modern university campus that is friendly to people with all manner of challenges, including various disabilities. For example, our lecture rooms, the library, hostels and laboratories, have facilities to allow easy access by people with disabilities. All the buildings have special washrooms for people with disabilities. Plans are also underway to see how best we can accommodate students with special needs, especially those with visual or hearing impairments.

Equal Opportunities

MUST is an equal opportunity University and to make this a reality, it has developed a gender mainstreaming policy to ensure that staff, students and other stakeholders do not face gender inequalities in their activities at and with the

Students enjoying the campus

University. Issues of gender have also been mainstreamed in the University's various policies, rules and regulations etc in areas such as recruitment of staff, enrolment of students and discipline for both staff and students. For students, this is important because as a University that focuses on science and technology programmes, female enrolment is already a challenge hence the need to have deliberate measures and policies to retain those that are enrolled and also attract more to enrol.

International Students

The Malawi University of Science and Technology, though being a public university, also admits international students who meet the selection criteria. Generally, such students' qualifications and grades are compared with their local equivalents. However, international students apply for enrolment or selection directly to the University by downloading an application form on the University's website (*www.must.ac.mw*). Usually this follows the University's call for such applications which are placed in the mass media and in all of its media outlets such as website, and social media platforms such as facebook and twitter. As we speak, MUST has some international students on its register.

Student Orientation

When new students arrive on campus following enrolment, they spend the first week of their studies undergoing orientation. During this orientation, they listen and watch presentations from University management and faculty on various topics, especially those that they will need for their survival and stay on campus both academically and otherwise. So there are presentations on all the academic programmes by executive deans; students rules and regulations, library and ICT, student

A student on campus

affairs, gender, time management and many other important issues.

This prepares students to know what to do when in some situations and which offices to go for advice or counselling. In other words, the orientation provides the students with a map on life at the University.

MUST Students Representative Council (MSRC)

The MSRC is an elected and student member organisation. It is provided for in the University laws. It acts as a voice for students on their welfare while on campus. As such, it is the bridge between students and University management. Students channel all their issues through this grouping which takes them to the University's management for consideration and action.

The students elect their SRC leaders annually through a transparent and democratic electoral process managed by an independent electoral body comprising fellow students. However, management provides an oversight role. Aspirants for all positions have access to the student community to sell their manifestos during a campaign period. University management also provides logistical support. Once new leadership is elected, the University organises a handover ceremony where the new leaders are also sworn in while the old leadership is given certificates of recognition. Then the new leadership is taken through an orientation on various issues related to their work, such as their constitution, handling of finances, time management, various University rules and regulations, especially those that relate to students etc.

Social Life

There are several activities in and around MUST that make the University vibrant. The University is surrounded by some scenic mountains and rivers with undulating plains that local farmers use to grow various cash and food crops. Ndata area is one of the highest milk producing areas in Malawi.

Overlooking the University, some 50 kilometres away, is Africa's third largest mountain, Mulanje which is a highly sought after tourist attraction. Proudly known as Malawi's Island in the Sky, Mulanje Mountain is a home to many flora and fauna and has a lot of myths.

Nearby are also the beautiful and eye-catching tea plantations that do not only add colour to Thyolo but also brings a cool breeze to the University campus. The surrounding villages are rich in cultural activities like traditional dances and some right of passage ceremonies that can be a good source of knowledge and leisure.

Limbe and Blantyre central business areas, which are some 27km and 35km away from MUST campus, respectively, can offer night life of varied types. The two towns are home to many night clubs and entertainment joints. They are also centres of some serious shopping and a home to some serious arts activities such as theatre, cinema, sports, music and dance.

Students who want to go out for worship, there are almost all faiths and denominations around the University. All these provide our students with opportunities for relaxing and unwinding the week's hard times in class.

Banking Services

As a University that promotes technology and realises that it is far from the banking streets of Blantyre, MUST has engaged some banks to provide services on campus. Currently, FDH Bank has its auto teller machine on campus. The machine can also take deposits apart from offering encashment services. Much as there is only one bank on campus, the ATM accepts cards from all banks available in Malawi under Natswitch. The machine also accept a number of internationally recognised cards such as VISA, PAC and MasterCard.

Students enjoy banking services on campus

Volleyball is one of the most popular sport at MUST

Sports

The MUST realises the importance of sports for both students and staff. This is why it is a member of the Tertiary Education Students Association of Malawi (TESAM). Under this umbrella body, students compete with colleagues from other universities and colleges in the country. Currently, staff and students play in non-competitive matches within campus and with other outside teams. Our students also compete at international level through the Confederation of University and Colleges Sports Associations (CUCSA). However, MUST campus is equipped with modern sporting facilities for games such as netball, football, volleyball, basketball, chess, darts, bawo, and other indoor games. The University also has gym facilities, one for staff members and another for students. This ensures that our students are fit for the various games they play.

Lifa (R) with DVC Prof Makuwira after being voted Malawi's sportsman of the year

University Librarian: Mr Martin Thawani

Mr Thawani is the current and first University Librarian at MUST. He holds a Master of Library and Information Science degree from University of Botswana; a Bachelor of Education and Diploma in Education, both from University of Malawi, Chancellor College; and a Certificate of Liberal Arts from the Catholic Theological Colleges (Seminaries) of Malawi.

To enhance his profession and career, Mr Thawani has also attended a number of professional training programmes such as International Visitor Leadership Programme (IVLP); Monitoring and Evaluation of E-Resources Use; Running a Model American Corner; PC Troubleshooting for Library Personnel; Advanced Library and Information Science (ALIS) Programme: *Introduction to the Internet*, Internet Resources and Services in the Malawian Context; Emerging Technologies for Automated Information Services and Management; and Microcomputer Based Database Management Systems for Information Services.

Mr Thawani has been instrumental in projects and consultancies. For example, he has been a member of a Project Team of Continuing Education for Building Internet Subject-Based Information Gateways, Africa South of the Sahara, Swedish International Development Agency (SIDA); Polytechnic Co-ordinator for The American Association for the Advancement of Science (AAAS) CD-ROM Pilot Project, Africa South of the Sahara; Consultant as Librarian Trainer in Bring Me A Book Foundation's Malawi Literacy Project, Save the Children; and Effective Records Management Training, Damien Consulting Services, Reserve Bank of Malawi, Blantyre and Lilongwe.

Before joining MUST, Mr Thawani worked with University of Malawi, first as senior assistant librarian at Malawi Polytechnic and Bunda College of Agriculture (now Lilongwe University of Agriculture and Natural Resources) and Malawi Polytechnic again as College Librarian. He has also worked as secondary school teacher of English and examiner of history at Malawi National Examinations Board (MANEB).

He has demonstrated capacity to engage in community services. He has, for example, served as vice chairperson of Limbe Cathedral Council; member of the board of directors for Phalombe Holy Family Hospital and Nursing College; member of university council of the Catholic University of Malawi; member in ADMARC Board of Directors; publicity secretary for Teachers' Association of Malawi (TAM) for Blantyre City and District; member of Chiradzulu District Development Committee (DDC); Southern Region chairperson of Malawi Library Association, chair of Malawi Library Association Education Sub-committee. He was once Board chairperson of Malawi Library Services.

Mr Martin Thawani

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THE UNIVERSITY LIBRARY

Students sampling books in the Library

The library at MUST is housed in one of the most spacious, modern and beautiful buildings and comprises of three floors. It is fitted with a 3M electromagnetic book detection security system to primarily secure library resources from pilferage by library users.

It is also well furnished with Cantilibra shelves, reading carrels, and computer tables and desks, and houses three computer laboratories, one for undergraduates, the second for postgraduate students and the third for geographical information systems. These computer laboratories can accommodate 150 students at a time.

The MUST library had a print book collection of 1,494 titles, comprising 8,000 volumes. These resources are for both undergraduate and postgraduate students.

The library has also embraced technology by stocking E-resources and eBooks. From the beginning of the process of setting up the library, MUST envisioned the creation and enhancement of an electronic library collection. The creation and development of both the print collection and electronic collection is on a 50:50 basis. The print collection, therefore, is complemented by the negotiated unlimited access to procured electronic books, which reduces pressure on

print resources.

The MUST library is also a member of a local consortium called the Malawi Library and Information Consortium (MALICO) which subscribes to electronic resources. Through this consortium, the University enjoys access to about 30 international databases of full text electronic information resources under both open source and commercial basis.

It also has over 417 titles of eBooks, 85 percent of which are on unlimited access license agreement. They are accessed on the EBSCOhost platform. The eBooks are in areas of Biomedical Engineering, Chemical Engineering, Mechanical Engineering, and Metallurgical Engineering.

The electronic books and the MALICO subscribed electronic resources together with electronic access to the catalogue of the available print books otherwise known as the Online Public Access Catalogue (OPAC) collectively are the MUST Electronic Library (eLibrary).

The MUST library is automated and uses the Universal Knowledge Software (UKS), Symphony, to manage its information and services. Symphony integrates library technical aspects of book processing to create records of all available books in the library, all eBooks and electronic resources to provide a user interface of an electronic library. With an improved Internet access, the Symphony is also compatible with information access and use

Students checking E-resources in the Library

that is not limited by geographic locations.

Partnerships

Both current and prospective students may wish to know that MUST library is a registered institutional member of the Malawi Library Association (MALA) and its staff are professionally and individually registered members of MALA. Through this membership, library staff members enjoy benefits of a network of professional library and information scientists through the regional Standing Conference of East, Central and Southern Africa Librarians (SCECSAL). The library is also recognized through its institutional membership to MALA as part of the international network of the library associations: the International Federation of Library Associations (IFLA), and the African continental body, the African Library and Information Association (AFLIA).

Continuous relationships and partnerships are maintained with organizations that form part of the book and publishing industry or network. Amongst these are book publishers and dealers and organizations that promote access to scientific, technical, medical and scholarly information such as the International Network for the Availability of Scientific Publications (INASP).

Service Operations

When students are on campus, the library provides services to users 14 hours a day (8am to 10pm) during working days and 4 hours each, on Saturdays (8am to 12pm) and Sundays (1pm to 5pm). During the semester breaks, library services are provided to users 7.5 hours per day (8am to 4:30pm) during normal working days. During these periods, the library is closed on all public holidays including Saturdays and Sundays.

MUST and Chinese authorities sign an MoU

Information and Communication Technology (ICT)

The MUST campus boasts of a state-of-the-art data and voice infrastructure. The campus is fiber networked and enjoys two fiber links; one with ESCOM and a redundant link with MTL. Currently, the University Internet bandwidth is at 20 megabits per second.

The University also enjoys a campus-wide Wi-Fi network which is accessible by both staff and students. This is aimed at improving service delivery and ensuring that the services are available anywhere anytime within the MUST campus.

President Dr Lazarus Chakwera at the MUST ICT pavillion

A biogas plant under a MUST project at Tsangano in Ntcheu

CENTRES

MUST currently has three Centres and one Institute: MUST Institute of Industrial Research and Innovation, Centre for Climate Change and Disaster Risk Management, Centre Biological Sciences, Centre for Entrepreneurship and Commercialisation. It also has the MUST Research Ethics Committee.

SCHOOLS

The MUST has on its plans four schools and all of them are operational after the AMS inherited the Bachelor of Science in Medical Microbiology programme from the MIT. These four schools are MIT, NSCES, BISCH and AMS.

Each of the schools has departments which are further broken down into sections. For example, under MIT, there are the departments of Applied Studies, Engineering, and Computer Sciences and Information Technology. NSCES currently has the Department of Earth Sciences, Climate Science, Water Resources Management, and Energy Resources. BISCH has departments of Culture and Heritage, Sports Science, African Musicology, and Language and Communication Studies. However, this being a new University, some departments will be developed as more programmes are introduced.

MUST and Edith Cowan University (ECU) of Australia staff after signing an MOU

Vice President Right Honourable Dr Saulos Chilima tees off a MUST charity golf tournament

COOPERATION AND OUTREACH

MUST and China Agriculture University (CAU) MOU signing

MUST and CAU staff engaging dairy farmers at Goliati, Thyolo

MALAWI INSTITUTE OF TECHNOLOGY

The Malawi Institute of Technology (MIT) is the first school of the Malawi University of Science and Technology to be operationalized at the opening of the university in March of 2014. The school is focusing on engineering, ICT and, natural and Applied Sciences The school has three academic departments namely; Applied Studies, Computer Studies and Information Technology, and Engineering

The School is currently headed by an Executive Dean, Dr Davies Mweta. He is the first Executive Dean for the school. Under Dr Mweta are heads of department for Applied Studies (Dr Peter Mwamtobe), Computer Studies and Information Technology (Dr Bennet Kankuzi) and Engineering (Dr Thabo Falayi).

In line with the vision and mission of the mother university, the MIT is establishing and positioning itself as the centre of excellence in science, technology, innovation and entrepreneurship education, training and research through provision of a healthy teaching, learning and research environment grounded well in the principles of science & technology, promoting creativity, and nurturing teamwork. In respect to this, the school has seven undergraduate programs (five in Engineering and two in Computer Sciences and Information Technology) and two postgraduate programmes (one in Innovation and the other in Entrepreneurship). Processes are already at an advanced stage to introduce more undergraduate and postgraduate programs. The number of undergraduate programmes has increased to seven while the number of postgraduate programmes has remained the same. In addition, the school also has the Design Studio which enhances creativity and innovativeness of students and staff through different design projects. The department of Applied studies has also the business and entrepreneurship section which catalyses the business and entrepreneurial skills across the university.

A Chemical Engineering student working on internship at LaFarge Cement Company

Executive Dean, MIT: Dr Davies Mweta

Dr Davies Mweta is the first Executive Dean for the Malawi Institute of Technology (MIT). The MIT was operationalised in 2014 as the first of the four schools to be established at the Malawi University of Science and Technology. Dr Mweta joined MUST as a Senior Lecturer in Chemistry at its opening and has worked as Head of Basic Sciences Department and Coordinator for postgraduate studies before becoming the first Executive Dean for the Malawi Institute of Technology in January of 2016.

As an Executive Dean, Dr Mweta is the principal academic and administrative officer of the School and works under the general direction of the Deputy/ Vice-Chancellor providing leadership to Heads of Academic Departments and the Research Centre under the School. He is responsible for the development, implementation and review of the academic programmes ensuring quality control and enhancements underline programme delivery. He is also responsible for managing research and innovation projects and activities in collaboration with faculty within the School and the University and/or other research institutions locally, regionally and internationally.

Dr Mweta holds an Interdisciplinary PhD in Chemistry and Plant Sciences (2009) from the University of the Free State in South Africa where upon completion of the PhD work, he worked as Postdoctoral Research Scientist in the Biochemistry Laboratory of the Plant Sciences department for one year. In addition, he holds a Master of Science Degree in Applied Chemistry (2006) and a Bachelor Degree in Education majoring in Chemistry (1995) from the University of the Malawi, Chancellor College.

Before joining MUST, Dr Mweta worked as a secondary school science teacher in various Malawi secondary schools for five years (1995 to 2000), and as a Senior, Principal and Chief Lecturer for 14 years (2000-2014) at Domasi College of Education (DCE). Besides lecturing at DCE, he also worked in positions of Head of Department, Dean of Science and Acting Deputy Principal at the institution.

Dr Mweta has been involved in the training and supervision of both undergraduate and postgraduate students and is an active researcher; he has authored and co-authored scientific papers in peer reviewed journals and presented research papers at national and international conferences. In recognition of his scientific contributions, Dr Mweta received the African Union and Academy of Sciences for Developing Countries Young National Scientist Award (AU-TWAS) in 2011.

Dr Davies Mweta

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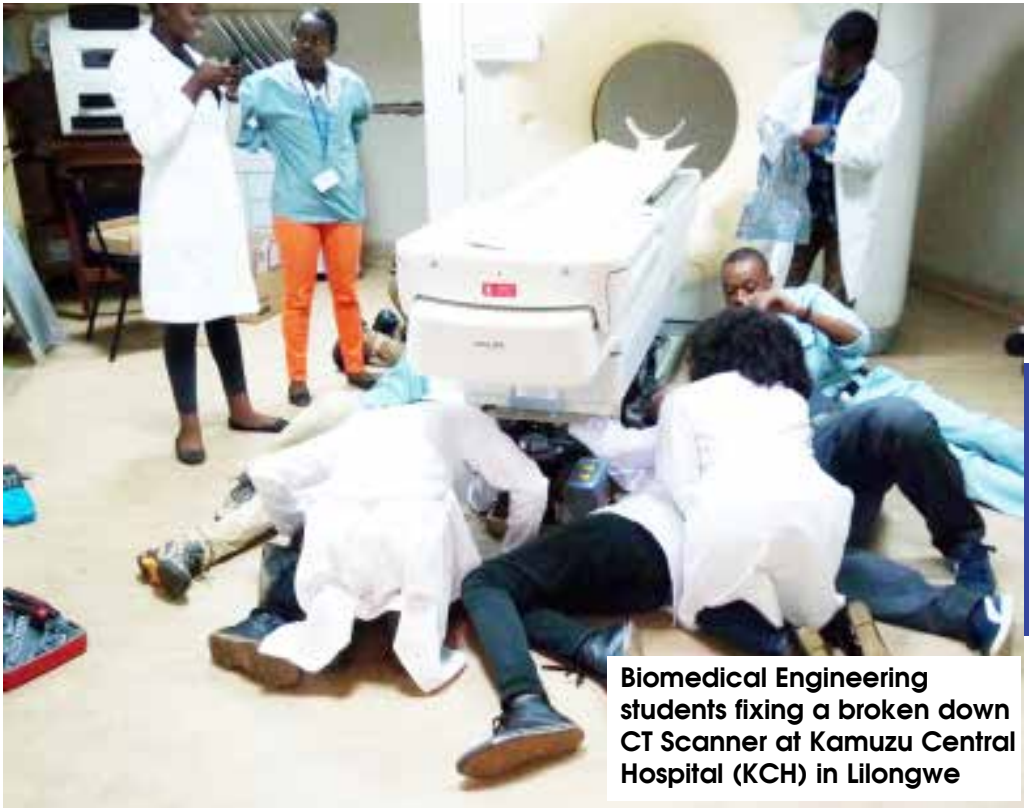
BACHELOR OF ENGINEERING (HONS) IN BIOMEDICAL ENGINEERING



Biomedical Engineering students fixing a broken down CT Scanner at Kamuzu Central Hospital (KCH) in Lilongwe

Biomedical Engineering is the application of engineering principles and techniques to the medical field. It combines the design and problem solving skills of engineering with medical and biological sciences to help improve patient health care and the quality of life of individuals. It is an exciting, comprehensive and

developing field which combines knowledge of electronics, information technology, mechanical, chemical, and materials engineering with the life sciences including medicine, biology and molecular biology. Examples of applications of biomedical engineering are the development and manufacture of biocompatible prostheses (artificial body part, such as a leg, a heart, or a breast implant), medical devices, diagnostic devices and imaging equipment.

Malawi is facing challenges in designing, manufacturing, adapting and maintaining sophisticated medical equipment. The health delivery system in Malawi needs application of engineering concepts in order to solve the biological and medical problems so as to improve human health standards through cross disciplinary activities that integrate engineering sciences and biomedical sciences.

Therefore, this programme will produce high calibre graduates that will apply principles and techniques of biomedical engineering to develop innovative products and undertake the maintenance of medical devices and equipment for quality health care delivery.

Among other skills, the graduate of this programme will be able to: design and manufacture a variety of products that will be used in clinical practice, adapt imported medical equipment to local health care situation, provide services and maintenance of medical equipment in the national health care system and carry out advanced research to solve Biomedical Engineering related problems.

Career Prospects
Graduates in Biomedical Engineering can work in a number of sectors including hospitals, medical schools, medical equipment manufacturing companies, research institutes and institutions of higher learning such as universities as academician. They can also start their own businesses by manufacturing, selling or repairing medical equipment (entrepreneurship).

Criteria for Admission
Entry in Year 1: MSCE, "O" Level, IGCSE, GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics and English

Entry in Year 2: A-level with at least C grade in the following subject Physics, Chemistry, and Mathematics, with Biology at `O' level.

Entry in Year 3: Diploma in Engineering or any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office. OR Any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

BEng (Hons) in Biomedical Engineering Programme Structure

Semester	Year 1	Year 2	Year 3	Year 4	Year 5
1	-Algebra & Trigonometry -General Chemistry I -Introduction to Computer Applications -General Biology -Language & Communication -Mechanics and Thermal Properties of Matter	-Applied Mechanics -Biochemistry -Calculus II -Engineering Drawing -General Chemistry III -Materials Science -Microbiology	-Advanced Computer Applications -Electrical Circuits -Engineering Design & Manufacturing -Human Anatomy and Physiology II -Probability & Statistics -Strength of Materials -Thermodynamics 1	-Control Systems -Digital Electronics -Electrical Machines -Industrial Studies -Maintenance of Medical Devices -Medical Imaging and Sensing -Research Methods in Engineering	-Biomaterials, -Artificial Organs and Regenerative -Medicine Bio-signal Processing -Medical Informatics -Microprocessors -Research/Design Project I
2	-Calculus I -Computer Programming -Electricity and Magnetism, -Vibrations and Waves -General Chemistry II -Human Anatomy and Physiology -Technical & Business Communication	-Applied Mathematics -Mechanical and Electrical Workshop Practice -Engineering Drawing and Design -Fluid Mechanics I -General Chemistry IV -Radiology Physics -Safety Health and Environment (SHE)	-Biomechanics -Biomedical Measurements and Instrumentation -Digital Image Processing -Electronics Devices and Circuits -Molecular & Cell Biology -Numerical Methods -Signals and Communication Systems	-Work Integrated Learning	-Business Management and Entrepreneurship -Engineering and Society -Environmental Engineering -Healthcare Technology and Management -Medical Electronics -Research/Design Project II

A lecturer (R) demonstrating some chemical engineering processes

BACHELOR OF ENGINEERING (HONS) IN CHEMICAL ENGINEERING

Chemical engineering is a discipline that influences numerous areas of technology. Broadly, chemical engineers design, develop and operate processes for converting and refining raw materials into products.

They may improve/develop new processes and materials; design/ improve methods and equipment for extraction, filtration, distillation; design/operate plants and specify

equipment/processes and layout; test the quality of the process/product; find faults in plant equipment and take corrective action to ensure safe operation. The programme is designed to develop experts who will compliment Malawi's efforts of becoming a manufacturing and exporting country. The programme is addressing a shortfall in human resource needs in Chemical Engineering for industrial development in Malawi and beyond. The programme aims at building human resource capacity with adequate skills to meet the specialised needs in the processing industry.

