UTT

THE UNIVERSITY OF TRINIDAD AND TOBAGO

POSTGRADUATE PROSPECTUS

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UTT's Vision

To be the premier university dedicated to the socioeconomic transformation of Trinidad and Tobago, with global reach and international standing.

UTT's Mission

To contribute to the sustainable and entrepreneurial development of society through the advancement and application of research, dissemination of knowledge and public engagement in our pursuit to produce work-ready graduates, innovators and critical thinkers.

Key Academic Staff

Professor REAN MAHARAJ
President (Ag.)

Professor DONNIE BOODLAL
Vice President, Research, Academic and Student Affairs

Professor ADEL ELGAMMAL
Assistant Vice President,
Research, Impact and Postgraduate Studies

Dr Kela Francis,
Assistant Professor
Programme Leader, The Academy of Arts, Letters, Culture and Public Affairs

Dr Andell Edwards,
Assistant Professor
Programme Leader, Biosciences, Agriculture and Food Technologies

Dr Nadine Sangster,
Associate Professor
Programme Leader, Mechanical Engineering, Manufacturing and Entrepreneurship

Dr Roger Henry
Associate Professor of Music
Programme Leader, The Academy for the Performing Arts

Mr Parissram Jaggernath
Director
Programme Leader, Aviation Institute

Dr Linda Mohammed
Assistant Professor
Programme Leader, Institute for Criminology and Public Safety

Dr Barbara Constance
Assistant Professor
Programme Leader, Centre for Education Programmes

Dr SOLANGE KELLY,
Associate Professor
Assistant Vice President, Undergraduate Studies

Professor David Alexander
Professor
Programme Leader, Energy Systems Engineering

Dr Ejae John
Associate Professor
Programme Leader, Process Engineering

Dr Amarnath Chinchamee
Assistant Professor
Programme Leader, Project Management and Civil Infrastructure Systems

Dr Miguel Jagessar
Assistant Professor
Programme Leader, Utilities and Sustainable Engineering

Dr Edward Cumberbatch
Assistant Professor
Programme Leader, Foundations and Prior Learning

Dr Karen Pierre
Assistant Professor
Programme Leader, Health Sciences and Health Administration

Ms Patricia Lewis
Programme Leader, Caribbean Academy for Fashion and Design

Other Key Professors

Professor Marlon Knights
Professor
Biosciences, Agriculture and Food Technologies

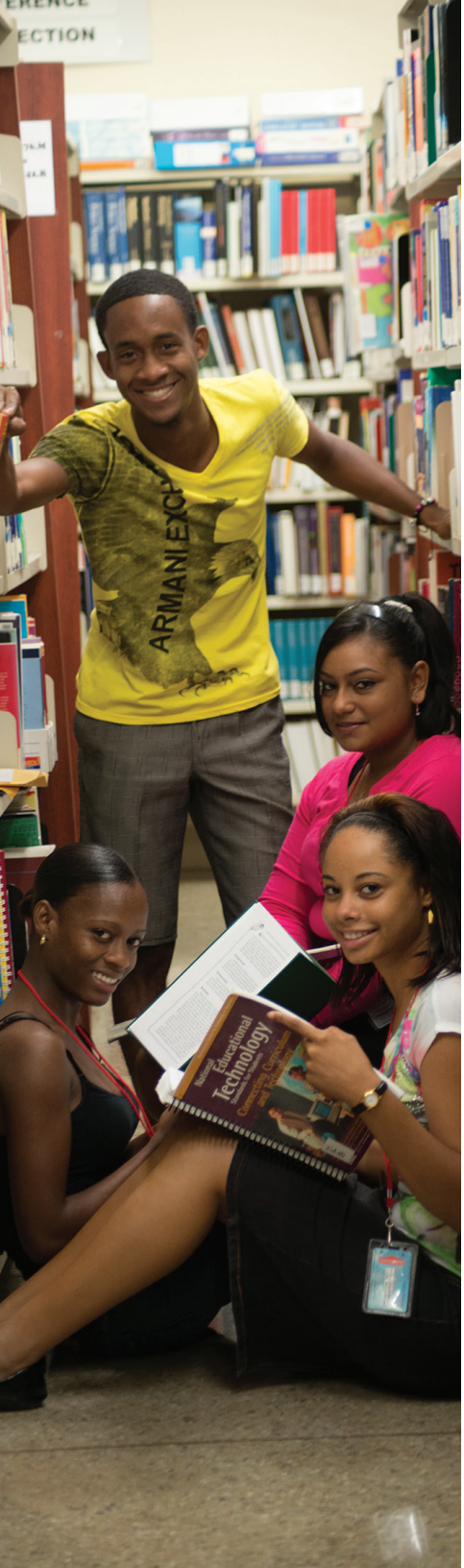
Why UTT?