Career Prospects

Holders of a degree in Chemical Engineering can have careers in many manufacturing industries that use chemicals in their production processes. In Malawi, such engineers are on demand in companies such as Carlsberg, Illovo, Unilever, fertilizer making companies, companies dealing in oil and gas, paint manufacturers and those into industrial chemicals etc. One can also develop their own products or own factories for manufacturing of various products.

Criteria for Admission

Entry in Year 1: MSCE, "O" Level, IGCSE, GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics and English

Entry in Year 2: A-level with at least C grade in the following subject Physics, Chemistry, and Mathematics, with Biology at 'O' level.

Entry in Year 3: Diploma in Engineering or any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office. OR Any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

BEng (Hons) in Chemical Engineering Program Structure

Semester	Year 1	Year 2	Year 3	Year 4	Year 5
1	-Algebra & Trigonometry -General Biology -General Chemistry I -Introduction to Computer Applications -Language & Communication I -Mechanics & Thermal Properties of Matter	-Applied Mechanics -Calculus II -Engineering Drawing and Design -General Chemistry III -Mass and Energy Balances -Material Science	-Advanced Computer Applications -Chemical Engineering -Thermodynamics II -Chemical Reaction Engineering I -Engineering Design and manufacturing I -Fluid Mechanics II -Probability and Statistics -Strength of Materials	-Chemical Engineering Practice II -Chemical Reaction Engineering II -Industrial studies -Mineral Processing -Process Dynamics & Control -Process Synthesis & Integration -Separation Processes II	-Bioprocessing -Energy Engineering -Food Processing Engineering Particle -Technology Process and Product Design -Research/Design Project I
2	-Calculus I -Computer Programming -Electricity and Magnetism, -Vibration and waves -Environmental Biology -General Chemistry II -Language & Communication II	-Applied Mathematics -Chemical Engineering Thermodynamics I -Engineering Drawing and Design -Fluid Mechanics I -General Chemistry IV -Optics and Nuclear Physics -Safety Health and Environment I	-Chemical Engineering Practice I -Fluid Mechanics III -Heat and Mass Transfer -Measurements and Instrumentation -Numerical Methods -Safety Health and Environment II -Separation Processes I	-Work Integrated Learning	-Combustion -Engineering and Society -Entrepreneurship & Business Management -Environmental Engineering Process Optimisation -Research/Design Project II

BACHELOR OF ENGINEERING (HONS) IN METALLURGY AND MATERIALS ENGINEERING

An engineering student on internship at Escom

Metallurgy and Materials Engineering deals with all aspects of metal and non-metal material's processing and manufacturing. It combines Mineral Processing, Extractive Metallurgy and Materials Science and Engineering.

Mineral Processing Engineering deals with the extraction, separation, and concentration of minerals from

raw ores. Extractive Metallurgy focuses on refining processes, such as pyro-metallurgy, hydrometallurgy, and electrometallurgy, through which concentrates are refined into a pure metal form.

Materials Science and Engineering emphasizes the study and engineering of physical and chemical properties associated with metals, ceramics, glasses, plastics, and slag. The science of materials is a branch that examines the properties of materials, their structures and their behaviour, and also explores new types of materials, thus making it possible for these newly-discovered materials to be used in various industrial areas.

Malawi is endowed with a number of natural resources such as land, water, fish, forests and minerals that provide the basis for the socio-economic development of the country. Traditionally, the Malawi economy has relied heavily on agricultural resources. However, in recent years there has been increased activity in the historically undeveloped minerals sector. This program is contributing to the solid training of professionals with fundamental knowledge and technical know-how to sustainably add value to materials such as minerals/metals, polymers, ceramics and other natural resources. The graduates will apply principles and techniques of Metallurgy and Materials Engineering to develop innovative products.

Career Prospects
Graduates in this field can work virtually in any manufacturing company that deals with metals and other materials as raw materials. These include the mining, iron and steel, plastic, ceramics, and glass industries.

Criteria for Admission
Entry in Year 1: MSCE, "O" Level, IGCSE, GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics and English
Entry in Year 2: A-Level with at least a C grade in Mathematics, Physics and Chemistry. Or Diploma in Mineral Processing, Materials Science, Materials Engineering or Metallurgy from recognized institution.
Entry in Year 3: Diploma in Engineering or any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

BEng (Hons) Metallurgy and Materials Engineering Programme Structure

Semester	Year 1	Year 2	Year 3	Year 4	Year 5
1	-Algebra and Trigonometry -General Biology -General Chemistry I -Introduction to Computer Applications -Language and Communication Studies I -Mechanics and Thermal Properties of Matter	-Applied Mechanics -Calculus II -Crystallography and Mineralogy -Engineering Drawing -General Chemistry III -Introduction to Metallurgy -Materials Science	-Advanced Computer Applications -Engineering Design and Manufacturing -Fluid Mechanics II -Metallic Materials -Probability and Statistics -Strength of Materials -Thermodynamics I	-Biomaterials Control Systems -Foundry Technology -Industrial Studies -Materials Characterisation -Materials Manufacturing -Minerals Processing I	-Fracture Mechanics and Failure Analysis -Minerals Processing II -Nano-materials & Technology -Powder Technology -Pyro-metallurgy -Research/Design Project I -Surface Engineering & Tribology
2	-Calculus I -Computer Programming -Electricity and Magnetism -Vibration and Waves -Environmental Biology -General Chemistry II -Technical and Business Communication	-Applied Mathematics -Engineering Drawing and Design (Intro. to Auto-CAD) -Fluid Mechanics I -General Chemistry (IV) -Mechanical & Electrical Workshop Practice -Optics and Nuclear Physics/Ceramics & Functional Materials -Safety Health and Environment (SHE)	-Fuels, Furnaces & Refractories -Heat & Mass Transfer -Material Properties & Selection -Measurement and Instrumentation -Numerical Methods -Polymeric Materials -Thermodynamics II	-Work Integrated Learning	-Engineering and Society -Entrepreneurship and Business Management -Hydrometallurgy -Iron and Steel Making -Metal Forming Processes -Research/Design Project II

Textile industry is a growing domain worldwide and remains one of the world's leading and oldest industries in terms of direct and indirect employment.

Over the years, rapid changes of textile technology have made the textile industry capital-intensive, scientifically advanced and dependent on the services of scientific, technical, industrial, commercial and design personnel for its success.

However, the same cannot be said for Malawi, as the production of textile products has declined in recent years despite Malawi having adequate raw

Workers busy in a textile company

BACHELOR OF ENGINEERING (HONS) TEXTILE ENGINEERING

materials for the textile production.

As the demand for textile products continues to grow in Malawi with the increase in human population there has been unsustainable increase in importation of textile products which has negatively affected the Malawi economy thereby derailing Malawi's aspirations of becoming a predominantly exporting country.

This programme equips graduates with comprehensive knowledge and skills of the whole area of textile and clothing technologies, so as to significantly contribute towards innovations and sustenance of textile engineering/ manufacturing through promotion of value addition, quality control, research, science and technology for the long-term socio-economic growth of Malawi and the world at large.

Career Prospects
Students graduating from this programme can work in various capacities in the textile manufacturing chain. They can be involved in process design and equipment manufacturing. It is a field that has a lot of potential.

Criteria for selection
Entry at Year 1:
MSCE, "O" Level, IGCSE, GCE with Six Credits including: Mathematics, English, Physics, Chemistry, (or Physical Science)

Entry in Year 2:
1. A-Level with at least a C grade in Mathematics, Physics and Chemistry. But must attend and pass Engineering Drawing 1 and 2 or
2. Diploma in any engineering field or textile related field from recognized institution.

PROGRAMME STRUCTURE: TEXTILE ENGINEERING

Semester	Year 1	Year 2	Year 3	Year 4	Year 5
1	-Algebra and Trigonometry -General Biology I -Mechanics and Thermal Properties of Matter -General Chemistry I -Language and Communication Studies -Introduction to Computer Applications	-Calculus II -Engineering Drawing Workshop Practice 1 (Mechanical and Electrical) -Applied Mechanics -Introduction to textile engineering -Introduction to textile materials and processing (yarn and fabric)	-Electrical and electronic engineering fundamentals -Computer applications in Textile engineering -Probability and Statistics -Thermodynamics I -Strength of Materials -Foundation of Graphics and Design	-Control Systems -Heat and Mass Transfer -Textile engineering design -Research methods in Engineering -Environmental Issues of Textile Engineering -Raw materials and processing equipment in Textile Engineering	-Design Project I -Nanotechnology in Textile Industries -Hydraulics and Pneumatics for Textile Engineering -Design and Analysis of Textile Products -Textile Machine Design
2	-Electricity and Magnetism, Vibration and Waves -Environmental Biology -Computer Programming -General Chemistry II -Calculus I -Technical and Business Communication	-Computer Aided Drawing and Design -Materials Science for TE -Textile engineering science and workshop practice -Applied Mathematics -Fluid Mechanics -Textile manufacturing processes -Safety Health and Environment	-Numerical Methods -Textile Chemistry (Dyeing and Finishing) -Textile and polymer engineering -Industrial Studies -Mechanics of fibrous structures -Instrumentation and Control	-Work Integrated Learning	-Engineering and Society -Design Project II -Business Management and Entrepreneurship -Quality Management in textiles -Emerging Issues in Textile technology

BENG (HONS) IN MANUFACTURING ENGINEERING

Manufacturing is one area government wants to focus on

The National Industrial Policy (2016) identifies lack of appropriate skills and uptake of technology as a key constraint to industrial growth and structural transformation for Malawi.

Manufacturing engineering education is the existential gap in the Malawi tertiary education system, hence there is only less than 10% manufacturing base of

GDP. This program is designed to provide a quality engineering education to prepare students for practice of engineering.

Graduates of the programme will display a firm grasp of the fundamental principles underlying the field of manufacturing engineering and practical engineering experience in the operation of manufacturing processes.

Graduates will among other things be able to (i) perform a manufacturing process design with the knowledge of using common industrial software packages, (ii) have the ability of defining problems and identifying constraints in design work, and (iii) show a good understanding and appreciation of the safety, health and environment as well as the sustainability, economic and ethical issues in the engineering profession.

Career Prospects
Graduates in manufacturing engineering will have a wide range of choice of careers in the manufacturing industry. They can be involved in process design, equipment design, management of manufacturing processes and any other related fields. There is no country without a manufacturing industry and as economies look to value addition, the demand for manufacturing engineers will be huge.

Criteria for Admission
Entry at Year 1:
MSCE, "O" Level, IGCSE, GCE with Six Credits including: Mathematics, English, Physics, Chemistry, (or Physical Science).

Entry in Year 2:
1. A-Level with at least a C grade in Mathematics, Physics and Chemistry. But must attend and pass Engineering Drawing 1 and 2 or
2. Advanced Diploma in related engineering fields or
3. Any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

Entry in Year 3:
Diploma in Engineering or any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

PROGRAMME STRUCTURE: MANUFACTURING ENGINEERING

Semester	Year 1	Year 2	Year 3	Year 4	Year 5
1	• Algebra and Trigonometry • Mechanics and Thermal Property of Matter • Gen. Chemistry 1 • Language and Communication • Introduction to Computer Applications • Biology 1	• Chemistry for Manufacturing Engineering • Engineering Drawing • Calculus II • Workshop Practice 1 (Mechanical and Electrical) • Thermodynamics • Engineering Materials	• Probability and Statistics • Dynamics of Machines • Advanced Computer Application • Heat & Mass Transfer • Welding Principles and Processes • Foundry Technology	• Plant Layout & Material Handling • Mechatronics • Research Methods in Engineering • Tool and Die Design • Maintenance Management • Engineering Economics & Cost Estimation	• Research Project I • Life-cycle Engineering • Robotics and Automation • Computer Integrated Manufacturing • Manufacturing Process Planning • Selected Topics in Manufacturing Engineering
2	• Calculus I • Electricity & Magnetism, Vibration & Waves • Environmental Biology • Technical and Business Communication • Introduction to computer Programming • General Chemistry II	• Fluid mechanics • Applied Mathematics • Safety, Health & Environment • Statics and Dynamics • Strength of Materials • Electrical & Electronics Fundamentals	• Computer-Aided Design and Manufacturing • Numerical Methods • Machining Principle & Processes • Product Design & Development • Metrology • Metal Forming Processes	• Work Integrated Learning	• Entrepreneurship & Business Management • Engineering and Society • Productions Operations and Management • Quality Control and Management • Research Project II

MUST students managing SRC elections online to avoid rigging

BACHELOR OF SCIENCE IN COMPUTER SYSTEMS AND SECURITY

Computer systems and security play an important role in supporting commerce, banking, telecommunication, health care and other socio-economic agendas.

However, system breaches and failures have the potential to undermine the safety and viability of industrial and commercial systems, fuel criminal activity and endanger human life.

While the 21st century has witnessed a technological revolution brought

about by the integration of computer technology in almost every aspect of life, security challenges inherent in computer hardware and software are on the increase.

Worldwide, computer systems are falling victim to a unique variety of security breaches that usually have profound negative social, economic and legal implications and Malawi is not spared from falling victim to these security breaches.

Given the rate at which Malawi is adopting these advances in computer technology, it is imperative that computer systems security professionals with necessary knowledge and skills be developed to safeguard computer systems from vulnerabilities and security breaches.
The programme develops experts to impart necessary knowledge and skills to safeguard computer systems from vulnerabilities and security breaches.

Career Prospects
Graduates of Computer Systems and Security can have careers in virtually any industry as long as computers are used in their operations. With developments in technology that have resulted in any industry relying heavily on computers for their operations, securing such computer systems and databases is very critical and graduates in this programme will be more than a requirement in such cases.

Criteria for Admission
Entry at Year 1:
MSCE, O-Level, IGCSE, GCE with Six Credits including: Mathematics, English, Physics (or Physical Science)

Entry in Year 2 (must satisfy both criteria):
1. MSCE, O-Level, IGCSE, GCE with Five Credits including: Mathematics, English and Physics (or Physical Science)
2. Diploma in IT/Computer Science from a well-recognized institution with either distinction or credit and strong Mathematics and Computer Programming components.

Programme Structure: BSc in Computer Systems and Security

Semester	Year 1	Year 2	Year 3	Year 4
1	-Algebra & Trigonometry -Physics I -Language & Communication -Creative Thinking -Introduction to Computer -Applications -Information Systems	-Hardware Engineering I -Operating Systems -Data Structures & Algorithms) -Database Systems -Object-Oriented Programming -Systems Analysis and Design	-Cryptology I -Computer Security -Probability & Statistics -Advanced Computer Networks -Server Administration -Software Reverse Engineering	-Work Integrated Learning
2	-Calculus I -Semiconductor Physics II -Language & Communication II -Business Innovation -Introduction to Computer Programming -Discrete Mathematics	-Hardware Engineering II -Database Administration -Introduction to Computer Networks -Fundamentals of Modern Algebra -Web Technologies & E-Services -Introduction to Artificial Intelligence	-Cryptology II -Analog & Digital Communication Systems -Cyber Security -Ethical Hacking -Information Security -Advanced Server Administration	-System Audit -Enterprise & Cloud Computing -Digital Forensics -Data Compression -Business Management and Entrepreneurship -Research Project

BACHELOR OF SCIENCE IN BUSINESS INFORMATION TECHNOLOGY

MUST ICT department facilitating a training in fibre optics

Business Information Technology deals with all aspects of business, management and information technology (IT).

It combines business science, management science and ICT. The business science focuses on issues

concerning design and development of business system procedures and processes to be productive and efficient. Many organisations are in the process of introducing information and communication technologies (ICT) to enhance or improve their operations.

In terms of human capital, there is no reliable link between business and ICT professionals. In this "technological world" there is a need to have some individuals at all management levels who are conversant with both business and ICT. Through this programme, MUST intends to contribute to the solid training of professionals with knowledge and skills on the management of IT-supported business systems in any kind of organization.

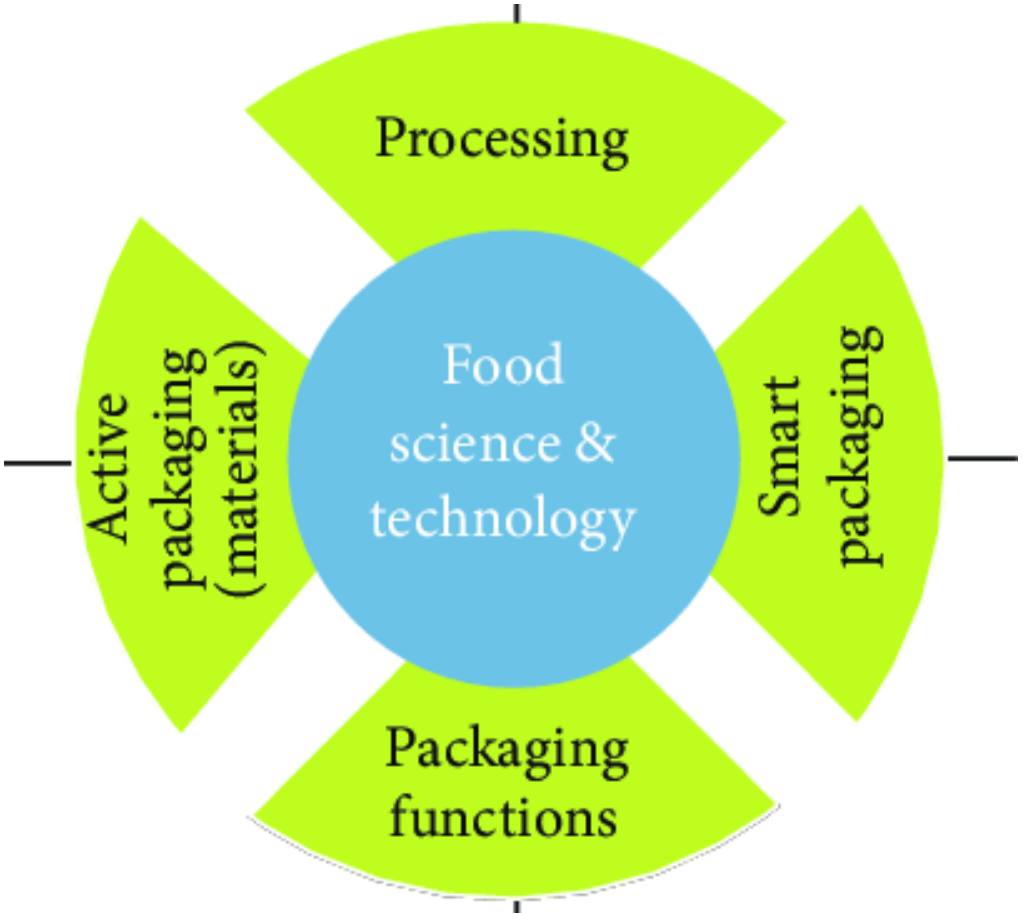
Career Prospects
Graduates of Business Information Technology can have careers in any business that utilises technology in its processes because the programme produces experts in business technology utilisation. As such, graduates can have careers in banking, all industries, software development or indeed establish their own business solutions and applications and become consultants or business owners.

Criteria for Admission
Entry at Year 1:
MSCE, O levels, IGCSE, GCE with Six Credits including: Mathematics, English and Physics

Entry in Year 2:
1. A-Level with at least a C grade in Mathematics, Physics and ICT/Computer studies or
2. Advanced Diploma in ICT, Business Information Systems and Business Administration.

BSc in Business Information Technology Programme Structure

Semester	Year 1	Year 2	Year 3	Year 4
1	Business Mathematics I	Accounting I	Cost &Management Accounting	Corporate Finance
	Creative Thinking	Computer Programming I	Data Communication and Networks	Human Resource Management
	Information Systems I	Database Systems	Marketing	Information Security
	Introduction to Business	Human Computer Interaction	Object Oriented Programming	Mobile Technologies
	Introduction to Computer Applications	Management Principles and Practice	Principles of Operating Systems	Research Methods
	Language & Communication	Microeconomics	Systems Design	Strategic Management
2	Business Mathematics II	Accounting II	Business Law	Business Management and Entrepreneurship
	Information Systems II	Business Statistics	Database Administration	Ethics in Business Information Technology
	Technical & Business Communication	Computer Programming II	Operations Management	Leadership
	Business Innovation	Macroeconomics	Project Management	Research Project
	Organizational Behaviour	Systems Analysis	Server Administration	Technology and Innovation Management
	Society and Culture	Web Technology & E-Services	Web Development	



BSC IN FOOD SCIENCE AND TECHNOLOGY

Agriculture is key to the socioeconomic development of Malawi's economy.

Agriculture alone accounts for approximately 30% of the country's GDP and over 80% of the country's national export earnings.

However, tobacco alone contributes over 60% (GOM, 2005), with little contribution from food crops, specifically sugar and tea, despite the diverse types of food crops grown in the country.

One of the key priority areas in the Malawi National Export Strategy (NES, 2013-2018) is manufacturing of beverages, agro-processing (dairy, maize, horticulture (fruits and vegetables) and legume value addition.

This is a manifestation of the potential contribution of food crops on the country's economic growth.

However, this economic potential has not been realised due to several challenges which include:
(i) heavy post-harvest losses arising from lack of small-scale post-harvest processing technologies,
(ii) shortage of value chain addition technologies due to lack of appropriate knowledge,
(iii) lack of
appropriate skills in food processing and preservation and
(iv) under-developed food processing industries. This is evident from the needs assessments which revealed that small and medium food processors had challenges in value addition due to challenges stipulated above (i-iv).

In an attempt to address issues of post-harvest losses, the Malawi Government through the Malawi Growth and Development Strategies III (2017-2022), has committed to promote technologies that reduce post-harvest losses in storage, preservation and food processing, private investments in production, processing and marketing of high-quality nutritious foods, and promoting bio-fortification and fortification of staple food, ultimately adding value to the food and increasing product quality and hence export earnings.

In order to achieve this, appropriate training in Food Science and Technology is vital.

This program therefore has been designed to produce a cadre of Food scientists and technologists equipped with relevant knowledge and skills to reduce post-harvest loss through appropriate technologies in value addition in order to achieve the muchdesired socio-economic development of the country.

This program is consistent with The Malawi 2063 (MW2063) vision which provides for
an inclusively wealthy and self-reliant industrialized upper-middle income country by the year 2063.

This can be justified by the fact that the programme emphasizes on producing graduates equipped with the relevant knowledge, skills and attitudes for them to competently serve the food industry and handle other food science and technology related portfolios in both private and public sector or become entrepreneurs thus create jobs for themselves and others.

The programme is also consistent with the
continental aspirations of building a prosperous Africa, based on Inclusive Growth and Sustainable development (AU Agenda 2063) in the following priority areas: health and nutrition; sustainable and inclusive economic growth; science, technology and innovation (STI) driven manufacturing / industrialization and value addition; economic diversification and resilience. The programme will also contribute to achievement of UN Sustainable Development Goals (SDG) # 2, 3, 4 and 9, viz: zero hunger, good health and wellbeing, quality education, industry, innovation and Infrastructure.

The Malawi University of Science and Technology through the

Malawi Institute of Technology is better placed to provide this training for the following reasons:

(i) the MUST's research agenda of 2016 prioritises value addition of different products including agricultural food products,
(ii) the University envisioned to establish an industrial park, where one of the key aspects was new product (food) development, commercialisation and entrepreneurship,
(iii) innovation is one the core values of the university, and
(iv) the MIT is already offering similar programmes of manufacturing and chemical engineering which will link very well with this new programme.

Career prospects

You never go wrong with food and there are many opportunities for those pursuing this course. Examples include food processors, production experts, researchers and product developers

Criteria for Admission

Entry in Year 1:

(a). MSCE Level, IGCSE, GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics and English.

Entry in Year 2:

(a). A-level with at least C grade in the following subject Physics, Chemistry, and Mathematics, with Biology at O` level.
NB: - The Admissions Office may assess any other related qualification from a recognized institution of higher learning.
Program Structure

Semester	Year 1	Year 2	Year 3	Year 4
1	Algebra & Trigonometry General Biology for Food Sciences General Chemistry I Introduction to Computer Applications, Language and Communication Studies I Classical Mechanics for Biological Sciences	Biometry Biochemistry Principles of Food Engineering I Food Chemistry Food Safety and Quality Assurance Food Laboratory Management	Food Product Development and Commercialisation I Food Biotechnology Food Laws and Regulations Food Entrepreneurship and Innovation Research Project I Dairy Processing Technology Cereal and Legume Processing Technology	Research Project II Equipment and Technology Development for Food Processing Plantation Crops Processing Technology Food Product Development and Commercialisation II Food Toxicology Meat Processing Technology

2	Introduction to Food Science and Technology Calculus I, Introduction to Computer Programming Electricity and Magnetism for Biological Sciences General Chemistry II Food Microbiology Language & Communication Studies II Post-harvest Handling of Food Crops	Functional Foods Food Separation Processes Principles of Food Engineering II Food Selection, Preparation and Service Management Food Processing and Preservation Food Waste Management Introduction to Food and Human Nutrition Sensory Evaluation of Food	WIL	Brewery Science and Technology Fruits and Vegetable Processing Technology Industrial Studies, Food Packaging and Labelling Food Industry Management and Marketing Principles of Food Engineering III Research Project III

A lecturer helping visiting high school students with a lesson in Science

BSC IN MATHEMATICAL SCIENCES

The Bachelor of Science in Mathematical Sciences intends to prepare graduates to work in industries or to prepare for graduate studies in advanced mathematics, physical sciences, engineering or computer science.

The degree includes areas of concentration that reflects the individual student's interests and career goals in fields like systems engineering, computer science, business and finance or space physics.

This program will help to respond to emerging problems in science, banking, insurance, health, ecology, engineering, and society.

The program will focus on a wide variety of topics such as how to construct methods for multi-criteria decision making (requiring discrete mathematics and statistics), predicting how the financial markets will behave (requiring probability/ statistics, analysis, and optimization), epidemiological mathematics, ecological mathematics and analysing how liquid flows around solids (requiring expertise in computational methods and analysis).

Career Opportunities

Students with a mathematical science background are prepared for careers in the electronics and computer manufacturers; logistics companies, health sector, banking sectors, insurance companies, pharmaceutical firms, and more. Furthermore, the graduates will have options in numerous career fields, including business, engineering, and operations research. They can explore job opportunities as actuaries, financial analysts, insurance analysts and systems engineers, to name a few.

Criteria for Admission

Entry in Year 1:

(a). MSCE Level, IGCSE, GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics and English.

Entry in Year 2:

(a). A-level with at least C grade in the following subject Physics, Chemistry, and Mathematics, with Biology at O` level.

NB: - The Admissions Office may assess any other related qualification from a recognized institution of higher learning.

Program Structure.

FINANCIAL MATHEMATICS

Semester	Year 1	Year 2	Year 3	Year 4
1	-Algebra & Trigonometry -Mechanics and Thermal Properties of Matter -General Chemistry I -Language & Communication -Introduction to Computer Applications -General Biology	-Calculus II -Differential Equations I -Discrete Mathematics -Fundamentals Statistics & Probability -Computational Mathematics -Introduction to mathematical modelling -Microeconomics	-Real analysis -Multivariate Calculus -Complex Analysis -Financial Mathematics I -Introduction to Stochastic Processes	-WIL and Project Proposal
2	-Calculus I -Electricity and Magnetism Vibrations and Waves -Human Anatomy and Physiology -Computer Programming -General Chemistry II -Technical & Business Communication	-Introduction to Insurance Mathematics -Introduction to Financial Mathematics -Linear Algebra -Differential Equations II -Introduction to Biomathematics -Statistical Estimation and hypothesis testing -Macroeconomics	-Research Methods; -Linear Optimization; -Mathematical statistics; -Financial Mathematics II; -Numerical Methods; -Linear regression analysis	-Abstract Algebra; -Accounting; -Innovation; -Entrepreneurship; -Financial Mathematics Modelling -Project

BIOMATHEMATICS

Semester	Year 1	Year 2	Year 3	Year 4
1	Algebra & Trigonometry Mechanics and Thermal Properties of Matter General Chemistry I Language & Communication Introduction to Computer Applications General Biology	Calculus II Differential Equations I Fundamentals Statistics & Probability Discrete Mathematics Computational Mathematics Introduction to mathematical modelling Microeconomics	Real analysis; Multivariate Calculus; Complex Analysis; Biomathematics I; Introduction to Stochastic Processes	WIL and Project Proposal
2	Calculus I Electricity and Magnetism, Vibrations and Waves Human Anatomy and Physiology Computer Programming General Chemistry II Technical & Business Communication	Introduction to Insurance Mathematics Introduction to Financial Mathematics Differential Equations II Introduction to Biomathematics Linear Algebra Statistical Estimation and hypothesis testing Macroeconomics	Research Methods; Linear Optimization; Mathematical statistics; Biomathematics II; Numerical Methods; Linear regression analysis	Abstract Algebra; Innovation; Entrepreneurship; Biomathematics Modelling Project

INSURANCE MAT HEMATICS

Semester	Year 1	Year 2	Year 3	Year 4
1	-Algebra & Trigonometry -Mechanics and Thermal Properties of Matter -General Chemistry I -Language & Communication -Introduction to Computer Applications -General Biology	-Calculus II -Differential Equations I -Fundamentals of Statistics & Probability -Computational Mathematics -Discrete Mathematics -Introduction to mathematical modelling -Microeconomics	-Real analysis; -Multivariate Calculus; -Complex Analysis; -Introduction to Life Insurance Mathematics; -Introduction to Stochastic Processes	-WIL and Project Proposal
2	-Calculus I -Electricity and Magnetism, Vibrations and Waves -Human Anatomy and Physiology -Computer Programming -General Chemistry II -Technical & Business Communication	-Introduction to Insurance Mathematics -Introduction to Financial Mathematics -Differential Equations II -Introduction to Biomathematics -Linear Algebra -Statistical Estimation and hypothesis testing -Macroeconomics	-Research Methods; -Linear Optimization; -Mathematical statistics; -Introduction to Non-life Insurance Mathematics; -Numerical Methods; -Linear regression analysis	-Abstract Algebra; -Innovation; -Entrepreneurship; -Insurance Mathematics Modelling; -Project

Labs are critical for Sciences education

BSC IN SCIENCES EDUCATION

The programme intends to prepare students for teaching career in the fields of Mathematics, Chemistry, Biology and Physics in secondary schools, as well as working in industries. It also prepares students for postgraduate studies in advanced Mathematics, Chemistry, Physics, Biology, Engineering, Education and Computer Science. It has four pathways: Mathematics, Chemistry, Physics and Biology.

The Physics route is designed to produce graduates who can teach in secondary schools and universities, and operate at the intersection of physics, computer science and science applications. This Physics program helps to respond to emerging problems in teaching profession, science, engineering, and society.

The second route in Mathematics prepares students who will teach the subject in secondary schools and universities. They will also be equipped with Mathematical skills that will be required in different scientific field as well as engineering and technology. The route will also prepare students who intend to do advanced mathematics.

There is also a route of those specializing in Chemistry who will be able to teach in secondary schools and will also be equipped with different skills in Chemistry that will help them in different chemical

industries. The program is providing good background for those intending to have further studies in Chemistry. The fourth route is for students majoring in Biology with minor in Mathematics. The planned Biology modules also prepare students who intend to do further studies in the subject matter. In addition, the students pursuing this program will also learn education courses so that they are prepared to teach effectively in secondary schools and beyond.

Career opportunities
The program addresses an ongoing demand for qualified and committed science teachers at secondary school to post-secondary classrooms, in addition to science education jobs outside the classroom.

Criteria for Admission
Entry in Year 1: MSCE, O-Level, IGCSE, GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics and English.
Entry in Year 2: A-level with at least C grade in the following subject Physics, Chemistry, and Mathematics, with Biology at O-level.
or
Any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

Program Structure
Mathematics Major

Semester	Year 1	Year 2	Year 3	Year 4
1	-Algebra & Trigonometry -Mechanics and Thermal Properties of Matter -General Chemistry I -Language & Communication -Introduction to Computer Applications -General Biology	-Calculus II -Discrete Mathematics -Chemistry or Physics -Education Psychology -Sociology of Education -Innovation in Education	-Linear Algebra, -Complex Analysis, -Statistical Estimation and Hypothesis Testing -Multivariate Calculus, -Administration Leadership & Management -Testing Measurement & Evaluation	-Real Analysis, -Abstract Algebra, -Differential Equations II, -Numerical Analysis, -Teaching Methods for Mathematics I -Research Project

2	-Calculus I -Electricity and Magnetism, Vibrations and Waves -Human Anatomy and Physiology -Computer Programming -General Chemistry II -Technical & Business Communication	-Computational Mathematics, -Introduction to Probability and Statistics, -Chemistry or Physics -Philosophy of Education -Curriculum Theory -Science Teaching Methods	-Differential Equations I -Linear Optimization, -Instruction Media and Technology, -Special Needs Education -Entrepreneurship for Education Science -Research Methods	WIL

Chemistry Major

Semester	Year 1	Year 2	Year 3	Year 4
1	-Algebra & Trigonometry -Mechanics and Thermal Properties of Matter -General Chemistry I -Language & Communication -Introduction to Computer Applications -General Biology	-Organic Chemistry I -Inorganic Chemistry I -Mathematics -Educational Psychology -Sociology of Education -Innovation in Education	-Organic Chemistry II -Inorganic Chemistry II -Physical Chemistry II -Administration Leadership & Management -Testing Measurement & Evaluation -Teaching Methods II	-Environmental chemistry -Industrial chemistry -Organic Chemistry IV -Pharmaceutical chemistry -Chemical Technology of Skin and Hair-care Products -Research Project

2	-Calculus I -Electricity and Magnetism, Vibrations and Waves -Human Anatomy and Physiology -Computer Programming -General Chemistry II -Technical & Business Communication	-Analytical Chemistry I -Physical Chemistry I -Mathematics -Philosophy of Education -Curriculum Theory -Teaching Methods I	-Analytical Chemistry II -Organic Chemistry III -Physical Chemistry III -Instruction Media and Technology -Special Needs Education -Entrepreneurship for Education Science	WIL

Biology Major

Semester	Year 1	Year 2	Year 3	Year 4
1	-Algebra & Trigonometry -Mechanics and Thermal Properties of Matter -General Chemistry I -Language & Communication -Introduction to Computer Applications -General Biology	-Biochemistry -Introduction to Microbiology -Organic Chemistry I -Education Psychology -Sociology of Education -Innovation in Education	-Introduction to Ecological Principles -Environmental Biology -Organic Chemistry II -Educational Administration and Management -Testing Measurement & Evaluation -Biology Teaching -Methods II	-Parasitology -Plant Pathology -Conservation Biology -Freshwater Biology Aquaculture -Research Project

2	-Calculus I -Electricity and Magnetism -Vibrations and Waves -Human Anatomy and Physiology -Computer Programming -General Chemistry II -Technical & Business Communication	-Vertebrate Form and Function -Plant Form and Function -Analytical Chemistry 1 -Philosophy of Education -Curriculum Theory -Biology Teaching Methods I	-Introduction to Genetics -Analytical Chemistry II -Research Methodology and Proposal Development -Instruction Media and Technology -Special Needs Education -Entrepreneurship for Education Science	WIL

Physics Major

Semester	Year 1	Year 2	Year 3	Year 4
1	-Algebra & Trigonometry -Mechanics and Thermal Properties of Matter -General Chemistry I -Language & Communication -Introduction to Computer Applications -General Biology	-Mechanics II -Electricity & Magnetism II -Calculus II -Education Psychology -Sociology of Education -Innovation in Education	-Nuclear Physics -Thermodynamics Complex Analysis -Administration Leadership & Management -Testing, Measurement & Evaluation -Teaching Methods II	-Analog Electronics -Solid State Physics -Medical Physics -Quantum Mechanics -Research Project in Physics

2	-Calculus I -Electricity and Magnetism, Vibrations and Waves -Human Anatomy and Physiology -Computer Programming -General Chemistry II -Technical & Business Communication	-Vibrations & Waves II -Physical Optics and Lasers -Multivariate Calculus -Philosophy of Education -Curriculum Theory -Teaching Methods I	-Digital Electronics -Modern Physics -Differential Equations -Research Methods -Instruction Media and Technology -Special Needs Education -Entrepreneurship for Education Science	WIL

Roads need to be resilient to climate change shocks

NDATA SCHOOL OF CLIMATE AND EARTH SCIENCES

The Ndata School of Climate and Earth Sciences (NSCES) opened its doors to students in 2015 and started with two programmes: Bachelor of Science (BSc) in Earth Science (Geology) and BSc in Meteorology and Climate Science. It now offers seven undergraduate programmes with the following five additional ones: BSc in Water Quality and Management, BSc in Disaster Risk Management, BSc in Sustainable Energy Systems, BSc in Geo-Information Science, and BSc in Petroleum GeoScience (Oil and Gas).

It is mandated to provide training to both undergraduate and postgraduate students and conduct research in earth, climate science, water, and energy related issues for socio-economic growth and sustainable development of the country.

Its vision is to become a vibrant school that promotes training and research in related areas with the mission to of coordinating, facilitating, and promoting the participation of all stakeholders in training and research. It is headed by Dr Wilfred Kadewa as executive dean. He is the second executive dean for the school after Dr Leonard Kalindekafe. The NSCES has four departments of Energy Resources, Earth Sciences, Water Resources and Climate Sciences. Among the current heads of department are Dr John Taulo, Dr Isaac Tchuwa and Dr Vincent Msadala.

NSCES also has the Centre for Climate Change and Disaster Risk Management.

Executive Dean, NSCES: DR WILFRED KADEWA

Dr Wilfred Kadewa

Contacts:

Mobile: +265 991 465 099
Email: wkadewa@must.ac.mw

Dr Wilfred Kadewa is an environmental pollution and resource management specialist. He holds a PhD in Applied Sciences from Cranfield University.

His expertise is in mechanistic understanding of processes as applied to water, wastewater treatment, and water and soil remediation technologies and relationships between water, sanitation, soil and climate change.

Current research projects include greenhouse gas emissions from agriculture and waste management, activities on climate predictions--impacts and adaptations; water recycling (grey and black water); ecological sanitation and environmental health; and biochemical pollution of water resources.

Dr Kadewa has over 17 years professional experience in environmental management and development. He has also worked on vulnerability assessments, environmental (climate change) investment planning, environmental monitoring and action planning and; water resources management; and environmental and social impacts assessment. His working career stretches back to 2001-2003 as a focal point for preparation of state of environment reports, action planning and micro-project formulation at community, district and national level for Malawi, and the Global Environmental Outlook. Then Environmental Impact Assessments for civil projects under Scott Wilson Malawi from 2003-2004, and in academia from 2004 with University of Malawi and then Lilongwe University of Agriculture and Natural Resources.

BACHELOR OF SCIENCE IN EARTH SCIENCE (GEOLOGY)

A pavillion under NSCES showcasing Malawi's different rocks

A Bachelor's degree in Earth Sciences provides students with basic foundation and a broader perspective in Earth Sciences.

Students will benefit from this programme through increased awareness of issues surrounding exploration and

exploitation of mineral resources, petroleum, energy minerals, other alternative natural energy sources, planning of building sites and related engineering and seismological issues and underground water and environmental resources.

A degree in Earth Sciences from the MUST provides a good basis for geology, research and employment. It covers the field of mineral exploration and exploitation, monitoring of the environment and its impact to the community as well as expertise in mining governance and entrepreneurship in the field of mining.

The Bachelor's degree gives a good basis for students who would want to venture into research at Masters and PhD level. Furthermore, the degree gives you an expertise in undertaking field and laboratory investigation combined with team working, communication and analytical skills.

With such a background you can work in government department, oil, gas and petroleum sector; the groundwater industry, environmental consultancies and civil engineering and construction companies.

Career Prospects

There is a lot one can do with a degree in Geology, such as working as engineering geologist, geochemist, geophysicist/field seismologist, geoscientist, hydrogeologist, mudlogger, seismic interpreter, oil, gas and petroleum expert, GIS and remote sensing expert, and wellsite geologist.

Criteria for Admission

Entry in Year 1: *MSCE, "O" Level, IGCSE, GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics, Geography and English.*

Entry in Year 2: *A-level with at least C grade in the following subject Physics, Chemistry, and Mathematics, with Biology at 'O' level.*

OR

Any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

BSc EARTH SCIENCES (GEOLOGY) PROGRAMME STRUCTURE

Semester	Year 1	Year 2	Year 3	Year 4
1	Space and Earth Sciences 1	Calculus II	Probability and Statistics	Work Integrated Learning
	General Chemistry I	Introduction to Petrology	Mineral Resource Governance and Geoethics	
	Introduction to Computer Applications	Classical Mechanics and Kinetic theory of Gas	Advanced Petrology	
	Language and Communication Studies	Environmental Geology and Hazard Risk Assessment	Geochemistry	
	Mechanics and Thermal Properties of Matter	Minerals and Rocks	Palaeontology and Geochronology	
	Algebra and Trigonometry	Geological Survey and Mapping	GIS and Remote Sensing	
2	Space and Earth Sciences II	Mineralogy and Crystallography	Research Project 1	Applied Geology
	General Chemistry II	Stratigraphy and Structural Geology	Mineral Exploration Techniques	Petroleum Geology and Energy Minerals
	Computer Programming	Fundamentals of Engineering Geology	Economic Geology	Research Project II
	Technical and Business Communication	Gemmology and Small-scale Mining	Geophysics	Mining and Mineral Processing
	Electricity and Magnetism, Vibrations and Waves	Hydrology and Hydrogeology	Statistical Methods in Geosciences	Mineral Economics
	Calculus 1	Linear Algebra and Further Calculus	Global Geodynamics and Geology of Malawi	Business Management Entrepreneurship

BACHELOR OF SCIENCE IN METEOROLOGY AND CLIMATE SCIENCE

Cyclone Ana caused floods in many parts of Malawi

Meteorology and climate science helps us to understand and predict changes in the Earth's atmosphere. This is of paramount importance in developing countries like Malawi whose socio-economic development is largely dependent on its agro-based economy. Over 85% of the total population in Malawi is dependent upon rain fed agricultural production, which is highly vulnerable to frequent weather and climatic shocks such as floods and drought. Other important sectors of society that are also highly sensitive to weather and climate include tourism, disaster management,

trade, aviation and health. Climate Change and variability is an additional pressure on the country's socio-economic development, with Malawi being the most prone countries in the sub Saharan Africa. Projected climate change scenarios in Malawi indicate an increase in temperature and erratic rainfall events, coupled by a decrease in total annual rainfall and water availability. These will in turn impact heavily on the agricultural sector thereby increasing poverty levels.

It is evident that the sustenance of Malawi's economy base needs specialized human capacity in meteorology, climate and related atmospheric sciences with a considerable understanding of the behaviour of the Earth's atmospheric conditions, and the subsequent responses to both human and natural inputs. This human capacity will also be key to the provision of accurate weather and climate information which is essential for planning and managing socio-economic production, particularly under changing climate. Presently, there is no institution in Malawi offering such a specialised undergraduate degree programme.

This programme has therefore been designed to address Malawi's specific capacity needs in meteorology, climate and related atmospheric sciences. The programme has been designed by integrating the basics with advanced and applied aspects of meteorology and climate science such as monitoring and analysis of the climatic system and processes, forecasting at various temporal and spatial scales, climate modelling, climate change science and future scenarios analysis, weather information communication and dissemination and early warning systems, and disaster management.

Career Prospects

Graduates can work for media houses, consultancy, education, agriculture, military, and national meteorological services as meterologists. As climate science experts they can work in the emerging areas related to climate change. Of course, climate change mitigation is growing in areas including energy efficiency, renewable energy, carbon monitoring, agriculture and transportation systems. Climate Science is designed to give graduates the broad understanding of many of these areas, coupled with the quantitative ability to solve problems.

Criteria for Admission

(a) Entry in Year 1

• MSCE with a minimum of six credits including Maths, Biology, Geography and Physical Science,

(b) Entry in Year 2

• Advanced Level (A Level) certificate with 3 A level passes in Maths and Physics and Chemistry. A Pass in English at O level is a must. The student with A level will be admitted into second year.
• Diploma in a related field and three years job experience will be admitted in first year.

BSc IN METEOROLOGY AND CLIMATE SCIENCE PROGRAMME STRUCTURE

Semester	Year 1	Year 2	Year 3	Year 4
1	General Chemistry I	Introduction to Meteorology	Statistics in Meteorology and Climate Sciences	Work Integrated Learning (WIL) Mineral exploration techniques
	Algebra & Trigonometry	Introduction to Space and Earth Sciences	Mesoscale and Boundary Layer	
	General Biology	Calculus II	GIS and Remote Sensing I	
	Mechanics & Thermal Properties of Matter	Advanced Mechanics and Kinetics Theory of Gases	Climate Change and Society	
	Language & Communication Studies	Fortran Programming	Dynamics of Weather Systems	
	Introduction to Computer Applications	Atmospheric Physics	Satellite and Radar Meteorology	
2	General Chemistry II	Agrometeorology	Tropical Meteorology	Climate Information Communication and Dissemination
	Calculus I	Fundamentals of Climate Science	GIS and Remote Sensing II	Disaster Risk Management
	Environmental Biology	Hydrometeorology	Weather Analysis and Forecasting	Climate Change Science and Policy
	Electricity, Magnetics, Vibration and Waves	Fluid Mechanics I	Modelling of Weather and Climate Systems	Atmospheric Pollution
	Technical and Business Communication	Weather Observations and Instrumentation	Aviation Meteorology	Research Project II
	Computer Programming	Linear Algebra and Further Calculus	Research Project 1	Business Management and Entrepreneurship

Red Cross members managing the aftermath of a disaster

BACHELOR OF SCIENCE IN DISASTER RISK MANAGEMENT

Disasters such as earthquakes, droughts, cyclones, floods, storm winds, landslides, lightening, tsunamis, emerging infectious diseases and pests such as locusts, often occur at the least expected time. Some of these, for instance cyclones, floods and droughts, are of late, increasing in their severity, frequency and destructiveness. Climate change effects are expected to amplify over 90% of these disasters. In most cases,

the poor are the most affected whenever disasters occur as they do not have the resources or any other means to cope and rebuild.