- Over sixty (60) diverse, industry-relevant undergraduate and postgraduate programmes
- Industry-relevant research
- Problem-based learning
- Experienced and committed professors and instructors
- Focus on sustainability
- Comprehensive training and quality education
- Modern and equipped laboratories
- Continued institutional accreditation by ACTT
- GATE-approved programmes
- Work-ready graduates
- Social and academic enrichment

Profile of UTT

The University of Trinidad and Tobago (UTT) is a dynamic, entrepreneurial-based and student-oriented institution providing a broad spectrum of high-quality, career-oriented certificate, diploma, bachelor's, master's and doctoral programmes, in areas ranging from Science and Technology to Education and the Arts. UTT, the National University of Trinidad and Tobago, was established in 2004 with a mandate to educate and train nationals, and today, the University has become a fast-growing community of scholars which now serves a culturally diverse population of students in technical and other programme areas, ably guided by internationally respected professors.

The rationale for UTT's existence stemmed from a need to expand the capacity and access to tertiary education as well as to meet the national requirements for work-ready graduates who were aligned to industry expectations. Since its first graduation ceremony in 2006, the University has graduated more than seven thousand (7000) nationals. The University offers more than sixty (60) programmes available at the Undergraduate and Postgraduate levels which exposes persons to diverse educational opportunities.



UTT's Accreditation Initiatives

In December 2017, UTT was awarded Continuing Institutional Accreditation by the Accreditation Council of Trinidad and Tobago (ACTT) for the maximum period of seven (7) years (until 2024). This badge of excellence is UTT's assurance to its stakeholders that it meets and, in some instances, surpasses, benchmarked standards of quality. It speaks of a UTT qualification that is relevant, recognised and respected by employers as well as other tertiary institutions.

While ALL of UTT's programmes are accredited, some have attained specialised accreditation due to the need, in certain instances, to be licensed to operate in a specific profession. This carries proof of additional value in areas that potentially impact on public health and safety.

Moreover, UTT was the first institution in the Caribbean to have its programme, Master of Engineering (M.Eng.) in Petroleum Engineering, accredited to full Chartered Engineer status by the Energy Institute, UK. The M. Eng.is the highest award for undergraduate studies in engineering. It is awarded to students who complete an additional year of full-time study, this fourth year being subsequent to successful completion of UTT's Bachelor of Applied Science (B.A.Sc.). Chartered Engineer status ensures that UTT's graduates have a recognisable, international engineering qualification with which they can seek professional registration once they have completed the require amount of training and experience in the workplace.

Specialised Accreditation

The University of Trinidad and Tobago is committed to offering its students high quality world class programmes. UTT was the first institution in Trinidad and Tobago, and the Caribbean region, to receive full Chartered Engineering status by the Energy Institute, UK, for its Master of Engineering (M.Eng.) in Petroleum Engineering Undergraduate degree. UTT continues to pursue and maintain specialised accreditation for all programmes which require it. Many of UTT's programmes have received specialised accreditation from international organisations:

The **Joint Board of Moderators (JBM) comprising the Institution of Civil Engineers, the Institution of Structural Engineers, the Institute of Highway Engineers, the Chartered Institution of Highways and Transportation and the Permanent Way Institution** on behalf of the Engineering Council, UK:

- National Engineering Technician Diploma in Civil Engineering
- Bachelor of Applied Science in Civil Engineering Systems

Energy Institute, UK:

- National Engineering Technician Diploma in Petroleum Engineering
- Bachelor of Applied Science in Energy Engineering
- Bachelor of Applied Science in Petroleum Engineering
- Master of Engineering in Petroleum Engineering
- Master of Science in Energy Engineering

Institution of Chemical Engineers, UK:

- National Engineering Technician Diploma in Chemical Engineering
- Bachelor of Applied Science in Process Engineering
- Master of Engineering in Process Engineering

Institution of Engineering and Technology, UK:

- Diploma in Computer, Network and Telecommunication Engineering
- National Engineering Technician Diploma in Electrical/Electronic Engineering
- National Engineering Technician Diploma in Instrumentation Engineering
- National Engineering Technician Diploma in Mechanical Engineering
- Diploma in Software Engineering
- Bachelor of Applied Science in Manufacturing and Design Engineering
- Bachelor of Applied Science in Computer Engineering
- Bachelor of Applied Science in Utilities Engineering
- Master of Engineering in Utilities Engineering
- Master of Science in Cybersecurity
- Master of Science in Information and Communication Technology
- Master of Science in Innovative Design and Entrepreneurship

Student Registry

Mission: Creation of a superior student experience through the provision of student-centered customer service in an environment that respects confidentiality, demonstrates reliability and upholds the academic integrity of the University.

The Student Registry at the UTT plays a pivotal role in managing the academic journey of its students. Comprising several essential units, including

- Student Recruitment Unit
- Application Administration,
- Admissions Unit, and
- Student Records.

The Student Registry is headed by the Senior Manager, Student Registry who bears the responsibility for ensuring a seamless process from application to graduation.

The **Student Recruitment Unit** at UTT is crucial for attracting and enrolling prospective students. The unit develops outreach strategies, engage with potential students through events and online campaigns, and presents UTT programmes and brand. They guide applicants through the application process and collaborate with schools, academic departments and community organizations to build relationships and enhance UTT's image, directly impacting enrollment and institutional growth.

Application Administration oversees the student information system, which is the backbone of the university's administrative processes. This system manages all student data, ensuring accuracy and accessibility for both administrative staff and students. By maintaining a robust information system, the Student Registry supports efficient operations across the university, facilitating data-driven decision-making and enhancing the overall student experience.

The **Admissions Unit** is responsible for handling all aspects of the student enrollment process. From the initial application submission to the final admission decision, this unit ensures that prospective students meet the university's academic standards and requirements. It coordinates with various academic departments to assess applications, manage entry assessments, and communicate decisions to applicants.

Once admitted, the **Student Records Unit** takes over, maintaining comprehensive records of each student's academic history. This includes managing course enrollments, grades, transcripts, and degree certifications. Together, these units form an integrated system that supports the academic and administrative functions of UTT, ensuring that students' academic records are meticulously maintained and readily accessible throughout their educational journey.

The Registry administers the **Student Information System** (Jenzabar Ex) which is commonly referred to as the SIS. One important component of the SIS is the Jenzabar Internet Campus Solution (JICS) which is the student facing portal (myportal). The portal is used by students to register for courses, review grades, check course schedules and print unofficial transcripts. This portal is also used by persons wishing to apply for enrolment into programmes offered by the University.

The SIS manages all of the University's enrolment data and is used to track students' degree information including leave of absence, graduation and withdrawal information. It also allows the ability to verify and update registration, advising, and student records. Financial information and activities including student charges and receipting are managed through the SIS which calculates the charges, generates payment plans, dispatches statements, and manages the collection of overdue accounts.

The University also manages student and advisor information through the SIS, facilitating a stronger relationship between students and faculty. This flexibility gives both advisors and students all the information and planning tools they require to manage academic progress. The SIS allows advisors to have a complete, up-to-date picture of each student's academic history.

The **Examinations Unit** is primarily responsible for the administration of final examinations throughout UTT. All processes of the Unit are associated with examination administration and are designed to maintain the academic integrity of the University. Final examination schedules, examination guidelines, performance reports and academic status letters are all issued by the Examinations Unit.

Like the Student Records Unit, Officers in this unit have limited interface with the general public.

The University of Trinidad and Tobago (UTT) is committed to removing systemic barriers to tertiary education and producing exemplary graduates. **The Financial Aid Office** has been established to ensure Higher education is accessible to All. The Office is responsible for the following areas:

- Financial Advising
- Student Employment
- Undergraduate Student Financial Aid
- Scholarships and Bursaries
- Debt Payment Plans and Financial Agreements

Student Support Services

The Student Support Services department fosters student learning and holistic development by advocating for the development of policies, programmes and services which contribute to student-centred education and providing services which enable students to achieve their learning goals, gain academic and personal skills and be active, productive citizens. The department offers students comprehensive co-curricular programmes and services to support their transition into the University, successful matriculation and personal development throughout their programme of study, and preparation for their chosen career path and role in the development of Trinidad and Tobago. Our efforts are comprehensive, addressing almost every area of the UTT student experience from academic support and personal and professional development to cultural awareness, civic engagement, leadership, and overall wellness. We are committed to creating an extraordinary student experience at the UTT and to having a positive impact on the lives of our students by clearing the path to student success.