Malawi, like the rest of the world, is prone to both natural and manmade disasters. For developing countries like Malawi, the resulting fatalities in all social groups, critical infrastructure as well as environmental damage undermines hard won developmental achievements, thereby reversing economic growth and progress towards the elimination of extreme poverty. Furthermore, disasters render many people destitute as their livelihoods are mostly dependent on agriculture. Investing in disaster preparedness is therefore important as this will reduce the need for humanitarian action when disasters strike.

From the foregoing, it is imperative that there should be deliberate efforts to develop specialized capacity in the field of Disaster Risk Management in Malawi equipped with applicable understanding of the nature of disasters and their socio-economic impact on societies. This human capacity will be key to the provision of disaster management services including: detection, early warnings of emerging disasters, mitigation, resilience, recovery and reconstruction. Furthermore, these specialists will play a key role in advising government and other stakeholders on appropriate response to disasters.

This programme has therefore been designed to address specific capacity needs in Disaster Risk Management. The programme integrates the basics with advanced and applied aspects relating to Disaster Risk Management. Student research is a key component of the programme where the students will have the opportunity to put into practice the theoretical framework of Disaster Risk Management.

Career Prospects
They say that disasters cannot be stopped from happening but their impact can be minimised by managing the risk factors. As such, graduates under this programme can work in various areas of disaster management and sustainable development.

Criteria for Admission
Entry in Year 1: *MSCE, "O" Level, IGCSE, GCE at least six strong credits including: Geography, Physics, Chemistry (or Physical Science), Mathematics and English.*
Entry in Year 2: *A-level with at least C grade in the following subject Physics, Chemistry, Mathematics, and computer studies with some programming.*

BSc IN DISASTER RISK MANAGEMENT PROGRAMME STRUCTURE

Semester	Year 1	Year 2	Year 3	Year 4
1	Chemistry I	Introduction to Meteorology	Hazard Mapping	Disaster Risk Management Planning
	Algebra & Trigonometry	Introduction to Disaster Risk Management	Risk Management Theory & Risk Analysis	Disaster Risk and Climate Change
	Biology I	Principles of Geographical Information Science	Practical Weather Observation and Climate Forecasting	Disaster Response Systems and Practices
	Physics I	Disaster and Development	Early Warning Systems	Integrated Emergency Management
	Language & Communication	Rocks and Minerals	Geotechnical Practices in Disaster Risk Management	Community Based Disaster Risk Management
	Introduction To Computer Application	Hazards and Disasters I	Modelling in Disaster Risk Management	Research Project I
2	Physics II	Hazards and Disasters II	WIL	Research Project II
	Biology II	Introduction to Geological Survey and Mapping		GIS and Remote Sensing in Multi Hazard Risk Assessment
	Computer Programming	Statistics for Disaster Risk Management		Social Issues in Disaster Management
	Chemistry II	Fundamentals of Engineering Geology		Business Management and Entrepreneurship
	Calculus I	Fundamentals of Seismology		Disaster Risk Management Governance and Communication
	Technical & Business Communication	Geomorphology and Soils		Disaster Recovery and Reconstruction

BACHELOR OF SCIENCE IN SUSTAINABLE ENERGY SYSTEMS

Biogas is one of the sustainable energy sources

Fossil fuel has been the main source of global energy over the years. However, fossil fuels are being depleted and their use emits greenhouse gases and thus contributing to climate change. Therefore, utilization of sustainable energy as an alternative to fossil fuels is at the top of both socio and economic agendas around the world.

Furthermore, Malawi has not been spared from global energy and

climate challenges. For instance, the demand of electricity is more than what is generated as exemplified in 2016 where there was 351 MW installed capacity against a projected growing demand. On the other hand, there is overdependence on firewood and charcoal for cooking, a situation that is accelerating deforestation and hence environmental degradation.

Sustainable energy systems can play a big role. Sustainable energy systems are energy technologies that utilize renewable energy sources such as solar, wind, geothermal in addition to technologies designed to improve energy efficiency. Therefore, there is a demand for personnel with technological as well as social expertise in sustainable energy systems and thus, the four year Bachelor of Science in Sustainable Energy Systems programme will equip its graduates with knowledge and skills relevant to sustainable energy industry in Malawi. Unlike other energy programmes offered in Malawi, this one promotes hands-on experience on building and analyzing components of sustainable energy system and inculcates the culture of developing new sustainable energy products as well as entrepreneurship. Besides, the programme blends the technological, economics, and social aspects of sustainable energy. In addition, the program will equip the students with knowledge and skills for assessing the resources, storage and transportation of these resources, evaluation of different resources and take an account of the produced energy.

Career Prospects
Sustainable energy is globally becoming popular and with it has come an increased demand for experts in the field. As such, graduates in sustainable energy management can work in solar PV manufacturing, wind power development, green building design services, sustainable bioenergy and smart-grid technologies. These can be done through full time employment, consultancies or entrepreneurship.

Criteria for Admission
Entry in Year 1: *MSCE, "O" Level, IGCSE, GCE at least strong credits in Mathematics, Physical Science (Chemistry and Physics), English and any three of the following; Computer Studies, Agriculture, Biology and Geography.*

Entry in Year 2:
A-level with at least C grade in the following subject Physics, Chemistry and Mathematics and a strong credit in English at "O level".

BSc SUSTAINABLE ENERGY SYSTEMS PROGRAMME STRUCTURE

Semester	Year 1	Year 2	Year 3	Year 4
1	General Biology	Calculus II	GIS and Remote Sensing	Hybrid Energy Systems
	General Chemistry I	Material Science	Hydropower	Power Transmission and Distribution
	Introduction to Computer Application	Safety, Health and Environment	Wind Energy	Energy Economics
	Language & Communication Studies	Thermal Science	Solar Photovoltaic Systems	Project Management
	Mechanics & Thermal Properties of Matter	Electrical and Electronic Science	Research Methods	Research Project 1
	Algebra & Trigonometry	Introduction to Energy and Energy Resources	Power Electronics, Electrochemistry and Renewable Energy Lab	Energy, Environment and Climate Change
			Geothermal Energy Technology	Energy Audit
2	Environmental Biology	Power Electronics	Work integrated learning	Modelling and Simulation of Sustainable Energy Systems
	General Chemistry II	Computer Aided Visualization and Computation		Energy Policy and Law
	Computer Programming	Energy Storage Technology		Business Management and Entrepreneurship
	Technical & Business Communication	Solar Thermal Energy		New Product Development
	Electricity, Magnetics, Vibration and Waves	Bioenergy		Industrial Management
	Calculus I	Thermal Science Lab		Research Project 2
				Social Issues in Sustainable Energy Systems

A plane carrying out petroleum exploration on Lake Malawi

BACHELOR OF SCIENCE IN PETROLEUM GEOSCIENCE (OIL AND GAS)

The presence of reliable and affordable energy supplies is key to advancement of modern life. In the developing world, including Malawi, socio-economic growth is seriously hampered by costly and limited energy supplies. It is apparent that for the country to develop there is need to increase the energy capacity (Taulo et al., 2015).

Primary energy sources of the

country consist of hydropower (2.8%), biomass (over 85%), coal and petroleum products (8.8%) and minor renewable energy sources (Gumula et al., 2013). Presently, all Petroleum and petroleum products are imported through ports in Mozambique and Tanzania. Malawi consumes about 1,000,000 million litres of petroleum products per day. The fuels are mainly used in transport sector and for power generation (DEA, 2018). The petroleum industry has however shown to be very sensitive to political turmoil and economic crises, which have considerably negative impacts on small economies like Malawi.

However, Malawi has potential to discover petroleum resources. This is because geologically Malawi is located within the East African Rift System, which is a proven environment for oil and gas. Several companies are already engaged in oil and gas exploration in the lower shire and Lake Malawi basins.

The oil and gas industry is very complex, requiring highly trained and skilled personnel. Despite possessing the potential to become a petroleum producing country in the future, the country does not have adequate expertise in the exploration, exploitation and management of these resources. Presently, there is no tertiary education institution offering specialized training in oil and gas to address the capacity constraints. Therefore, the programme will produce highly trained and skilled professionals who will contribute towards development and use of these oil and gas resources for socio-economic development of the country and poverty reduction (SDG 1, 2, 4 and 8; MGDS III, 6.3; Agenda 2063, Aspiration 1 and 6; Mines Mineral Policy, 2.7, 2007; Research Agenda in Energy, Industry and Engineering, 6.621, 2014). Some of the required skills are: oil and gas exploration, extraction and distribution; petroleum economics; and petroleum law and policy.

Career Prospects
Graduates under this programme will be able to work in a whole range of areas in the mining sector. For example, they can work as mineral explorers, mining engineers, mining policy experts etc

Criteria for Admission
Entry in Year 1:
MSCE, "O" Level, IGCSE, GCE at least strong credits in Mathematics, Physics, Chemistry (or Physical Science), Geography and English and any of the following; Biology and Computer Studies.

Entry in Year 2:
A-level with at least C grade in the following subject Geography/Geology, Physics, Biology, Chemistry, Mathematics, Computer Studies and English.

BSc IN PETROLEUM GEOSCIENCES PROGRAMME STRUCTURE

Semester	Year 1	Year 2	Year 3	Year 4
1	Chemistry I	Introduction to Space and Earth Sciences	Probability and Statistics	Drilling Engineering
	Algebra & Trigonometry	Minerals and Rocks	Sedimentary Basin Analysis and Sequence Stratigraphy	Well Logging and Test Analysis
	General Biology	Introduction to Geological Survey and Mapping	Petroleum Geochemistry	Health and Safety in Petroleum Industry
	Physics I	Introduction to Energy and Energy Resources	Geochronology and Palaeontology	Reservoir Characterisation
	Language & Communication	Calculus II	Plate Tectonics and Geodynamics	Environmental and Social Impact Assessment
	Introduction to Computer Application	Applied Mechanics and Kinetic Theory of Gases	GIS and Remote Sensing	Research Project I
2	Physics II	Fundamentals of Geochemistry	Formation Environments for Oil and Gas	Oil and Gas Reservoir Modelling II
	Biology II	Fundamentals of Geophysics	Work Integrated Learning	Oil and Gas Economics and Marketing
	Computer Programming	Stratigraphy and Structural Geology	Thermodynamics and Phase Behaviour	Petroleum Law and Policy
	Chemistry II	Applied Mathematics	Applied Seismology	Business Management and Entrepreneurship
	Calculus I	Fluid Mechanics	Oil and Gas Reservoir Modelling I	Oil and Gas and the Environment
	Technical & Business Communication	Introduction to Petrology	Geostatistics and Integrated Prospecting Methods	Research Project II

BACHELOR OF SCIENCE IN WATER QUALITY AND MANAGEMENT

Many Malawians lack portable sources of quality water

Water is an irreplaceable resource and critical for sustainable and socio-economic development as well as healthy ecosystems.

If well managed, water can ease the globe from the burden of disease, leading to improved health, welfare as well as productivity of human populations.

The water sector in Malawi is facing challenges such as degradation of water resources, inadequate promotion of hygiene and sanitation, as well as, treatment and disposal

of solid and liquid waste. There have been reported cases of prevalence of water-related diseases (e.g. Cholera) and cases of increased pollution of water bodies. It is anticipated that in the coming years there will be more adverse impacts on water quality in both surface and ground water due to issues of climate change, human activities (deforestation, agriculture, increased population), urbanization as well as industries (mining and manufacturing).

The resulting pollution will negatively affect the environment, livelihoods and the economic development of the country in the long run. This calls for a regulatory framework which Malawi already has in place. Despite an elaborate environmental regulatory framework, enforcement has been a challenge. The problem is in part due to limited qualified personnel in water quality and pollution management.

As of 2016, there was no university programme in the country focusing on water quality and pollution management. This programme therefore addresses this gap.

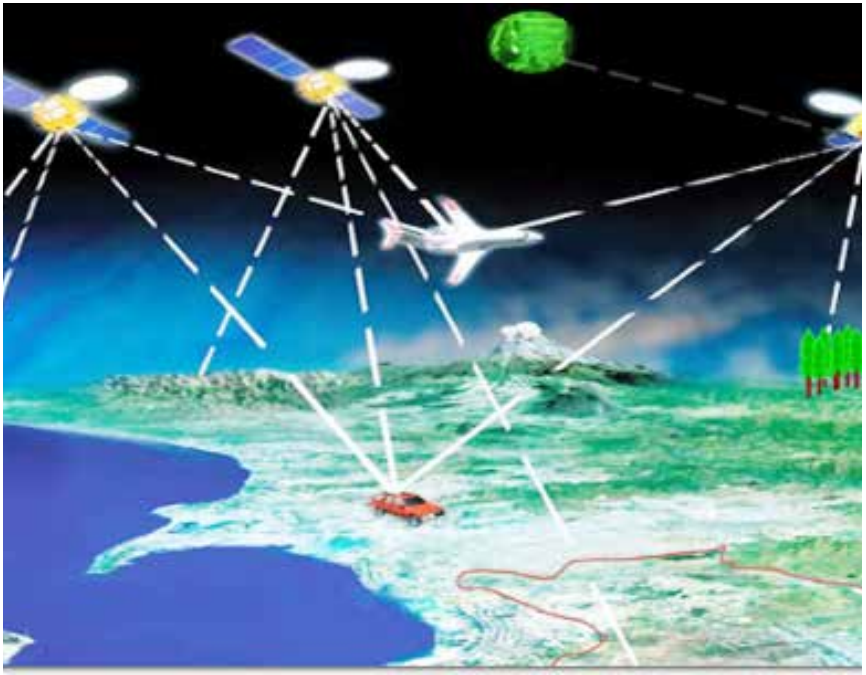
Career Prospects
Graduates under this programme can work in a wide range of professional areas such as in watershed management, biology, ecology, agronomy, soil science, forestry, chemistry (water quality), hydrogeology, communication, education, policy, planning, environmental health and safety (water quality focus), water quality (monitoring, sampling, lab analysis), water quality modeling, GIS analysis, green building, water quality/environmental engineering (in resource development), water resources engineering, utility engineering, municipal water systems operations, water well drilling and pump installation.

Criteria for Admission
Entry in Year 1:
MSCE, "O" Level, IGCSE, GCE at least strong credits in Mathematics, Geography and English and any four of the following; Computer Studies, Physics, Chemistry (or Physical Science), Agriculture and Biology.

Entry in Year 2:
A-level with at least C grade in the following subject Physics, Chemistry and Mathematics and a strong credit in Geography at "O level".

BSc IN WATER QUALITY AND MANAGEMENT PROGRAMME STRUCTURE

Semester	Year 1	Year 2	Year 3	Year 4
1	Chemistry I	Introduction to Meteorology	Pollution Management and Remediation	Water Supply, Sanitation and Governance
	Algebra & Trigonometry	Minerals and Rocks	GIS and Remote Sensing	Water Quality Monitoring and Assessment 2
	General Biology	Principles of Hydrology	Water Quality Monitoring and Assessment 1	Water Quality Modelling
	Physics I	Water Chemistry 1	Water Policy and Law	Indigenous Knowledge Systems and Water Resources Management
	Language and Communication	Fundamentals of Geochemistry	Research Methods	Climate Change and WASH
	Introduction to Computer Application	Aquatic Ecology and Limnology	Gender and Water Resources Management	Research Project I
2	Physics II	Environmental Hydrology	Work Integrated Learning	Water Resources Planning and Management
	Environmental Biology	Water Chemistry 2		Water Economics
	Computer Programming	Environmental Microbiology		Water Safety and Treatment
	Chemistry II	Principles of Hydrogeology		Business Management and Entrepreneurship
	Calculus I	Principles of Water Pollution		Waste Water Management and Utilization
	Technical & Business Communication	Sustainable Water Management and Development		Research Project II



A diagram showing GIS at work

BACHELOR OF SCIENCE IN GEO-INFORMATION AND EARTH OBSERVATION SCIENCE

Geographic Information Science (GIScience) is the science underlining the acquisition, visualisation and analysis of spatial data. It is an important tool for management of geo-spatial information. Since the advent of computerized geographic information systems in the 1960s, as well as the subsequent development of software and computing power, maps have become a much more widespread means for managing, analysing and communicating geospatial

information. The extensive demand for geographic information science skills has entailed a significant role for geography. Indeed, although geographic information science is a multi-disciplinary endeavour, geographical theories have produced the bulk of what now comprise the core knowledge areas of the field. This undergraduate level programme is designed to provide all basic level information in GIS and remote sensing and their potential applications in Earth and climate science research.

Geo-information technologies offer tools for data management through database systems, acquisition, processing and integration to understand the dynamic nature of environmental challenges across a spatio-temporal domain. This is because environmental challenges are multi-disciplinary and complex in nature. Dealing with these challenges involves huge volumes of data and also requires a systems approach to integrate several processes and data layers to understand and model their behaviour for decision making.

As a country, Malawi faces numerous challenges such as population growth, climate variability, disasters, environmental degradation and the need to explore adequate resources to sustain the growing population. These issues have a spatio-temporal dimension and geo-information technologies would provide some tools to help address some of the issues. The programme will develop skills of highly trained professionals who will manipulate and analyse spatial data for timely decision making.

Career Prospects
Graduates under this programme can work as surveyors, cartographers, mapping and surveying technicians, development control specialists, forestry and climate change specialists etc.

Criteria for Admission
Entry in Year 1: *MSCE, "O" Level, IGCSE, GCE at least strong credits in Mathematics and English and any four of the following; Geography, Computer Studies, Physics, Chemistry (or Physical Science), Agriculture and Biology.*

Entry in Year 2: *A-level with at least C grade in the following subject Physics, Chemistry and Mathematics and Computer Programming.*

BSc GEO INFORMATION AND EARTH OBSERVATION SCIENCES PROGRAMME STRUCTURE

Semester	Year 1	Year 2	Year 3	Year 4
1	General Chemistry I	Principles of Geographical Information Science	Advanced Image Analysis	Work intergrated Learning (Wil)
	Algebra and Trigonometry	Principles of Remote Sensing	Mathematical Methods I	
	General Biology	Calculus II	Geospatial Systems Analysis and Design	
	Mechanics and Thermal Properties of Matter	Data Structures and Algorithms	Sensors and Platforms	
	Language and Communication Studies	Object Oriented Programming	Spatial Organisation	
	Introduction to Computer Application	Databases	Data Standards and Interoperability	
2	Technical and Business Communication	Land Surveying	Research Project I	GIS and Remote Sensing in Natural Resource Management
	Electricity, Magnetics, Vibration and Waves	Spatial Data Analysis	Programming Principles in GIS	Mobile Applications Development
	Environmental Biology	Fundamentals of Geophysics	Applied Geophysics	Web Mapping
	Computer Programming	Spatial Databases	Governance and Management of Spatial Information	GIS and Remote Sensing in Multi-Hazard Risk Assessment
	General Chemistry II	Principles of Image Analysis	Geological Remote Sensing	Business Management and Entrepreneurship
	Calculus I	Probability and Statistics	Mathematical Methods II	Research Project II

BINGU SCHOOL OF CULTURE AND HERITAGE

Minister of Tourism Dr Michael Usi during a visit to BISCH

The Bingu School of Culture and Heritage (BISCH) is the third to be oeprationalised at MUST in 2016. It started with two academic programmes at undergraduate level.

It is still growing and currently has three departments as follows: Language and Communication Studies, Musicology, and Indigenous Knowledge Systems and Practice. As of now, the BISCH is offering three programmes: Bachelor of Arts (BA) in Indigenous Knowledge Systems and Practice, BA in African Musicology, and BA in Language, Communication and Culture.

It is headed by Dr Robert Chanunkha as executive dean. BISCH, apart from running academic programmes, has sourced ceramic production equipment to start manufacturing ceramic products for commercial purposes. The ceramic production plant will also enable students to gain practical skills to complement the theoretical knowledge they get in class.

The School is also planning to start production of music equipment to meet local demand. According to Dr Chanunkha, they will first start with production of guitars and keyboards.

Executive Dean, BISCH: Dr Robert Chanunkha

Dr Chanunkha is the first known Malawian holder of a PhD in Music Education. He obtained his Bachelor of Education degree in Music and English at the University of Malawi before earning a Master of Arts in Music at the University of South Africa.

His PhD was read at the University of Pretoria in South Africa. His areas of research interest include music as culture, music education, dance as culture, and music as creative economy.

Dr Chanunkha has held various leadership positions; composed university songs and anthems; taught music; held membership positions of both academic committees and professional bodies; internal and external examiner; supervised postgraduate students (MA and PhD); developed and evaluated curriculums; published journal articles; presented conference papers; conducted sensitization workshops; and received different awards.

Dr Robert Chanunkha

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BACHELOR OF ARTS IN LANGUAGE, COMMUNICATION AND CULTURE

Broadcasting is also taught under this programme

The BLC programme is a multidisciplinary study that deals with language, communication and culture and their unique connections amongst themselves and other disciplines. The BLC programme is aimed at responding to the demand of highly qualified persons in (1) the growing technological and competitive world and (2) the harnessing of innovation and entrepreneurship trends in language, communication and culture.

Culture is the umbrella word which means the ideas, customs, beliefs and social behaviour of a group of people or society. It can be manifested through music, the fine arts, religion, traditions and rituals, language, stories, food and drink, philosophies and many more. Areas of study such as anthropology, media,

linguistics, literary studies, the fine arts, theology, sociology, philosophy, education, geography, history and others have therefore examined various aspects of culture. This degree programme will endeavour to understand culture by focussing on areas in the fields of linguistics, literature (language) and communication. As humanities disciplines, the studies of linguistics, communication and literature are crucial to students at MUST for a variety of reasons.