The core functions of Student Support Services are: Counselling Services, Disability Services & Student Development Unit (Career Development, Cafeteria Services, Halls of Residence, Student Social Responsibility and Volunteerism and Personal Enhancement Services).

The Student Development Unit (SDU) of the University provides leadership in developing and maintaining a campus atmosphere that fosters social, intellectual and personal growth; advocates for the needs of students; and develops leadership by promoting personal-responsibility and problem solving. SDU works with students, faculty, and staff to provide programming which focuses on student developmental needs and maximises their potential for success. Its programming areas include student advisement; student behaviour and comportment; student health and wellness; personal organisation and career readiness. SDU advises the UTT Student Guild, and is responsible for the accreditation of student organisations/clubs, training of student leaders, and coordinating approvals for and publicity of student events. SDU plans and coordinates the University's key student transition event - New Student Orientation; SDU also assists in the coordination of Graduation activities. The SDU coordinates transport for academic and co-curricular activities, and field trips; and from campuses to main transportation hubs.

The SDU is also responsible for Cafeteria Services and Hall of Residence on respective campuses in addition to Volunteerism Initiatives and Outreach.

Student Counselling Services (SCS) fulfil inter-alia three (3) essential roles in serving the University community. The most prominent is providing counselling and/or therapy to students experiencing personal adjustment, vocational, developmental and/or psychological problems that require professional attention. Second is the preventive role of assisting students in identifying and learning skills which will assist them in effectively meeting their educational and life goals. The third role involves supporting and enhancing the healthy growth and development of students through consultation and outreach to the campus community in the creation and maintenance of a healthy learning environment.

Disability Services is part of SDU and is responsible for the provision of services to students with disabilities. Services include: interpretation services for deaf and hearing impaired; resource information and referrals; liaison with campus departments and community agencies. The SDU also functions as a first responder for student crisis, inquiries, complaints and the resolution of conduct issues.

Housing and Residence Life is also part of SDU. The Residence Life Coordinators supervise the day-to-day operations of the Halls of Residence at the ECIAF Campus and work in collaboration with the SDU Officer and other staff in Student Support Services to plan and implement educational, cultural, social, recreational, and service programmes, which are supportive to the resident community. The SDU also provides assistance to students requesting off-campus accommodations by providing tips for selecting appropriate accommodation and listings of rental accommodations close to each of the campuses based on responses to its media advertisements.

The unit also has responsibility for the management of the Alumni Association and the development of current students for the transition into the world of work. The professional development of students focuses on career and personal development through Professional Development Workshops.

Cafeteria Services is responsible for the development and administration of a cafeteria model that accommodates the diverse dining needs of the University community. Through monitoring, the Student Development Officer along with the Senior Student Development Officer ensures the Concessionaires fulfil their contractual obligations regarding the hygienic preparation of quality meals that meet the requirements of students and staff and providing ongoing food safety training for their employees.

In collaboration with Facilities Management and Health and Safety Execution, standards are established and maintained regarding the routine conduct of equipment safety audits, establishment of preventative maintenance and pest control programmes.

The SDU manages all volunteerism initiatives on the various campuses. The opportunities offered under the **Student Social Responsibility and Volunteerism** umbrella - students are provided with co-curricular and holistic learning opportunities for student engagement through volunteerism and social outreach. This is the driving force of all social responsibility, community and civil society engagement, philanthropy and volunteer activity at UTT and aims to create an enabling environment for student social responsibility and community engagement initiatives in the development of a culture of service, outreach and sustainable community development.

Two areas of concern for a university ought to be (1) creation of the ideal student, and (2) creation of the ideal graduate. The ideal student is one that possesses the capacity and wherewithal to persist all the way to graduation – elements of which include high levels of motivation, impeccable self-management skills, and effective study skills and habits. The ideal graduate is one that is able to function with a recognisable degree of professionalism throughout his/her career, as well as demonstrate the capacity and readiness to contribute to society's well-being. Workshops geared towards these objectives are facilitated by the Student Development Unit.