Linguistics is the scientific study of language. The study investigates how language is structured, how people acquire their knowledge about language, how the knowledge interacts with other cognitive processes, how this knowledge varies geographically and socially, how this knowledge can be used in/for various social contexts and how to model this knowledge computationally.
Many languages lack scientific studies and a record of their composition, development and use. There is need for personnel with skills to work in industries, government and non-governmental institutions that deal with speech recognition, text to speech synthesis, artificial intelligence, natural language processing, user research, speech therapy, forensics and translation and interpretation.
In the language realm, the BLC programme also includes language learning of Malawian local languages and foreign languages such as Chinese. The inclusion of Malawian languages was made to promote linguistic diversity within the Malawi nation.
Career Prospects
Researchers, teachers, lecturers, public relations officers, artists, producers, media practitioners, marketers, politicians, entrepreneurs, publishers, educationists, planners, interpreters, translators; linguists, writers and communication specialists

Entry requirements
The programme shall have two entry points:

Normal Entry
MSCE or its equivalent with at least six credit passes including English Language. In addition, the candidate should have a grade of no more than 4 in any two of the following subjects: Social Studies, Life Skills, Bible Knowledge, History, Chichewa, and Geography.

For A-Level holders, they must have a minimum grade of 'C' in the following subjects: Social Studies, Life Skills, Bible Knowledge, History, and Geography. Candidates will join in second year.

Mature Entry
A candidate with MSCE, IGCSE ('O' level) or equivalent, industrial experience and a qualification from a recognized institution, shall join at the beginning of year 1 or year 2 dependent on the nature of qualification.

A candidate shall have:
a. Diploma with biases in languages, communication, journalism or related qualification from a recognized institution; and
b. MSCE/IGCSE with at least 4 credits including English and any other humanities and social science subjects; and
c. At least 2 years relevant on job experience

Modules

Semester	Year 1	Year 2	Year 3	Year 4
1	-Language & Communication -Introduction to Computer Application -Introduction to Linguistics -Introduction to Communication -Practical Criticism -Elementary Chinese Language & Culture 1	-Introduction to Malawian Languages -Introduction to African Literature -Intermediate Language & Culture 1 -Organisational Communication -The Phonetics and Phonology of Bantu Languages/African Popular Literature and Culture/Public Relations -Ethics & Professionalism	-Language and Gender/The African Novel in English/Media Regulation -Semantics & Pragmatics/Literary Theory and Practice/Introduction to Radio and TV Production -Intermediate Chinese Language and Culture 3 -Project Management -Discourse Analysis and Development -Ecolinguistics/African Literature and the Environment/Introduction to Social Media	-Computational Linguistics/Malawian Fiction/Media Management -Interpretation -Business Management & Entrepreneurship -Advanced Chinese Language and Culture 2 -Language, Literacy & Development/ Shakespeare: Selected Plays/Design and Production of IEC Materials -Syntactic Theories/ War, Conflict and Pain in African Literature/ Communication Ethics in Africa
2	-Technical and Business Communication -Introduction to Computer Programming -Introduction to Languages of the World -Introduction to Literature -Public Speaking -Elementary Chinese Language & Culture 2	-Morpho-Syntactic Structures of Bantu Languages/African Oral Literature/Print Media Production -Language and Society -Malawian Literature -Intermediate Chinese Language and Culture 2 -Translation Theory and Practice -Science Communication	-Forensic Linguistics/African Prison Writing/ Media and Society -Psycholinguistics/Studies in African Film/ Development Communication -Advanced Chinese Language and Culture 1 -Linguistics Research Methods/ Communication Research Methods/ Literature Research Methods -Language, Culture and Identity -Phonological Theories/19-20th Century European Novel in Translation/Advertising and Sales Promotion	-Work Integrated Learning -Research Project/ Dissertation

Ceramics production is one of the modules under IKSP

BACHELOR OF ARTS IN INDIGENOUS KNOWLEDGE SYSTEMS AND PRACTICE

IKSP uniquely combines different disciplines that relate to human cultures. It provides students with opportunities to understand various aspects of the human condition, knowledge and skills on the way humans relate to one another, sustain and protect life, use and conserve the natural and spiritual worlds.

It is comprehensive and enriching as it draws inspiration from human cultures. Examples of applications of the programme are the development and production of ceramics ware (e.g. cups, tea-pots, plates, tiles, and decorative wares like vases and figurines); herbal drugs; paintings and designs; viewing of life styles, diets, architectural designs, and world from alternative perspectives; the protection of endangered knowledge and skills; appreciation of local reasoning and the ethical dimensions from the local perspectives.

The programme also provides a critical understanding of indigenous knowledge as applicable in real life. Students engage in theoretical debates and carry out practical projects.

Career Prospects

Graduates can create self-jobs or get employed in various occupational fields such as academic, corporate and business, government (planners, researchers, managers, arts and crafts officers, curators, conservators, museum or heritage experts, monument officers); community-based jobs (programme designers, implementers).

Criteria for Selection
The programme shall have two entry points as follows:

Entry In Year 1
A candidate with six credits in MSCE or its equivalent including English, and a grade of no more than 4 in any three of the following subjects: Social Studies, Life Skills, Bible Knowledge (Religious Studies), History, and Geography or B for IGSCE in all the above subjects shall join at year one.

Entry In Year 2
1, For A Level, the candidate must have a minimum grade of C in the following subjects: Arts & Design (Creative Arts), History, Bible Knowledge and Geography. Candidates will join in second year.

2, Those with MSCE, IGCSE ('O' level) or equivalent, industrial experience and a qualification from a recognized institution, shall join the programme at the beginning of year 1 or year 2 dependent on the nature of qualification.

A candidate shall have:
a. Diploma in Indigenous Knowledge or related qualification from a recognized institution;
b. MSCE/IGCSE with at least 4 credits including English and any other social science subjects; and
c. At least 2 years relevant on job experience.

Modules

Year 1	Year 2	Year 3	Year 4
-Ethics & Morality -Critical Thinking & Reasoning Skills I -Language & Communication -Ceramics I -Introduction to Computer Application -Concepts & Theories of Indigenous Knowledge I -Ethics & Professionalism -Critical Thinking & Reasoning Skills II -Technical & Business Communication -Ceramics II -Concepts & Theories of Indigenous Knowledge II -Indigenous Food	-Intellectual Property I -Indigenous Religion -Ceramics II -Drawing & Painting I -Dietary Rituals in Religious & Secular Affairs -Traditions in Contemporary World -Intellectual Property II -Indigenous Architecture -Ceramics IV -Drawing & Painting II -Indigenous Logic -African Family Systems	-Herbal Medicine I -Funeral Systems -Tangible Traditions -Drawing & Painting III -Indigenous Food & Health -Magic, Witchcraft & Divination -Herbal Medicine II -Research Methods -Intangible Traditions -Drawing & Painting IV -Indigenous Information Systems -Culture & Family Dynamics	-Sex & Sexuality in Contemporary Africa -Entrepreneurship & Business Management -Leadership, Gender & Advocacy -Indigenous Environmental Studies -Integrated Learning I -Indigenous Knowledge Management Work -Research Project/ Dissertation -Work Integrated Learning II

MUST Orchestra is the brainchild of African Musicology students

BACHELOR OF ARTS IN AFRICAN MUSICOLOGY

African Musicology is a multidisciplinary programme that deals with the science and the art of music and their unique connections within the culture and heritage context. The programme aims at responding to the demand of highly qualified persons in the growing technological and competitive sectors of music and multimedia within the cultural industries in Malawi, and harnessing of innovation and entrepreneurship trends in music and multimedia.

It emphasizes the use of music for sustainable development, and the study of music from the scientific and humanistic approaches. Studies in applied comparative musicology (applied ethnomusicology) are intended for students interested in the African music for a better understanding and respect of various African cultures, especially Malawian cultures, and their application for sustainable development.

MUST wants the programme to contribute to Malawi's national policy initiatives, especially the goal to widen access to higher education, realization of a strong cultural identity among African countries; attainment of education and skill development and tourism development, and eradication of poverty, among others.

It will play a major role in addressing the many needs of the Malawian society through providing rigorous music studies for meaningful engagement with issues in the realm of science, technology, multimedia, innovation, economics and sustainable development. In addition, it will enhance personal and professional development through the promotion of lifelong learning.

Career Prospects
Graduates will attain knowledge, attitudes and skills that will lead to self-employment or employment in areas such as academia, e.g as researchers, publishers and teachers; government e.g as planners, researchers, managers, archivists, conservators; and as businesspersons e.g media specialists, music therapists, and performers.

Criteria for Admission
The programme shall have two entry points as follows:

Year 1 Entry
A candidate with six credits in MSCE and IGCSE ('O' level) or equivalent including English, and a combination of any two of the following subjects: Social Studies, Life Skills, Bible Knowledge, History, Performing Art, and Geography shall join at year one.

Year 2 Entry
A candidate with MSCE, IGCSE ('O' level) or equivalent, industrial experience and a qualification from a recognized institution, shall join the Programme at the beginning of year 1 or year 2 dependant on the nature of qualification. Audition applies.

A candidate shall have:

a) *Diploma in music or related qualification from a recognized institution and*
b) *MSCE/IGCSE with at least 4 credits including English and any other social science subjects; and*
c) *At least 2 years relevant on job experience.*

Modules

Year 1	Year 2	Year 3	Year 4
-Ethics & Morality -Language & Communication -Introduction to Computer Application -Fundamentals of Music -Choirology -Essentials of Musical Sound & Electronics -Ethics & Professionalism -Technical & Business Communication -Community Music -African Drumming -Performance: Level 1 -Audio Recording	-Dance: The African Experience -Organology -Performance: Level 2 -Songwriting I -Malawian Music Industry -Audio Production -Sound Editing & Synthesis -Writing About Music -Performance: Level 3 -Jazz Drum Fundamentals -Songwriting II -Musical Instrument Craft 1	- Lighting & Staging -Composing For Voice -Performance: Level 4 -Sonic Ecology -Applied Audio for Media -Live Sound Reinforcement -Music & Ecstasy -Performance: Level 5 -Research Methods -Musical Instrument Craft 3 -Audio Studio Portfolio	-Work Integrated Learning 1 -Entrepreneurship & Business Management -Performance: Level 6 -Sounds in and Out of Africa -Music & Medicine -Work Integrated Learning 2 -Research Project/ Dissertation 2

BA IN CULTURAL ECONOMY

The cultural domains present a wide spectrum of economic opportunities to a country like Malawi whose main economic source is predominantly agro-based. Thus, if well understood and utilised, culture has the potential

to contribute a greater percentage of the country's GDP. However, culture as a source for economic growth in Malawi has been given less attention and remains underutilised as there are no well-trained and skilled individuals to assess and utilise the economic impact of cultural goods and services. As such, the programme aims at filing the gaps by producing well trained, skilled and qualified graduates who will understand and exploit the economic output of culture and how culture can be used to further socio-economic development of Malawi, and beyond. These graduates will ably influence government decisions and policies that would measure and assess the economic impact of cultural goods and services for the benefit of the country as a whole.

The programme is the first of its kind in Malawi as no institution of higher learning in the country offers a degree study that sees the interplay of social, culture and economics in relation to the wellbeing of human nature. Currently, and most especially in Malawi, the field of cultural economy lacks critical studies, record of use, and development of unique skills, experiences, explanations, information which human cultures have developed for socio-economic development of the communities and the nation. The programme is therefore critical for:

Production of graduates who will critically and ably assess the interplay between culture and economy for self-employment.

Identification and assess the cultural goods and services within different cultural domains in Malawi and provide effective cultural managerial services.

Broadening the economic base through job creation in the field of cultural goods and services.

Determining the economic gains by individual players; communities; organizers and managers and the government from different cultural goods and services using different assessment tools.

Criteria for admission
Six credits in MSCE and IGCSE ('O' level) or equivalent including English and Mathematics, and a combination of any two of the following subjects: Social Studies/ Life Skills; Business Studies/Accounting, and Creative Arts/Geography shall join at year one.

Mature entry applicants should have MSCE, IGCSE ('O' level) or equivalent, industrial experience and a qualification from a recognized institution, and shall join the programme at the beginning of year 1 or year 2 dependant on the nature of qualification. However, candidates shall have:
Diploma in Accounting /Business Studies, Cultural Studies, Development Studies or related qualification from a recognized institution;
MSCE/IGCSE with at least 4 credits including English, Mathematics and any other social science subjects; and
At least 2 years relevant on job experience

Career prospects
Graduates will be able to apply the knowledge, skills and competences to a range of endevours in the cultural industry, including cultural entrepreneurs (film production, music composition, theatres, printing and broadcasting), civic education, cultural officer, academic and research career, cultural and heritage management, events management, culture and development officer researcher, cultural tourism and recreation management, and facility management.

Modules

Semester	Year 1	Year 2	Year 3	Year 4
1	-Ethics & Morality	-Micro-economics I	-Introduction to Probability and Statistics	-Taxation
	-Business Mathematics I -Language & Communication -Introduction to Society and Culture -Introduction to Computer Application -Introduction to Cultural Economy	-Cultural Policy -Intellectual Property -Visual Arts and Crafts -Cultural Mapping -Culture and Sustainable Development	- Cultural Entrepreneurship I -Design and Creative Services -Theories of Cultural Economy -Sports and Recreation -Macro-Economics I	-Entrepreneurship & Business Management -Inclusive Cultural Economy -Cultural Management -Research Dissertations/ Projects -Cultural Economics
2	-Ethics & Professionalism -Business Mathematics II -Technical & Business Communication -Computer Programming -Culture and Development -Social and Behavioural Change Communication	-Micro-Economics II -Cultural Innovation -Human Capital Development -Aesthetics Performance and Celebration -Books and Press	-Inferential Statistics -Research Methods -Cultural Tourism -Audio Visual and Interactive Media -Cultural and Natural Heritage -Macro-Economics II	WIL

DIPLOMA IN MUSICOLOGY

Students also learn music equipment manufacturing

Diploma in African Musicology programme is a multidisciplinary study that deals with the science and the art of music and their unique connections within the culture and heritage context.

The programme is aimed at responding to the demand of highly qualified persons in (1) the growing technological and competitive sector of music within the cultural industries in Malawi and (2) the harnessing of innovation and entrepreneurship trends in music.

The programme emphasizes the use of music for sustainable development, and the study of music from the scientific and humanities approaches. Studies in applied comparative musicology (applied ethnomusicology) are intended for students interested in the African music for a better understanding and respect of various African cultures, especially Malawian cultures, and their application for sustainable development.

Career prospects

From this programme, students will attain knowledge, attitude, and skills that will lead to self-employment or employment in education to work in research, publishing, and teaching; government to work as planners, researchers, managers, archivists, conservators; and in business as media specialists, music instrument makers, audio engineers, therapists and

performers.

Criteria for Admission
For normal entry, a candidate should have six credits in MSCE and IGCSE ('O' level) or equivalent including English, and a combination of any two of the following subjects: Social Studies, Life Skills, Bible Knowledge, History, Performing Art, and Geography shall join at year one.

For mature entry, a candidate with MSCE, IGCSE ('O' level) or equivalent, industrial experience and a ABRSM qualification from a recognized institution, shall join the Programme at the beginning of year 1. Audition applies.
A candidate shall have:
MSCE/IGCSE with at least 4 credits including English and any other social science subjects; and
At least 2 years relevant on job experience

Programme Structure

Semester	Year 1	Year 2
1	-Ethics & Morality -Language & Communication -Introduction to Computer Application -Fundamentals of Music -Choirology -Essentials of Musical Sound & Electronics	-Dance: The African Experience -Organology -Performance: Level 2 -Songwriting I -Malawian Music Industry -Audio Production
2	-Ethics & Professionalism -Technical & Business Communication -Community Music -African Drumming -Performance: Level 1 -Audio Recording	-Sound Editing & Synthesis -Writing About Music -Performance: Level 3 -Jazz Drum Fundamentals -Songwriting II -Musical Instrument Craft I

ACADEMY OF MEDICAL SCIENCES

The AMS is one of the four schools at MUST which became operational in March 2017. The school has been given mandate to provide training to undergraduate and postgraduate students in different degree programmes in different disciplines and conduct relevant and demand-drive research in areas of interest in Malawi in line with the Malawi National Health Research Agenda. It currently has two departments of Biological Sciences and Clinical Sciences and will also have the International Centre for Quality Management and Research (ICQ).

The Biological Sciences department has been set up to accommodate undergraduate courses that have both medical as well as environmental implications. One programme that is currently running is the Bachelor of Science in Medical Microbiology which was introduced during the 2016/17 academic year when the department was under MIT. The programme now has two year groups.

Plans are also underway to introduce a degree course in Laboratory Management in the coming years.

The Oncology Department will mainly focus on offering courses related to cancer such as a Bachelor of Science in Cancer Diagnostics and an MSc in Oncology and Palliative Care. The Clinical Department will host the teaching hospital for the University and plans to offer mainly postgraduate courses such MMed in Non-Communicable Diseases (NCDs).

The ICQ intends to offer undergraduate and postgraduate courses in Quality Management. Research work in the school will be of two kinds; firstly postgraduate students will conduct research projects as part of their degree programmes. These projects will be supervised partly or fully by members of staff within the school. Secondly, academic members in each department will be encouraged to conduct quality research work in areas of their specialization in partnership with either local or international collaborators.

The following are the current academic programmes on offer and those which will be available from September 2018.

Executive Dean, AMS: Professor Wilson Mandala

Professor Mandala has a PhD in Malaria Immunology obtained from the Liverpool School of Tropical Medicine (LSTM), a Master's Degree in Molecular Biology and Biochemistry from Kings College, London and a Bachelor's of Science degree in Chemistry from Chancellor College, University of Malawi. His current research interests are mainly in malaria, Non-typhoidal salmonella (NTS) and HIV/AIDS immunology, with skills in flow cytometry, ELISAs and immunohistochemistry. He is the first Executive Dean for the Academy of Medical Sciences (AMS), which became operational in 2017 as the last of the four schools to be established at the Malawi University of Science and Technology. As an Executive Dean, Professor Mandala is the principal academic and administrative officer of AMS and works under the general direction of the Deputy Vice-Chancellor providing leadership to Heads of Academic Departments. He is responsible for the development, implementation and review of the academic programmes ensuring quality control and enhancements underline programme delivery. He is also responsible for managing research and innovation projects and activities in collaboration with faculty within the School and the University and/or other research institutions locally, regionally and internationally. Before joining MUST, Professor Mandala worked as a Senior Lecturer at the College of Medicine, University of Malawi and as the Associate Director of the Malawi-Liverpool Wellcome Trust (MLW).

His research work is mainly based on malaria, HIV and NTS immunology and he has published a number of papers that are related to his field; (https://www.ncbi.nlm.nih.gov/pubmed/?term=mandala+w).

Professor Wilson Mandala

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BACHELOR OF SCIENCE IN MEDICAL MICROBIOLOGY

Students in a science laboratory at MUST

Medical Microbiology is the study of organisms or microbes that cause infection in humans. The discipline seeks to determine what organisms cause infections? Why? When? Who is at risk? Is there treatment available? It, therefore, provides the tools to understand the epidemiology, diagnosis, treatment and prevention of our most important infectious diseases. Some key applications of medical microbiology include clinical laboratory diagnosis, disease surveillance, development and testing of vaccines and therapeutics, quality assurance, food processing industries and waste management.

Malawi is faced with skills shortages in the areas of clinical laboratory support and quality assurance services. Malawi's National Health Research Agenda (NHRA) aims to build capacity that will support services and research which is responsive to the county's priority health needs.

MUST is the first institution in Malawi to offer a BSc in Medical Microbiology. The programme will produce high calibre graduates that will be able to apply principles of medical microbiology for the provision of laboratory diagnostic services and conduct high quality health research to address Malawi's public health agenda.

Graduates of the programme will obtain a degree of BSc in Medical Microbiology with

a double major which will be two of the following topics: Bacteriology, Mycology, Parasitology and Virology. These graduates will fit in various sectors of our healthcare system, including medical research institutions, pharmaceutical industries, quality control, laboratories and training institutions such as universities, colleges and polytechnics.

Career Prospects

Graduates in Medical Microbiology can work in medical laboratories, research laboratories and the pharmaceutical industry. They can also help in coming up with new vaccines and cures for diseases such as Tuberculosis (TB), HIV and AIDS, cholera, Ebola and many more. Essentially, a career in this field is about saving lives.

Admission Eligibility

Entry in Year 1: *MSCE, "O" Level, IGCSE, GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics and English.*

Entry in Year 2: *A-level with at least C grade in the following subject Physics, Chemistry, and Mathematics, with Biology at 'O' level. But must take and pass Drawing 1 and Drawing 2.*

OR

Any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

Modules

Year 1	Year 2	Year 3	Year 4
-General Biology -General Chemistry I -Mechanics & Thermal Properties of Matter -Algebra and Trigonometry -Language and Communication Studies -Introduction to Computer Applications -Human Anatomy and Physiology I -General Chemistry II -Electricity and Magnetism -Vibration and Waves -Calculus I -Technical and Business Communication -Computer Programming	-General Microbiology -Biochemistry -Molecular Biology -Biostatistics -Practical I (Microbiology and Biochemistry) -Practical II (Molecular Biology) -Cell Biology and Biotechnology -Microbial Physiology and Anatomy -Human Anatomy and Physiology II -Human and Microbial Genetics -Practical III (Cell Biology and Biotechnology) -Practical IV (Human and Microbial Genetics)	-Immunology -Environmental Microbiology -Pathology -Tropical Health and Epidemiology -Practical V (Immunology and Pathology) -Practical VI (Environmental Microbiology) -Research Methodology and Data Analysis -Diagnostic Medical Microbiology -Pharmacology -Microbial Food Toxicology -Practical VII (Pharmacology) -Practical VIII (Microbial Food toxicology)	-Bioethics and Research Ethics -Bioinformatics -Mycology 1 -Bacteriology I -Virology I -Parasitology I -Practicals (Mycology, Bacteriology, Virology, Parasitology) -Business Management and Entrepreneurship -Research Project -Mycology II -Bacteriology II -Virology II -Parasitology II

BACHELOR OF SCIENCE IN MEDICAL IMAGING

Medical Imaging (Radiology) is a health profession concerned with the direct administration of radiation, such as x-rays, in disease diagnosis and injury assessment. Medical imaging studies have been a cornerstone in medical diagnosis for decades as they assist in rapid and accurate detection of diseases or injuries which lead to early and proper patient management. Currently, there is no health training institution in Malawi which offers a proper training programme in advanced imaging techniques up to Bachelor's degree level. Over the years, the government of Malawi, through the Ministry of Health (MoH), has been sending individuals recruited to be radiographers to South Africa for further training in advanced imaging techniques but this initiative had proven to be quite costly hence not sustainable. In addition, a large number Malawians requiring specialized diagnosis have been referred to seek such services abroad at high and unsustainable costs, thereby draining the limited forex in Malawi.

The programme aims to train students to develop knowledge, attitudes and skills in medical imaging in accordance with statutory requirements including quality, ethics and safety. In addition, it shall also educate scientists in medical imaging who are versatile and able to apply principles and techniques in general and advanced imaging procedures. Furthermore, the students shall acquire skills to manage and organize imaging departments in accordance with Good Clinical Practice (GCP) and conduct

A CT Scanner is used for body scanning

research and consultancy related to imaging.

Career Prospects

Graduates under this programme can work in a wide range of careers in the medical field such as patient care, medical imaging management, imaging analysts, diagnostics etc.

Criteria for Admission

Entry in Year 1: *MSCE, "O" Level, IGCSE, and GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics English.*

Entry in Year 2: *A-level with at least C grade in the following subject: Physics, Chemistry, and Mathematics, with Biology at "O level.*

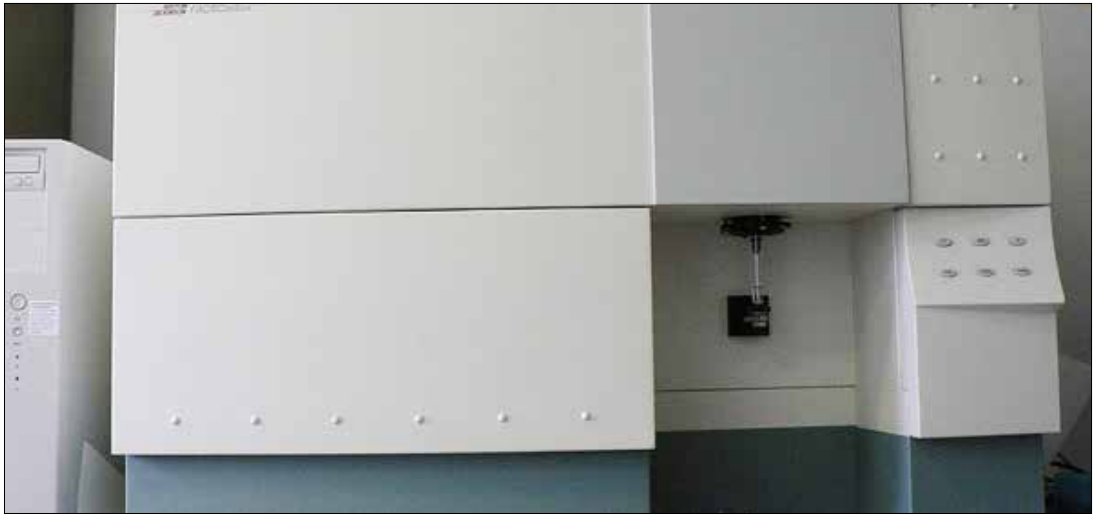
Entry in Year 3: *A Diploma in Radiography from either Malawi College of Health Sciences or any other international University*

OR

Any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

Year 1	Year 2	Year 3	Year 4
-General Biology -General Chemistry I -Mechanics & Thermal Properties of Matter -Algebra & Trigonometry -Language & Communication -Introduction to Computer Application -Human Anatomy and Physiology I -General Chemistry II -Electricity and Magnetism, Vibration and Waves -Calculus I -Technical and Business Communication -Computer Programming	-Fundamentals of Imaging and Professionalism -Biostatistics -Safety in Imaging/Radiation Protection -Physics for Radiographers -Pathology for Radiographers I -Radiographic Imaging Processes -Anatomy for Radiographers -Radiographic Positioning I (Practicum) -Work Integrated Learning (General Radiography) -Radiation Physics -Equipment for General Radiography -Patient Care for Radiographers (Practicum)	-Digital Radiography -Radiopharmacology -Ethics in Imaging -Pathology for Radiographers II Advanced Computer Applications -Quality Assurance/QC in Imaging -Radiographic Positioning II (Practicum) -Work Integrated Learning (Hospital Based) -Introduction to Nuclear Medicine -Pattern Recognition -Cross-Sectional Anatomy -Research Methods (Project Development)	-Interventional Radiography -Principles of Ultrasound -Principles of MRI -Principles of CT -Principles of Mammography -Introduction to Radiotherapy -Business management and Entrepreneurship -Work Integrated Learning (MRI) -Work Integrated Learning (CT) -Work Integrated Learning (Ultrasound) More Times -Work Integrated Learning (Mammography) -Research Projects

BACHELOR OF SCIENCE IN IMMUNOLOGY



A BD Flow Cytometer, one of the pieces of equipment extensively used in Immunology

Immunology is the study of the immune system which protects humans from infection through various lines of defence. If the immune system is not functioning as it should, it can result in disease, such as autoimmunity, allergy and cancer. Immune responses in some cases also contribute to the development of some common disorders which previously were not regarded as immunologic including metabolic, cardiovascular, and neurodegenerative conditions such as Alzheimer's.

It is involved in understanding the basis of vaccines, safe organ transplantation, identification of blood groups, and of autoimmune diseases. Advancing our understanding of basic immunology is essential for clinical and commercial application and has facilitated the discovery of new diagnostics and treatments to manage a wide array of diseases.

Career Prospects

An immunologist is a scientist and/or clinician who specializes in immunology. Many immunologists work in a laboratory focusing on research, either in academia or private

industry such as in the pharmaceutical industry. Clinical immunologists are clinicians who, having done some medical degree modules or successfully completed a medical degree programme, opt to focus on the diagnosis and management of diseases of the immune system, such as autoimmune diseases and allergies. As such, Individuals who successfully complete this programme can proceed and join the research world in either immunology or purely infectious diseases. They can also work in pharmaceutical industry, biomedical industry, government laboratories, academic research institutions and private research organisations.

Criteria for Admission

Entry in Year 1: *MSCE, "O" Level, IGCSE, and GCE at least six credits including; Biology, Physics, Chemistry (or Physical Science), Mathematics and English.*

Entry in Year 2: *A-level with at least C grade in the following subject Physics, Chemistry, and Mathematics, with Biology at O level. But must take and pass Drawing 1 and Drawing 2.*

Entry in Year 3: *A degree in MBBS, Medical Laboratory Sciences, or any Biomedical Sciences with a credit and above.*

OR

Any other related qualification from a recognized institution of higher learning may be assessed by the Admissions Office.

Year 1	Year 2	Year 3	Year 4
-General Biology -General Chemistry I -Mechanics & Thermal Properties of Matter -Algebra & Trigonometry -Language & Communication -Introduction to Computer Application -Human Anatomy and Physiology I -General Chemistry II -Electricity and Magnetism, Vibration and Waves -Calculus I -Technical and Business Communication -Computer Programming	-Introduction to Immunology -Molecular Biology I -Introduction to Biochemistry -Introduction to Biostatistics -Introduction to Microbiology -Practical I (Molecular Biology) -Cell Biology & Biotechnology -Human Anatomy & Physiology II -Innate and Adaptive Immunity -Tropical Health & Epidemiology -Human and Microbial Genetics -Practical II (Physiology)	-Ontogeny & Architecture of the Immune System -T Cells: Differentiation, Priming, Effector Functions -B Cell Differentiation, B-to-T Interaction/ Cooperation -Antibodies: Types, Sources and Roles -Practical III (The Basis of ELISA Tests) -Fundamentals of Flow Cytometry -Practical IV (Fundamentals of Flow Cytometry) Flow Cytometric Analysis of Blood Samples -Introduction to Pathology -Immune Response to Bacterial Infections -Viral Immunology -Immunity to Protozoa Helminth and Fungal Infections -Research Methods and Data Analysis (Bioethics and Project Development)	-Role of Complement in Immunity -Regulation of the Immune System -Cytokines and Chemokines -Autoimmunity Allergy and Atopy _Introduction to Bioinformatics -Bioethics and Research Ethics -Vaccinology: Basis and Application -Research Projects -Immunology of NCDs -Cancer Immunology -Diagnostic Methods in Immunology -Business Management & Entrepreneurship

BACHELOR OF SCIENCE IN SPORTS SCIENCE (SPS)

A picture showing various aspects of sports science

Creativity, innovation, and productivity require human capital in a sustainable manner and sports sciences plays a great role in strengthening and contributing to social and economic transformation across the globe. The sports sciences programme is critical for:

(1) blending Indigenous sports with Eurocentric sports and facilitating cultural cross-over;

(2) branding the African holistic problem solving approaches, as it relates to sports sciences, and their underlying principles;

(3) developing balanced, viable livelihoods and economic development through sports sciences as resource;

(4) ensuring that the local communities benefit economically and socially through sports sciences outreach; and (5) asserting African sport and incorporating it into the formal education system in order to restore pride and dignity for Africans.

The SPS programme will play a major role in addressing the many needs of the Malawian society through providing paradigm and perspectives for meaningful engagement with issues in the realm of sports sciences as it relates to technology, innovation, economics, governance, public fitness, leadership and sustainable development.

Career Prospects
Graduates can venture into sports-related positions such as physical education teachers; exercise physiologists; sport psychologists; sports agents; personal trainers; strength and conditioning coaches; health advisors; sports development officers; cooperate fitness and wellness instructors; recreation and facilities managers; sports equipment designers; sports sciences researchers; biomechanical analysts; match analysts; and sports nutritionists.

Criteria for Selection
Entry in Year 1
Six credits in MSCE or its equivalent including English, and a grade of no more than 4 in Biology, Physical Science (Physics or Chemistry), and Mathematics or B for IGSCE in all the above subjects shall join at year one. For A Level, the candidate must have a minimum grade of C in Biology; Physical Science or Chemistry, and Mathematics. Candidates will join in second year.

Entry in Year 2
A candidate with MSCE, IGCSE ('O' level) or equivalent, industrial experience and a qualification from a recognized institution, will join the programme at the beginning of year 1 or year 2 dependent on the nature of qualification.
A candidate shall have:
Diploma in sports sciences or physical education or related qualification from a recognized institution;
MSCE/IGCSE with at least 4 credits including English and any other science subjects; and
At least 2 years relevant on job experience

Modules

Year 1	Year 2	Year 3	Year 4
-General Biology -General Chemistry I -Mechanics & Thermal Properties of Matter -Algebra & Trigonometry -Language & Communication -Introduction to Computer Application -Human Anatomy & Physiology I -Chemistry II -Electricity & Magnetism, Vibration & Waves -Calculus I -Technical & Business Communication -Computer Programming	-Ethics & Morality -Critical Thinking & Reasoning Skills I -Indigenous Sports & Games -Applied Anatomy & Physiology in Sports -Gymnastics, Aerobics and Dance -Sports History and Olympism -Sports Integrity & Ethics -Critical Thinking & Reasoning Skills II -Sports Physiology I -Biomechanics of Human Movement -Strength and Conditioning -Health and Fitness Test	-Sports Physiology II -Sports Sociology -Sports Nutrition -Sports Pedagogy & Coaching -Sports Organisation Management -Sports Psychology I -Research Methods -Sports for People with Disabilities I -Perfomance Analysis & Player Monitoring in Sport -Sports Psychology II -Sport Outdorr & Adventurous Activities -Sports Medicine	-Sports and Law -Sports for People with Disabilities II -Sports & Exercise Behaviour -Policy & Governance in Sports -Entrepreneurship and Business Management -Work Integrated Learning I -Research Project/ Dissertation -Work Integrated Learning II

Director of Research, Postgraduate Studies and Outreach: Dr Alfred Maluwa

Dr Alfred Maluwa

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Dr Alfred Maluwa, a holder of a PhD in Quantitative Genetics from Norwegian University of Life Sciences, is MUST's first Director of Research, Postgraduate Studies and Outreach and he joined in April, 2016. He brings to MUST 26 years of experience in research and development, mentorship for postgraduate students and community outreach programmes.

He has worked in the civil service as Fisheries Research Officer from 1990 to 1996 and Senior Fisheries Research Officer from 1996 to 2002, Assistant Chief Fisheries Research Officer from 2002 to 2006. He was appointed Deputy Director of Science and Technology in 2006 and was responsible, among other things, for Scientific Research and Scientific Technology Dissemination and Transfer from 2006 to 2010. Between 2010 and March, 2016, Dr Maluwa worked as Director of Research at Kamuzu College of Nursing of the University of Malawi. He was responsible for securing and managing research grants for the college, teaching Biostatistics and Research Methods to postgraduate students, and supervising methodology for postgraduate students. He also mentored faculty in grant writing and management.

Dr Maluwa has implemented and managed projects in Fisheries, Agriculture, Climate Change and Environment, and Health, especially in Nursing. The major donors he has successfully secured grants from are EU, DFiD, USAID, NORAD, JICA, ICEIDA, NEPAD, UNESCO, UNDP and ELMA Foundation.

He has contributed a book chapter in the 2007 *Science, Technology and Innovation Outlook*, that was published by the African Union through NEPAD on Science, Technology and Innovation Indicators for Malawi. He has also co-authored the Global Observatory for Science, Technology and Innovation Policy Instrument (GO-SPIN) (2015). This is a UNESCO publication on country profiles for Science, Technology and Innovation and Volume 3 is on Malawi. He has 45 publications in peer reviewed journals, 18 of which are in Fisheries, Natural Resources and the Environment and 27 in Nursing and Midwifery.

The Directorate of Research, Postgraduate Studies and Outreach is headed by Dr Alfred Maluwa. The directorate was established to coordinate research by both faculty and students, mobilize resources through research grants application and management, coordinate postgraduate studies and technology transfer.

MUST student researchers checking data using a mobile app

DIRECTORATE OF RESEARCH, POSTGRADUATE STUDIES AND OUTREACH

MASTER OF SCIENCE IN INNOVATION

MUST supports and promotes innovation in secondary schools

Many specialists have predicted that innovation will be the main paradigm shifter in the quest to keep the world competitive. The creators of innovations must tune up their training in order to meet the global needs and challenges. The two year MSc in Innovation programme is offered over four semesters on two-week block release during which period students will periodically come on campus for face to face tuition followed by a period of attending to assignments at home.

Modules to be covered in first year include Research and Development, Strategic Management, Commercial Law, Project Management, Innovation and Ethics, Advanced Mathematical Modelling, Technology Management, Product Design and Development, Technology Commercialisation and Entrepreneurship, and Research Skills. In second year, students undertake a research project mainly focusing on product development and submit a dissertation.

Career Prospects

Graduates under this programme are general fitters in as far as innovation is concerned. Almost every sector of the economy requires people that can think outside the box to come up with creative ways of surviving the competition. As such, innovation has become a competitive advantage in any industry be it education, music, science, research, sports etc.

Criteria for Admission

Candidates should have a good Bachelor's degree from a recognised institution of higher education with at least two years work experience in a related field.

Botswana President, Mokgweetsi Masisi admiring made-at-MUST items

MASTER OF SCIENCE IN ENTREPRENEURSHIP

The two year programme is offered periodically over four semesters on block release whereby students will come on campus for face-to-face tuition followed by a period of attending to assignments at home. Modules to be covered include Strategic Management, Entrepreneurship, Commercial Law, Project Management, International Trade and Economics, Corporate Finance, Defining and Understanding New Markets, and Research Skills. In the second year, students undertake a research project and submit a dissertation.

Career Prospects
A Masters in Entrepreneurship degree holder can get a job in any organization at any level. Entrepreneurs are trained and skilled to handle under pressure situations as well as the traditional norms and procedures of the corporate world. Hence, job opportunities for Entrepreneurship degree holders can be Entrepreneurial Public Accounting Manager, Assistant or Associate Professor of Entrepreneurship, Instructor-Small Business Entrepreneurship, Business Innovation Department of any corporation, Risk and Analysis for New Ventures and many more.

Criteria for Admission
Candidates should have a good Bachelor's degree from a recognised institution of higher education with at least two years work experience in a related field.

MASTER OF BUSINESS LEADERSHIP

Business leadership is the capacity of a manager to set and attain challenging goals, take fast and decisive action when needed, outperform external competition, overcome threats, and inspire others to perform at the highest level they can in order to achieve set goals. Business leadership therefore prepares business professionals to take on business leadership roles required to drive organizational change in an increasingly complex and competitive world of modern corporations. Business leadership skills are required in almost all types of organizations for purposes of people management, strategic thinking, and organization communication among others.

Career prospects
Graduates have opportunities to work as business consultants, executives, project leaders, and can even launch their own businesses

Criteria for admission
a) The programme targets first degree graduates or equivalent in any field of study;
b) Applicants should have a minimum of two years work experience;
c) Those with NO first degree but have professional qualifications such as ACCA, CIMA, CIM, CIB, CII, ABE, CIPS, etc., may be considered on a case by case basis.

Content
Students will spend first year doing taught modules in areas of Leadership Development, Leading People in Business, Strategic Information Management, Managerial Economics, Strategic Financial Management, Research Project Skills I, Strategic Marketing Management, Strategic HumanResource Management, Entrepreneurship and Innovation, Corporate Strategy, Strategic Business Leadership Project, Research Project Skills II with electives from Financial Reporting and Analysis, Commercial Law, International Business, Business Ethics and Corporate Governance, Strategic Change Management, and Industrial Relations. Second year is for thesis writing.

MASTER OF SCIENCE IN COMPUTER SCIENCE

The course aims at producing high calibre graduates equipped with advanced knowledge and practical skills in computer science which enable them to solve computing problems in a variety of contexts, including the industry and research in the field of computer science.

Graduates from the programme will be capable of using and applying contemporary technical concepts and practices in core computing and information technologies, analyzing various problems and identifying and defining computing requirements appropriate to their solutions, and designing, implementing and evaluating computer-based systems, processes, components, and programmes.

Career prospects

Career prospects exist in both public and private firms in areas of ICT, energy, oil and gas, healthcare, cybersecurity, banking & finance, robotics and autonomous systems, and transportation. Those with a passion for academics, can join research and academic institutions as researchers and lecturers with the ability to teach a wide range of courses in computer science.

Criteria for admission

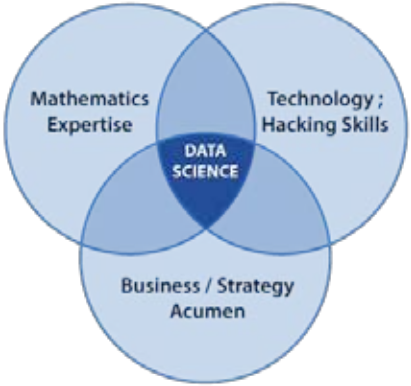
Candidates should have BSc or equivalent, with at least a credit (or equivalent), in Computer Science, IT, Software Engineering, Information Systems or any other related field. Applicants with a relevant degree with a strong pass and, at least two years' experience, will also be considered. For candidates wishing to pursue the research work only route, they should have research project experience.

Content

Some of the modules in the programme include Research Methods in Computing, Entrepreneurship, Databases, Data Mining & Warehousing, Computer Graphics & Multimedia, Data Structures, Algorithms & Computability, Internet of Things, Artificial Intelligence, Software Engineering, Cryptology, Information Security, and Supervised Research and Dissertation.

A MUST pavillion at the ICT Expo in Lilongwe

MASTER OF SCIENCE IN DATA SCIENCE



Data science is the study of the computational principles, methods, and systems for extracting and structuring knowledge from data, and the application and use of those principles. As an interdisciplinary field, data science uses scientific methodologies, processes, and algorithms to gain insight into both structural and unstructured data. It also combines domain expertise, programming skills, and statistical knowledge.

Career prospects
Data scientists can work in both public and private sectors in a range of areas, including finance, academia, scientific research, health, retail, information technology and e-commerce. In these areas, graduates can take up roles as data scientists, data analysts, data engineers, business analysts, market analysts, data architects, data and analytics managers, business intelligence analysts, data mining specialists, machine learning engineers, statisticians, database administrators, and database developers.

Criteria for admission
Candidates should possess the following entry qualifications: a BSc degree or equivalent, with at least a Credit (or equivalent), in Computer Science, IT, Maths, Statistics or any other related field.

Modules
Some of the modules in the programme include Linear Algebra, Programming with R and Python, Statistical Methods, Machine Learning, Data Mining, Business Intelligence, Big Data Analytics, Data Management, Entrepreneurship, Research Methods in Computing, Supervised Research and Dissertation.

MASTER OF ENGINEERING IN APPLIED CHEMICAL ENGINEERING

This programme aims at preparing graduates for professional careers in chemical engineering, enabling them to understand, solve, and manage problems in chemical industries, and developing their ability to reason critically, collect, analyze, evaluate and synthesize data in order to facilitate optimization. The programme is intended at addressing a shortfall in human resource needs in Chemical Engineering for industrial development in Malawi and beyond. Graduates from the programme will be capable of solving design and applied chemical engineering problems as well as performing supervisory functions. They will also formulate professional simulation and design tools related to Chemical Engineering and independently and creatively, design, plan and conduct complex chemical engineering projects.

Career prospects

Career prospects for graduates under this programme include working in the petrochemicals, food, nuclear, pharmaceuticals, materials and consultancy industries. They can also work as researchers.

Criteria for admission

Candidates enrolling for this programme should have any of the following entry qualifications:

- Bachelor of Engineering (Hons) in Chemical Engineering with at least second upper class.
- Bachelor of Engineering (Hons) in Chemical Engineering with at least one year experience working in the chemical industry.
- Bachelor of Science degree majoring in Chemistry with at least a credit PLUS a postgraduate diploma in engineering or at least 3 years' experience in the chemical industry.

Content

Students will spend first year doing taught modules that include Advanced Food Processing, Renewable Energy Engineering, Advanced Research Methods, Project Management, Applied Thermodynamics, Environmental Engineering, Advanced Chemical Engineering Plant Design, Advanced Process Optimization, Series of lectures/ seminars, Advanced Design and Computational Method, Waste Water Handling and Research Project I. Second year is for dissertation writing.

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

Information Technology is the use of hardware, software, services, and supporting infrastructure to manage and deliver information using voice, data, and video. As a field, information technology covers administration and design of telecommunications and computer systems. Information technology (IT) also concerns the usage of computer technologies to solve problems in business settings. IT utilizes existing operating systems, software and applications in tandem to create a larger system that solves a specific business problem. The MSc in IT is thus designed to help the student prepare for the intellectual, analytical and practical challenges of a career in IT.

Career prospects
Graduates can pursue exciting, high-level jobs in diverse fields in both the public and private sectors. Graduates develop exceptional organizational, research, customer service, and problem-solving skills, which make them qualify for managerial and leadership roles in national and multinational companies. Some of the popular positions for degree-holders include information technology project manager, chief technology officer, cloud architect, chief information officer, management consultant, cyber security manager, and computer systems analyst.

Criteria for admission
Candidates enrolling BSc degree or equivalent, with at least a Credit (or equivalent), in IT, Information Systems, Computer Science, Software Engineering or any other related field. Those with relevant degree with a strong pass and, at least two years' work experience, will also be considered. For candidates wishing to pursue the research work only route, they should have research project experience. Those whose academic qualifications were taught in a different language will have to show evidence (English Language certificate) of proficiency in written and spoken English.