Industry Training

It is intended that, beyond the University degree, the future goals of students will encompass rewarding and satisfying jobs and/or furthering of their studies.

This focus can be seen in UTT's use of the Co-op approach in the delivery of its programmes. The Co- op approach is a structured educational strategy that combines institutional learning with relevant practical experience in the workplace.

UTT offers excellent placement opportunities as bridging points between the University and the wider industry. UTT's Industry Training Programme places emphasis on developing students' inter-personal skills, their oral and written communication and facilitates the assessment of classroom theory in a practical work environment.

Responses from satisfied students to this industry experience range from 'exciting' to 'extremely relevant to course theory'.

Teaching and Learning

The learning experience that you will encounter at UTT is supported by academics who are trained to deliver innovative, authentic, industry-aligned and technology-supported learning experiences. Such faculty training is provided by the UTT's Teaching Learning and Instructional Support (TLIS) Unit, formerly named The Learning Centre (TLC). TLIS empowers your instructors to engage in contemporary course design and delivery strategies to enhance your learning experiences. Additionally, TLIS provides relevant guidance to UTT's instructors regarding the careful adoption of educational technologies into the teaching and learning environment. Consequently, the learning outcomes that you are expected to achieve as a student are designed to ensure that your programme's courses prepare you to integrate effectively into the world of work and contribute positively to society as a whole. TLIS also develops appropriate support resources for UTT's students, to ensure a proper user experience upon UTT's educational technologies such as the Learning Management System (LMS). Also, new students have the opportunity to engage in various self-paced and live student onboarding experiences regarding other technologies that directly impact teaching and learning at UTT. Lastly, the various technology-enhanced classrooms that students may encounter across the campuses of the UTT, are supported and maintained by TLIS. Therefore, whether there is a need for LMS support or support in a specialized (technology-enhanced) classroom, students can rest assured that support can be acquired by submitting requests to TLIS' helpdesk: **support.tlis@utt.edu.tt**.

UTT Libraries

UTT Libraries consists of a network of six (6) libraries, located at the University's campuses at Chaguaramas, ECIAF, John S. Donaldson, Port-of-Spain, Point Lisas, San Fernando, with the signature library at Tamana. The Libraries, through their helpful and courteous staff, provide a wide range of information resources, services and instruction, in support of the teaching, learning, research and entrepreneurial activities of the University, as well as the overall holistic personal development of students and staff.

The resources of each library are specifically geared to the programmes pursued at the respective campuses. They include both print and electronic resources. These can be accessed by using UTT Libraries' OneSearch facility through which the entire collection can be searched, or by using the online catalogue for locating print and multimedia items, and other pertinent links from the homepage, such as the online Newspapers Database. These facilities are available via the Libraries' link on the University's homepage or at **http://www.u.tt/library**.

Seating accommodations are provided for individual as well as group activities. Each library is equipped with a number of computer workstations with internet access, and software to facilitate the research and study needs of students and staff. While on campus the library resources can be accessed via these computers or wirelessly through any electronic device with internet access. These resources can also be accessed from off- campus, via MyCampus or UTT Libraries Facebook page.

Tuition and other costs

Citizens of Trinidad and Tobago can access funding for UTT's undergraduate programmes through GATE (Government Assistance for Tuition Expenses).

Visit www.u.tt/fees for more information on fees, tuition and payment plans.

Postgraduate Diploma in EDUCATION

The Postgraduate Diploma in Education is a one-year part-time teacher preparation programme for both in-service and pre-service teachers who already hold a bachelor's or master's degree in several academic domains necessary for teaching in the secondary education system in Trinidad and Tobago.

The programme also prepares students for further participation in the research work and educational displays.

The Specialisations in the Postgraduate Diploma in Education Programme include:

- Teaching of Business Studies
- Teaching of English Language
- Teaching of Mathematics
- Teaching of Modern Foreign Languages
- Teaching of Music
- Teaching of Physical Education
- Teaching of Science
- Teaching of Social Sciences
- Teaching of Technical Vocational Education and Training
- Teaching of Visual and Performing Arts

The graduates of the Postgraduate Diploma in Education will be able to apply scientific principles and technical knowledge to the addressing issues in the Twenty-first Century secondary school classroom. This programme complements the specialized content knowledge of the candidates' undergraduate training in educational disciplines. It promotes exposure to the range of practical teaching and learning issues, tools, techniques and bodies of knowledge and includes a four-week practical teaching assignment in a secondary school.

PROGRAMME VENUES
UTT Point Lisas and Tamana Campuses

PROGRAMME DURATION
1 year, Full-time

CREDITS REQUIRED FOR COMPLETION
30

ENTRY REQUIREMENTS

- A Bachelor's degree from an accredited University in subject areas that are taught in secondary schools in Trinidad and Tobago; preference will be given to those who have teaching experience;
- an undergraduate grade point average (GPA) of 2.5 or higher on a 4.0 scale
- in case of GPA deficiency, experiential and lifelong learning may be considered
- statement of purpose clearly indicating that the proposed diploma is appropriate to the applicant's professional aspirations.

MATURE STUDENT ENTRY
An applicant who does not satisfy all the stipulated minimum academic qualifications for admission to the programme, based on years of experience and the ability to achieve the level of programme learning, may be accepted as a mature student. A petition should be submitted to the Centre for Education Programmes detailing the experience and qualifications in lieu of the required GPA

POTENTIAL CAREERS

- Trained teachers in specific content areas
- Assistant examiners at the CXC and CAPE levels
- Facilitators in relevant content areas
- Researchers and research assistants
- Self-employed subject specialists
- School supervisors and board members

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
EDUC5010	Fundamentals of Education	4
EDUC5011	Nature and Practice of the Discipline	4
RESH5010	Research in Education	4
PRAC5001	Professional Practice I: Teachers' Work	4
	Total credits : 16	
Year 1, Semester 2		
CURR5012	Curriculum, Assessment and School Leadership	4
TECH5010	Technology Integration in the Classroom	3
PRAC5002	Professional Practice II: Learner-Centred Teaching	7
	Total credits : 14	
TOTAL CREDITS REQUIRED FOR COMPLETION: 30		

EDUC5010: FUNDAMENTALS OF EDUCATION

The course examines some of the core concepts, ideas and intellectual tools from Philosophy, Psychology and Sociology to help prospective teachers explore the fundamental issues, dilemmas and problems in education. The course seeks to develop in students a multi-disciplinary perspective in understanding the processes of education and their impact on teaching and learning. The course exposes students to debates that deal with issues and dilemmas in education such as education, indoctrination, moral and values in education, challenges teachers face as professionals and globalization and its impact on education.

EDUC5011: NATURE AND PRACTICE OF THE DISCIPLINE

This course is focuses on the actual classroom pedagogy, communication and assessment related to the teaching of the specialized subjects. Teachers will be assigned to specialist groups which will be led by Discipline specialists. There will be opportunities for group and individualized attention as the teachers examine their role as the model and manager of the subject discipline in their respective secondary school environment. The course will integrate the examination and evaluation of the syllabus, curriculum and the prevailing learning and teaching theories. Teachers will be required to examine their classroom practice and evaluate how it aligns to the various levels of learners. This will encourage students to reflect on their teaching strengths and learning styles. This course will seek to assist teachers to understand and apply the content of the curriculum in their respective area of specialization, emphasizing best practices to plan and deliver the modules of the various areas. There will also be a focus on developing research skills in the area of specialization.

RESH5010: RESEARCH IN EDUCATION

This course covers basic concepts of educational research, ethics in research and the role of review boards in research. The major theories that underpin quantitative, qualitative and mixed methods research will be discussed so that learners will develop an understanding of the strengths and weaknesses of each paradigm. Participants will develop skills in conducting research including: writing problem statements, evaluating research articles, writing literature reviews, formulating research questions and hypotheses, selecting appropriate research designs, selecting the research site, the participants as well as appropriate ways for gathering, analysing, interpreting and presenting the data. Research will be directed to instructional technology.

PRAC5001: PROFESSIONAL PRACTICE I: TEACHERS' WORK I

This course, Professional Practice I: Teachers' Work, is the first of the two practicum courses planned for the Postgraduate Diploma in Education. It includes fundamental aspects in initial teacher preparation, and it seeks to develop knowledge and competencies which are necessary for participants to engage in classroom teaching.