Content
Some of the modules under the programme include Databases, Data Mining & Warehousing, Advanced Operating Systems, IT Ethics/IT and Society, Software Engineering, Mobile Applications Programming and Web Design, Advanced Computer Architecture, IT Project Management, Emerging Technologies & Innovation, Entrepreneurship, Research Methods in Computing, Supervised Research and Dissertation.

MENG IN BIOMEDICAL ENGINEERING

Biomedical Engineering is the application of engineering principles and techniques to the medical field. It combines the design and problem-solving skills of engineering with medical and biological sciences to help improve patient health care and the quality of life of individuals. It is an exciting, comprehensive and developing field which combines knowledge of physics, electronics, information technology, engineering (mechanical, chemical, and materials engineering) with the life sciences including biological sciences. Examples of applications of biomedical engineering are the development and manufacture of biocompatible prostheses (e.g. artificial body part, such as a leg, a heart, or a breast implant), diagnostic medical devices (e.g. gamma camera, MRI, CT scanners, PET scanners, ultrasound scanners, x-ray machines etc), therapeutic medical devices (e.g. dialysis machines, external beam radiotherapy machines etc) and monitoring equipment (patient monitors etc).

Criteria for selection

A minimum of first degree in fields such as Biomedical Engineering, Electrical Engineering, Mechanical Engineering, Medicine, Biomedical Sciences or any other BSc or BEng qualifications in relevant engineering, medicine, and life science fields.

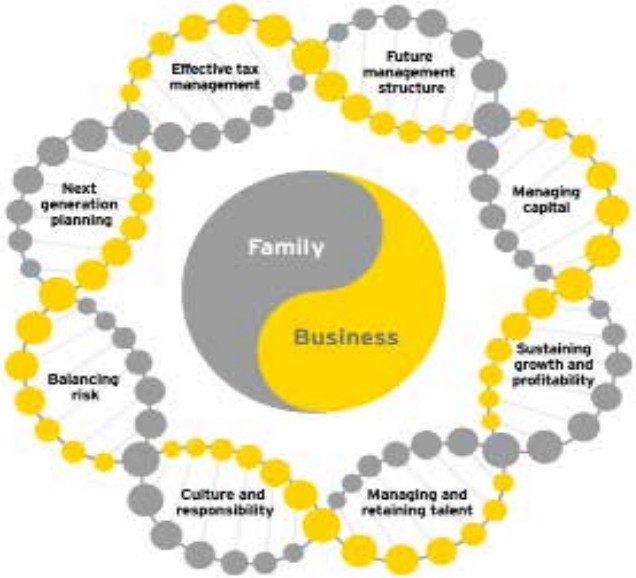
Career prospects

Graduates can work across industries but mostly in the health sector, engineering, manufacturing, and consultancies.

Content

First year taught modules will include Medical Sciences, Engineering Science, Bio-Ethics and Professional Studies, Regenerative Medicine, Biomedical Signal Processing, Principles of Biomedical Engineering, Drug Delivery and Nanomedicine, Biomechanics and Rehabilitation Engineering, Human-Machine Interface, Advanced Biocomputing and Bioinformatics, Advanced Biomaterials and Biomedical Research Methods and Seminar. Second year is dedicated to dissertation writing.

MASTER OF STRATEGIC FAMILY BUSINESS



The course is specifically designed to impart practical knowledge and the basic concepts related to management and administration of family businesses, as well as the different processes and tools that are useful for the effective handling of these companies. The programme teaches refined business skills within the context of family dynamics. Students will learn how to develop an effective financial strategy, wealth management portfolio and policies for conducting business and learn how to merge the interests of the family with wealth acquisition to develop a strong future for everyone.

Criteria for Admission

The entry requirements for the programme are the following:

a) The programme targets first degree graduates or equivalent in any field of study;

b) Those with NO first degree but have professional qualifications such as ACCA, CIMA, CIM, CIB, CII, ABE, CIPS, etc., may be considered on case to case basis.

Job opportunities

The programme is intended to groom the next generation entrepreneurs who will be able to pass on the button of business ventures to other generations. It is, therefore, meant to produce highly-skilled self-employed individuals.

Content

Among the courses to be covered include Fundamentals of Family; Business Organizational Culture in Family Business; Psychology and Sociology in Businesses; Succession and Trust Law; Business Ethics and Corporate Governance; Entrepreneurship and Innovation; and Leadership. Apart from core modules, there will also be electives that students will choose from. Some of the electives are Commercial Law; Strategic Marketing Management; and Change Management.

MSC IN DISASTER RISK MANAGEMENT

Disasters have become an annual fixture in Malawi

A growing number of governments, Including Malawi and international organisations acknowledge the necessity to increase their efforts in disaster risk management and climate change adaptation in order to successfully adjust to changing environments and develop safe and sustainable societies. This has created considerable scope for highly integrated, cutting-edge disaster risk and resilience research.

The programme has been designed to develop knowledge, skills and competencies required for leadership in careers related to disaster risk management. It integrates various disciplines and approaches in hazard, vulnerability and risk assessment, governance as well as risk reduction measures thereby placing graduates at a higher advantage in the DRM sector. The programme has also focused on applying the theory-based aspects through practical and research approaches. Thus, producing experts in analysing complex multifactorial disasters and providing sustainable solutions in the DRM sector.

Modules include Fundamentals of GIS and Remote Sensing; Climate Science for DRM; Digital Technologies in DRM; Early Warning Systems; Humanitarian Response Practices and Climate and Disaster Risk Financing.

Entry qualifications

· A Bachelor's degree in a relevant field with a credit; or
· A Bachelor's degree with a pass and at least two years industrial experience.

Pre-requisite knowledge or entry behaviours

This programme will admit prospective candidates that are well equipped with Bachelor's level knowledge and skills in Mathematics, Statistics, environmental-related studies and Social Science. Those whose academic qualification are in a different language will have to show evidence (English Language certificate) of proficiency in written and spoken English.

Career Prospects

Students graduating from the programme will be attractive for a career with actors contributing to a more resilient and sustainable society, ranging from local and national authorities to international actors as well as private consultancies.

MSC IN MATHEMATICAL MODELLING

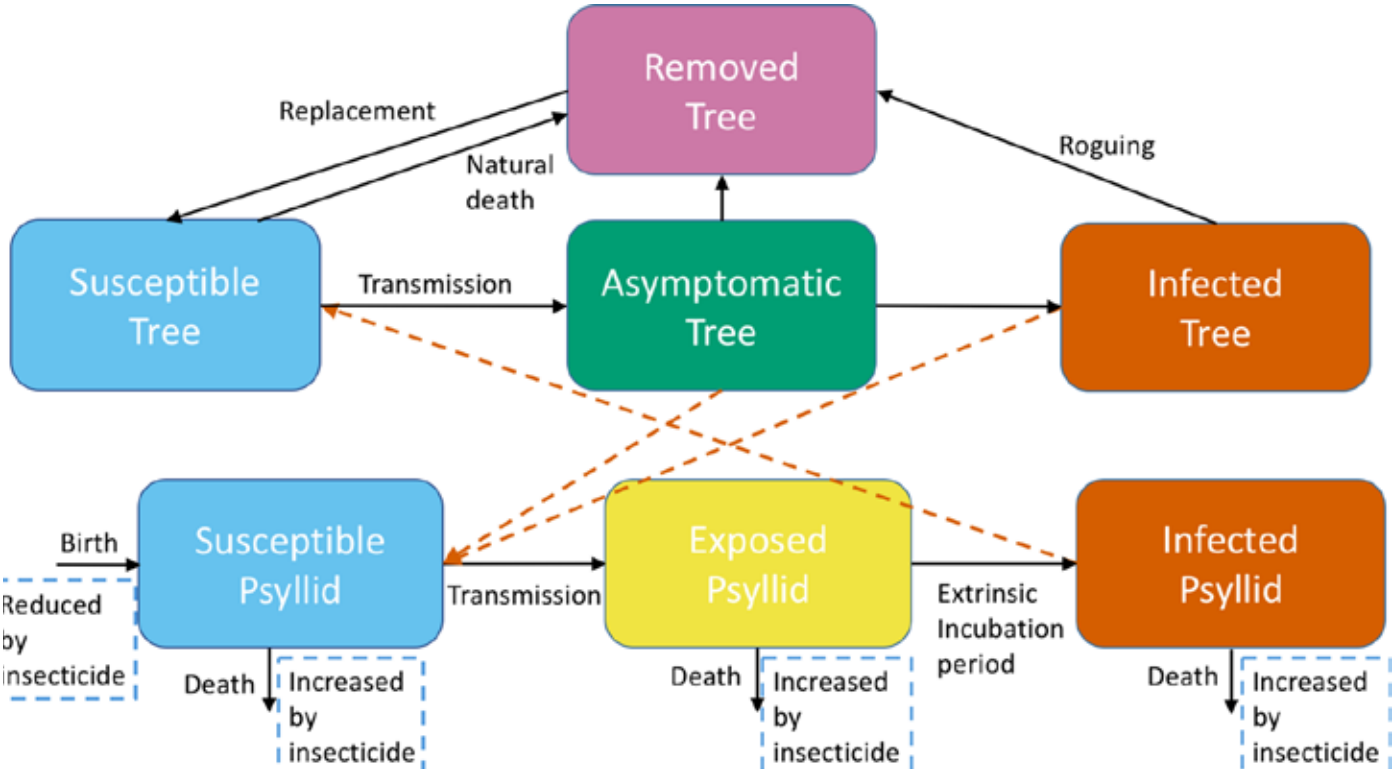
Models are becoming an increasingly important tool in many branches of modern society due to advances in science and technology. Mathematical modelling is a cyclical process in which real-life problems are translated into mathematical language, solved within a symbolic system, and the solutions tested back within the real-life system. It is is a specific branch of mathematics that deals with practical methods as they are applied to specific fields. Students who pursue the Masters Degree in Mathematical Modelling may expect to study topics examining how mathematics relates to fields as diverse as finance, insurance, business, and healthy sciences. They may also learn to apply mathematics principles to practical problems by studying and formulating mathematical models that answer questions relating to economics, health, ecology and computer sciences.

Career prospects
A Master of Science in Mathematical Modelling can be useful in that you go beyond theoretical work in mathematics and explore real-world applications, understanding how math affects our lives. In addition to learning principles like statistical analysis, you can expect to expand your problem-solving and organizational skills, all important for future careers and in life.

One benefit of an MSc in Mathematical Modelling is that it may open up a wide variety of career options. With this degree, the graduate may find a job as an actuary, and financial risk managers, mathematical epidemiologist, statistician, operations manager or mathematical economist. Because mathematical modelling is very much a practical study, it can complement the careers of engineers, chemists, epidemiologists, biologists and laboratory and health researchers.

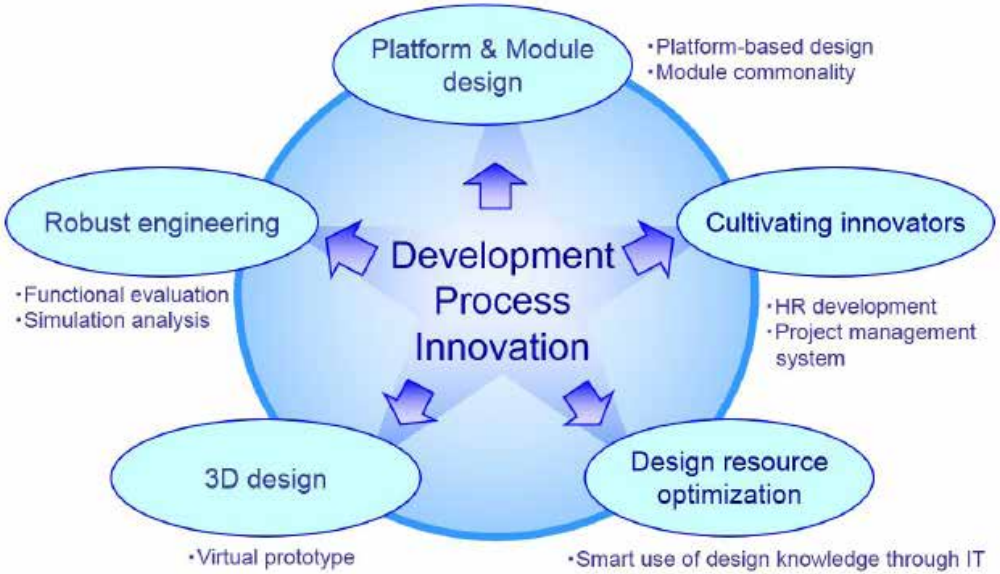
Criteria for admission
Candidates enrolling for the Master of Science in Mathematical Modelling should possess the following entry qualifications: Those entering the programme at Year 1 should possess a BSc in Mathematics, Physics, Statistics, Economics, Engineering, Biological Sciences, Chemistry, Technical Education with a minor in Mathematics while those entering at Year 2 should possess an Honors Degree in Mathematics.

Modules
Some of the modules studied in this programme include: Non-life Insurance Mathematics and Modelling, Mathematical Epidemiology: Deterministic Models, Probability & Statistical Theory, Mathematical Computing, Dynamical Systems,



Computer programming /Statistical computing, Stochastic Differential Equations with Applications, Life Insurance Mathematics and Modelling, Financial Mathematics and Modelling, Fluid Dynamics and Modelling, Innovation/ Entrepreneurship, Advanced Research Methods, and Research in any one of the following areas Mathematical epidemiology, Stochastic modelling, Ecological mathematics, Insurance mathematics, Financial mathematics, Fluid dynamics, and Numerical analysis. Second year is for dissertation writing.

PHD IN INNOVATION AND DEVELOPMENT



The world is facing several challenges including population growth, environmental degradation, conflicts, health related challenges and increased poverty, especially in developing countries. But the use and application of innovation tools and concepts for development is very limited. One of the components of transformational development is the use of digital technologies. However, such opportunities have not been used in most developing countries to translate challenges into economic opportunities. Addressing current and future development challenges will require a new set of skills, critical thinkers and development oriented human resources that will use technologies as a vehicle for short- and long-term solutions.

Furthermore, the knowledge exchange enhanced through this PhD programme is the new mantra in the current university-industry discourse. As universities are encouraged to contribute to the national development agenda through production and distribution of new knowledge, the need for linking up with industry cannot be overemphasised. MUST's desire to push the frontiers of knowledge through this

academic programme comes at a time when universities and their industry counterparts are called upon to overcome inherent differences and demand high level thinkers to support their vision.

The programme will therefore produce experts to contribute to the understanding of the influence of government and interest groups in making collective developmental decisions, and the role of innovations in advancing performance of different forms of policy interventions in different contexts. It will help to enhance technical skills to evaluate development challenges, application of technologies and development of innovations to support growth of innovative industries and community transformation strategies. Further, the doctoral degree programme aims to provide students with a solid foundation in the science of innovation and development discourse.

This programme has been designed to challenge prospective students and innovators to think outside the box, process information into knowledge so that Malawi and the region become a knowledgeable edu-landscape that will use innovation for sustainable development.

Program Structure
Registration and First Formal Progress Report (FFPR) (Month 0-6)

In year 1, candidates will be registered as Provisional PhD students or Postgraduate Researcher. The candidate will come up with a training and capacity building plan. In the first six months, the candidate shall draft a Research Plan to guide the conceptualisation of his/her research.
Transfer Process-Month 7-12

Between 7-12 months from start date, the student undergoes a Transfer Process. This will involve submitting a transfer report, which will be an extended version of the 6 months report with approximately 5000 words. This will be a more detailed proposal with a research plan that has clear research questions, objectives and approaches for each objective set in the context of a rationale informed by a detailed literature review. The submission of the report shall go along with a Presentation at the affiliated research group and finally a Mini Defense to a Panel made up of the supervisors, an examiner and a Chair. If successful, the student will be accepted as a full PhD student and given greenlight to register for the Second Year by their starting date.

Field Research-Month 13-24

The candidate is expected to carry out research that has a strong practical innovation component resulting in a prototype.
Thesis Writing-Month 25-30

During this period, the candidate will attend selected training programmes especially scientific writing or writing for journal paper. The main academic output will be a Second Results Chapter and Seminar Presentation to the Faculty/Centre.
Thesis Defence-Month 31-36

In this final phase, the candidate shall be guided on preparation for the defence.
Entry Requirements

The programme targets all qualified individuals that want to advance their education qualification to Doctoral/PhD level in innovation and development. The entry requirements for the programme are therefore the following:

a) Any MSc degree in any field from a recognized institution of higher learning, provided that the applicant is willing to advance innovation and development in their relevant discipline of speciality, which must also fit into the MUST Research Agenda;
b) Demonstrate ability to work independently and experience in independent research and thesis write up at MSc level;
c) Good command of English and computer literacy

PHD BUSINESS LEADERSHIP

This is a research-based programme geared towards providing managers with specialist expertise in the field of business leadership in order to facilitate and promote decision-making of the highest standard, the continual development of a high level of cognitive knowledge, skills and attitudes and excellent managerial development in various organizations. The programme will ultimately provide the current research to contribute towards the development and understanding of a specific field of interest in general management to enhance business leadership skills.

The PhD degree will offer an opportunity to interface business industry and address challenges in industrial development in the prevailing national, regional and global environments. It will further provide an opportunity to practising managers to investigate the ongoing practices in their organisations and develop new contextual theories, or theories that will compliment those built around the practices of the organisations in more developed markets.

Program Structure
Registration and First Formal Progress Report (FFPR) (Month 0-6)

In year 1, candidates will be registered as Provisional PhD students or Postgraduate Researcher. The candidate will come up with a training and capacity building plan. In the first 6 months, the candidate shall draft a Research Plan to guide the conceptualisation of his/her research.

Transfer Process-Month 7-12
Between 7-12 months since start date, the student undergoes a Transfer Process. This will involve submitting a transfer report, which will be an extended version of the 6 months report with approximately 5000 words. This will be a more detailed proposal with a research plan that has clear research questions, objectives and approaches for each objective set in the context of a rationale informed by a detailed literature review. The submission of the report shall go along with a Presentation at the affiliated research group and finally a Mini Defense to a Panel made up of the supervisors, an examiner and a Chair. If successful, the student will be accepted as a full PhD student and given greenlight to register for the Second Year by their starting date.

Field Research-Month 13-24
The candidate is expected to carry out a research that has a strong practical contribution to the business development and corporate governance.
Thesis Writing-Month 25-30

During this period, the candidate will attend selected training programmes especially scientific writing or writing for journal paper. The main academic output will be a Second Results Chapter and Seminar Presentation to the Faculty/Centre

Thesis Defence-Month 31-36
In this final phase, the candidate shall be guided on preparation for the defence.

Entry Requirements
The entry requirements for the programme are therefore the following:

a) Any MA or MSc degree in any field from a recognized institution of higher learning, provided that the applicant is willing to advance research in their relevant discipline of speciality, which must also fit into the MUST Research Agenda;
b) Demonstrate ability to work independently and experience in independent research and thesis write up at MA or MSc level;
c) Good command of English and computer literacy

PHD IN APPLIED MATHEMATICS

Applied mathematics is an interdisciplinary field that deals with the application of mathematics to practical problems in physical sciences, social sciences, technology, engineering or business. Applied mathematics can include different mathematical branches such as mathematics of engineering, linear programming, continuous modelling, numerical analysis, statistics, information theory, game theory, etc.

The current doctorate programme enables students to conduct advanced research for application in the fields of Engineering, Medicine, Physics, Biology, and Computer Sciences under the supervision of advisors. The need for experts to analyze data gathered to gain appropriate qualifications in line with international standards and use of these qualifications is increasing

day by day in this new information age. For this reason, mathematical and statistical analyses have become an indispensable element for various industries. The PhD students will be able to conduct the research in Mathematical Epidemiology, Deterministic modelling, Stochastic modeling, Ecological modeling, Fluid dynamics modelling, Insurance modeling, and Financial modeling.

Career prospect
Graduates of the PhD programme in Applied Mathematics may have the opportunity to work in a variety of departments of public institutions such as planning organizations, statistical institutes, health sector, banking, insurance and financial sectors, consulting firms, investment firms, hedge funds, brokerage houses and information technology departments of leading companies in the country and elsewhere in the world. The programme has also been prepared to gain its graduates a successful academic career in the departments of mathematics, economics, statistics, health and engineering in high quality universities and the ability of making scientific research in research institutions.

Program Structure
Registration and First Formal Progress Report (FFPR) (Month 0-6)

In year 1, candidates will be registered as Provisional PhD students or Postgraduate Researcher. The candidate will come up with a training and capacity building plan. In the first 6 months, the candidate shall draft a Research Plan to guide the conceptualisation of his/her research.

Transfer Process-Month 7-12
Between 7-12 months since start date, the student undergoes a Transfer Process. This will involve submitting a transfer report, which will be an extended version of the 6 months' report with approximately 5000 words. This will be a more detailed proposal with a research plan that has clear research questions, objectives and approaches for each objective set in the context of a rationale informed by a detailed literature review. The submission of the report shall go along with a presentation at the affiliated research group and finally a Mini Defense to a panel made up of the supervisors, an examiner and a chair. If successful, the student will be accepted as a full PhD student and given greenlight to register for the second year by their starting date.

Field Research-Month 13-24

The candidate is expected to carry out a research that has a strong practical component resulting in a prototype.

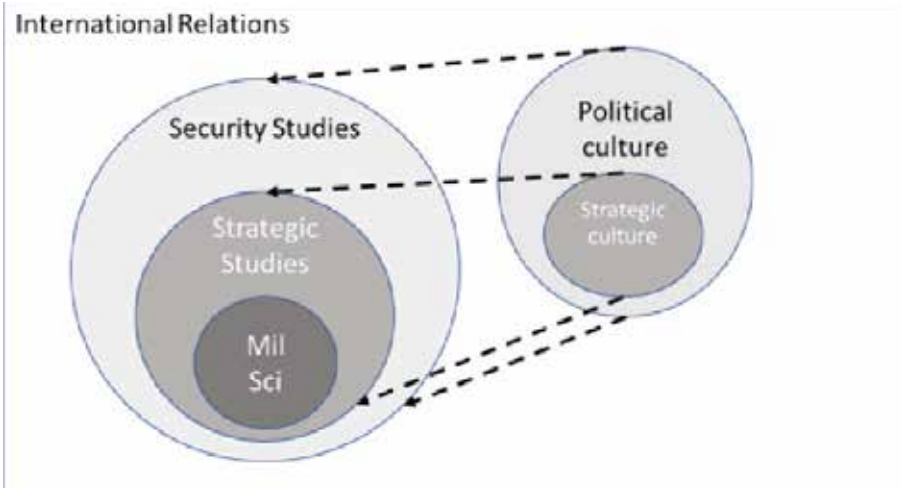
Thesis Writing-Month 25-30
During this period, the candidate will attend selected training programmes especially scientific writing or writing for journal paper. The main academic output will be a Second Results Chapter and Seminar Presentation to the Faculty/Centre

Thesis Defence-Month 31-36
In this final phase, the candidate shall be guided on preparation for the defence.

Entry Requirements
The programme targets all qualified individuals that want to advance their education qualification to Doctoral/PhD level. The entry requirements for the programme are therefore the following:

a) Any MSc degree in any field from a recognized institution of higher learning, provided that the applicant is willing to advance Applied Mathematics in their relevant discipline of speciality, which must also fit into the MUST Research Agenda;
b) Demonstrate ability to work independently and experience in independent research and thesis write up at MSc level;
c) Good command of English and computer literacy

POSTGRADUATE DIPLOMA IN STRATEGIC STUDIES



The programme is a multidisciplinary study area that deals with strategic studies and its unique connections within the defence, peace, and security context. It is aimed at responding to the demand of highly qualified persons in (1) the growing technological and competitive sector of defence, peace and security, and (2) the harnessing of innovation and strategic trends in defence, peace and security.

The programme emphasises on strategy as related to war and peace, with particular reference to the role, development and use of military power as a strategic resource and its impact on the international system. Students in the programme will acquire several theoretical, conceptual, and analytical tools with which to filter, order and attach contextual meaning to a plethora of themes or issues regarding national security, strategy, international relations and foreign policy. With the proposed modules, students will attain knowledge, attitude, and skills that will lead to strategic and practical leadership in the defence, peace, and security sector.

Career prospects

Career opportunities that the programme offers include staff directors, researchers, staff officers or commanders at strategic or operational levels.

Program Structure

Year	Semester 1	Semester 2
1	-Leader Assessment & Development -Creatical Thinking & Reasoning Skills -Classical Military Thoughts -Leadership Command & Management -Research -Revolution of Military Affairs -Human Rights -International Humanitarian Law -International Relations	-National Security -Peace & Conflict Studies -Civil Military Relations Strategy -Technology & Warfare -Battle & Campaign Analysis -Disaster Management -Counter Terrorism -Peace Support Operations

Criteria for Admission

A candidate must have a Bachelors degree or an equivalent degree from any recognized institution of higher education

A candidate who does not comply with a. above, but has IGCSE (`O' level) or equivalent and certificates in progressive courses (Junior Command and Staff Courses, Platoon Commanders Course, Administration Course, Company Comanders Course), and more than Ten (10) years of experience, will be considered for admission.

A candidate is required to write a one page submission to articulate the goals of his/her study and MUST reserves the right to interview the candidate.

MUST INSTITUTE OF INDUSTRIAL RESEARCH AND INNOVATION (MIIRI)

Community innovators undergoing an induction by MIIRI

The MUST Institute of Industrial Research and Innovation (MIIRI), formerly the Malawi Industrial Research and Technology Development Centre (MIRTDC), was officially approved in June 2020 by the University Council. The Institute has broadened the scope as far as research excellence, advancement innovative partnerships in university-community-industry nexus, and production of innovative thinkers embedded in MUST's strategic goals. MIIRI has four main strategic focus areas: Research, Innovation and Technology Development; Food and Nutrition Engineering; Sustainable Energy; and Legumes, Essential Oils and Oilseeds.

Objectives

MIIRI has the following strategic objectives:

1. Build capacity to create, apply and scale innovations that use science and technology to address economic challenges
2. Accelerate translation of scientific and innovative ideas into new products, services and technologies in areas of focus

3. Champion transformative agro-industrial research, business and skills development in food and nutrition engineering
4. Drive and support commercialization of technologies and services for transformative industrialization

Results Areas

The objectives are to be fulfilled in four main strategic focus areas summarized in the table below:

Strategic Focus Areas	
Research, Innovation and Technology Development	SR1.1: Existing and emerging innovations managed and commercialized SR1.2: Talented and innovative young generation recognized and supported SR1.3: Community innovation support system implemented SR1.4: Innovative growth industries supported SR1.5: MUST Innovation Academy established
Food and Nutrition Engineering	SR2.1: MUST Food and Nutrition Engineering Lab established SR2.2: Adopted value chains have been transformed into innovative and diversified food products readily available and suitable for domestic and export markets SR2.3: Postharvest losses of the adopted value chains reduced
Sustainable Energy	SR3.1: Energy resource maps developed SR3.2: Reliable, affordable, safe, clean and modern energy sources available on the domestic and export markets SR3.3: Exploratory research in new energy resources (geothermal and uranium) SR3.4: Energy related costs reduced
Innovative Growth Industries	SR4.1 Development of partnership agreements SR 4.2 Innovative industries engaged SR 4.3 Agreed industrial support implemented SR 4.4 Implemented support monitored
Legumes, Essential Oils and Oilseeds	SR5.1: Data base of all potential sources of essential and edible oils and actors in the oils lower-stream value chain developed SR5.2: Various oil-based products and by-products developed and readily available for domestic and export markets

MIIRI and partners brainstorming

The Institute has had a lot of successes in its years of operation under MUST. These include: the Innovation Scholar Project (ISP) that has produced some great innovations aimed at addressing different challenges; the UNDP-funded Covid-19 Application, which is being designed and coded by MUST innovative students to help in contact tracing and tracking of Covid-19 patients; and the capacity building programme under the Centre for Agriculture Transformation (CAT) funded by Foundation for Smoke Free World. This project enabled 10 MUST staff to attend different short courses at Stellenbosch University under African Doctoral Academy, and is supporting the development of BSc in Food Engineering and Technology curriculum, establishing a Food Science Launch lab and several scholarships at MSc and PhD levels. The US-funded ISP is championing the University Technology and Innovation Garage, which will drive activities under SR1. This project is also providing mentorship to over 11 faculty and administrators using the Human Centred Design concept in partnership with Michigan State University and funded by USAID. The Institute is also partnering with Virginia Tech under the African Drone and Data Academy (ADDA) funded by UNICEF.

Internship and Innovation Initiative

The Institute is hosting paid up internship and innovation mentorship programme to advance science, technology and innovation.

One of the interns was Ms Tawina Chimphango from Stellenbosch University.

MIIRI awarding a secondary school for excelling in innovation

Dean of Students Affairs: SAIZI S. K. KIMU

Mr Saizi Kimu is a lecturer in Language and Communication Studies Department. He holds a Master's degree in Applied Linguistics from the University of Malawi,

Chancellor College and a Bachelor's degree in Education with Linguistics major and Geography minor. His research interest is in Environmental Communication and he has conducted research in Climate Change Communication in Malawi. Currently, he is working on the Use of Indigenous Knowledge Systems and Practices in Communicating Climate Change in the Lower Shire and Public Understanding of Climate Change in Malawi.

He is a also the Dean of Students' Affairs, a position that also keeps him abreast on issues affecting students' learning which has also improved his teaching methods. Before joining MUST in 2016, he worked in the civil service as a secondary school teacher for three years and at The Catholic University of Malawi as an Assistant Lecturer in the Department of English and Communication Studies for four years.

Saizi S. K. Kimu

Contacts:
Mobile: +265 999 643 204
Email: saikimu@must.ac.mw

APPLICATION FOR SELECTION
All prospective generic students are selected under a harmonised public university selection process coordinated by the National Council for Higher Education (NCHE). However, applicants under economic fee paying and mature entry selection apply directly to the University by sending their application (applications forms are available on www.must.ac.mw once a call for selection applications has been made) to the University Registrar's office through email address registrar@must.ac.mw (remember to indicate the programme you are applying for in the subject column) or through the post to the address below:

The University Registrar
Malawi University of Science and Technology
P.O Box 5196
Limbe
Malawi.

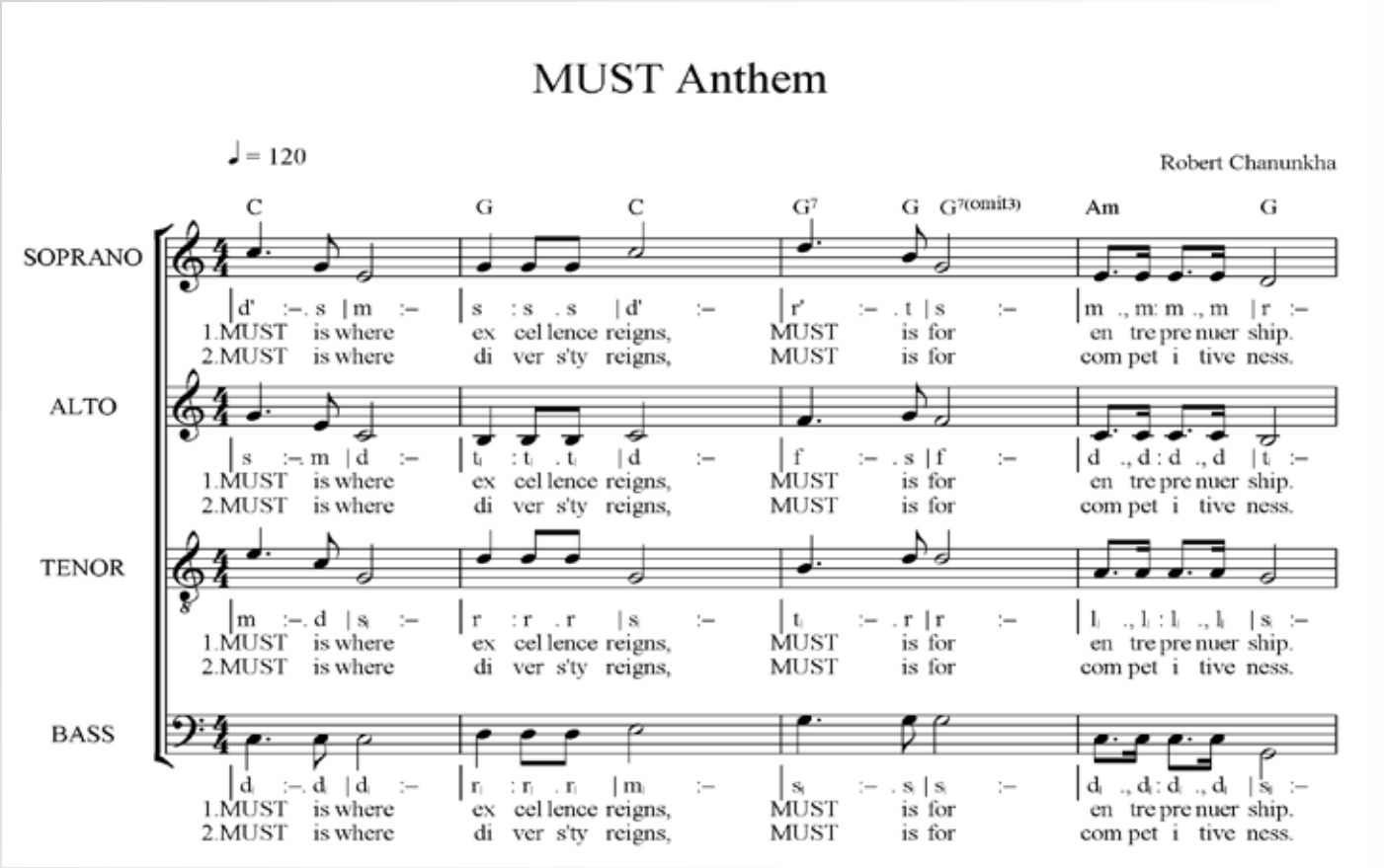
Sometimes, it is possible for the University to specify application procedures and mode of sending applications in the call for selection application advertisement.

FEES:
Malawian undergraduate students on generic intake pay K450,000 per academic year for tuition. However, the students also need K80,000 per annum for accommodation and an estimated K500,000 per annum for upkeep. Economic fee paying students pay K2,250,000 tuition fees per annum and K160,000 per annum for their accommodation.

Foreign students from the SADC region pay US$3,000 tuition fees per annum while those from countries outside the SADC pay US$3,500 per academic year.

Postgraduate students pay tuition fees of US$5,000 or Malawi Kwacha equivalent per academic year. Other costs include K40,000 per semester residence fee (depends on availability); living expenses of approximately K250,000 per semester payable on prorate basis; research fee of US$500 or in Malawi Kwacha equivalent; dissertation/thesis binding fee of K25,000 and yet to be advised medical insurance fee.

MUST Anthem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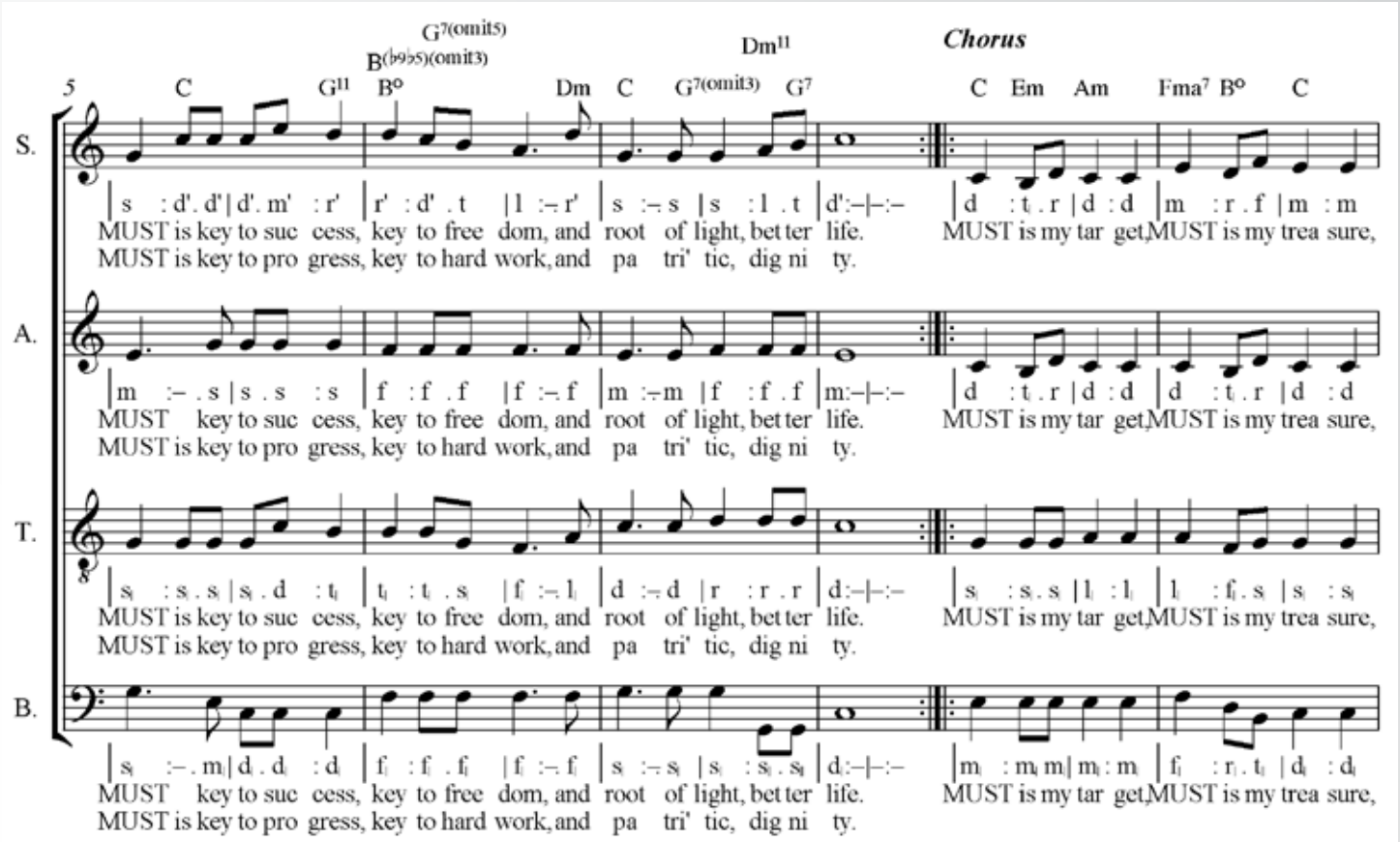
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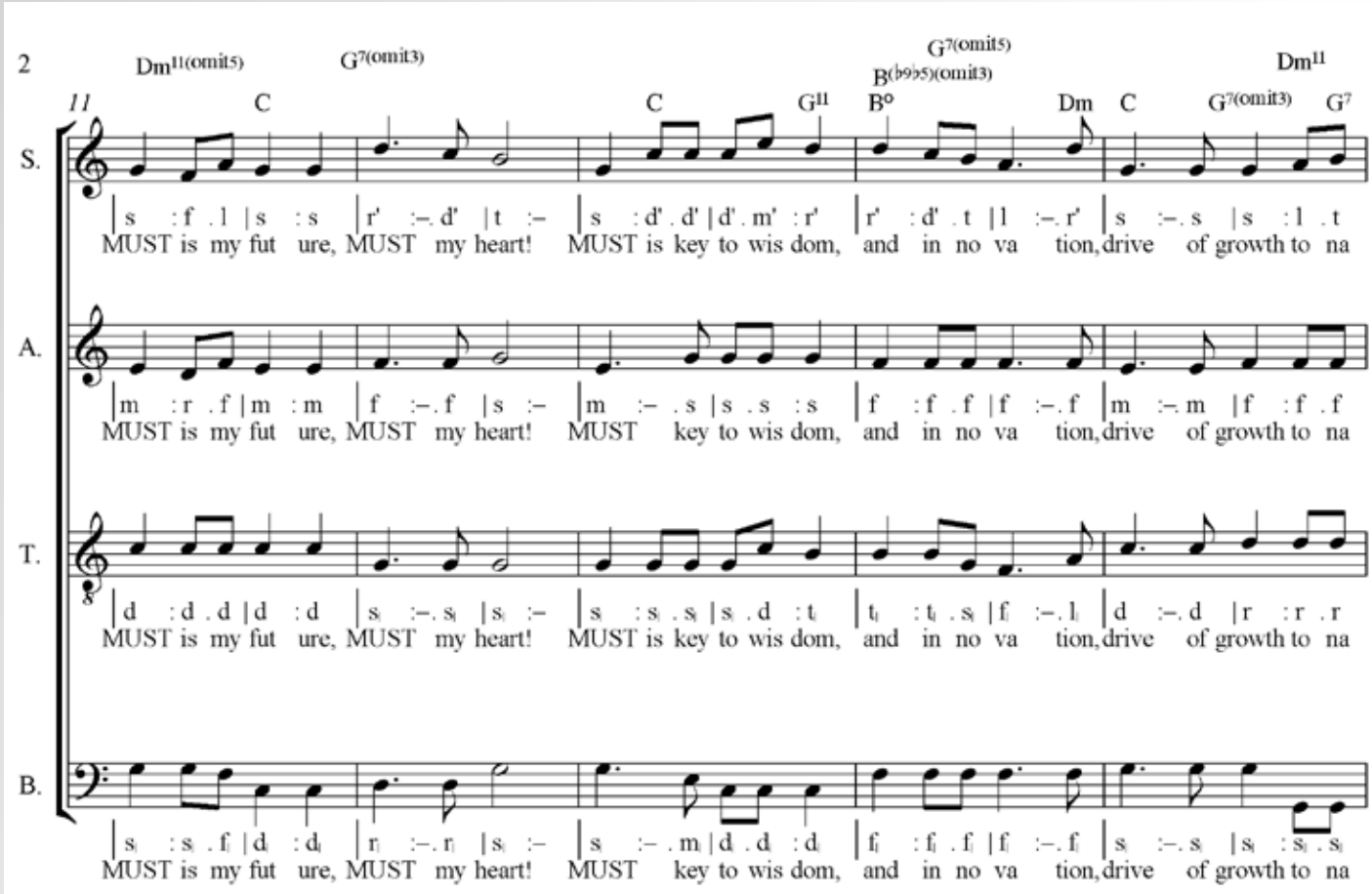
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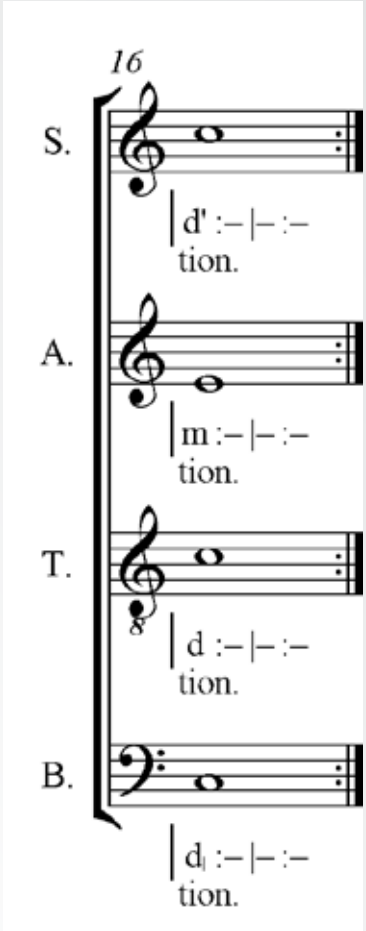
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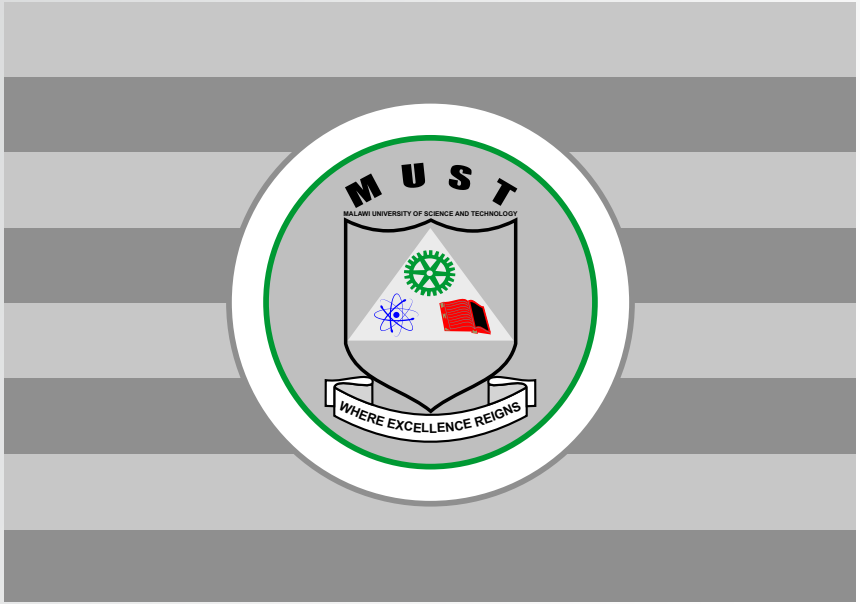

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