In this course, participants will be given the opportunity to develop skills in writing objectives. They will be introduced to planning task analyses, unit and lesson planning, and formulating teaching/learning strategies to be used in the effective implementation of lessons. Participants will also be given the opportunity to create appropriate resources and to develop effective classroom communication skills. They will engage in activities which include simulations, that is, planning and delivering lessons to their peers.

CURR5012: CURRICULUM, ASSESSMENT AND SCHOOL LEADERSHIP

In this course, students will engage with various theoretical and practical conceptions relating to the nature and purpose of curriculum and how assessment is positioned within these views. A focus of this course will be on the role of administrative and leadership bodies in ensuring that particular curricula and assessment approaches have educative value that is relevant to the societal context in which they emerge. Consequently, the technical, political and moral dimensions inherent in all curricula and assessment practices and leadership behaviors with specific emphasis on the educational system in Trinidad and Tobago will be explored. This course will promote the importance of developing the professional capacity of educators to make value judgments in terms of effective leadership choices in curriculum planning, action and evaluation as well as fostering a culture of assessment literacy among all practitioners. A key component to making such professional judgments is the capacity for engaging in exploring philosophical aims and purposes of curriculum, assessment and school leadership.

TECH5010: TECHNOLOGY INTEGRATION IN THE CLASSROOM

Educational technology is developing rapidly, and that development has presented educators with an opportunity to rethink and improve their pedagogical practices. This course provides a framework to help educators purposefully integrate educational technologies into their classrooms. When done effectively, ICT integration has been shown to enhance student engagement and improve students' learning outcomes.

This course will introduce educators to principles and practices of integrating inquiry and technology in the classroom as a community of practitioners. The course covers the benefits and challenges of integrating ICTs into learning experiences and developing 21st century learning skills. Furthermore, it discusses how to design and deliver a successful ICT integrated lessons, use gamification in the classroom, assess technology enhanced learning and create blended learning experiences.

PRAC5002: PROFESSIONAL PRACTICE II: LEARNER-CENTRED TEACHING

This course, Professional Practice II: Learner-Centred Teaching, is the second of the two practicum courses planned for the Postgraduate Diploma in Education. It is designed to help the participants make the connections between the practical experiences in the classroom and theoretical understandings which they developed during the implementation of PRAC5001 and other courses in the Diploma in Education programme. There is a compulsory 4-week practicum, in which participants will be required to teach and to evaluate the quality of their instruction to students in real-life classrooms.

Practicum advisors will visit the participants during their field-teaching experiences to observe and assess their teaching skills. During post-conferencing sessions, feedback will focus on improvement of their daily and future practi

Master of Arts in
CARNIVAL STUDIES

Carnival is an aggregate cultural practice of masquerade, music and movement which unifies through expression and creativity--a celebration with dance, music, song, and masquerades in procession, to commemorate major upheavals, to affirm humanity and community, and to secure the future in the face of chaos and change. In Trinidad and Tobago, Carnival showcases the many facets of our cultural life including our stories, our emotions and attitudes. In addition, for many, it is a vital economic activity. There is need, then, to study the Carnival as a means of (re)discovering ourselves and our global interconnections, as well as understanding its relationship to our economy.

The Master of Arts in Carnival Studies programme (MACS) facilitates graduate level exploration of Carnival and its historical, sociopolitical, socioeconomic, and cultural impact on society while enhancing students' specific skills in research and research design, critical and analytical thinking. A deeper understanding of the Carnival product and its practice will lead to professional positions in a range of industry- related fields. In addition to preparing students for further study and research at the Doctoral level, it will develop, where possible, interactive and comparative relationships with programmes and institutions that pursue life and culture of the people of the Caribbean.

The programme will therefore focus on Carnival as both a cultural product and a cultural practice, the richness, aesthetic beauty and depth of the festivities. It will also highlight the unique features of Trinidad and Tobago Carnival, and how the festival relates to the folk traditions of Trinidad and Tobago in general. The courses will deal with mas, masking and the masquerade, the history and evolution of the music and the instruments, the development and spread of Carnival at home and abroad, as well as the ethnographic, business and entrepreneurial aspects of the festivities.

PROGRAMME VENUES
UTT NAPA and John S. Donaldson Port-of-Spain Campuses

PROGRAMME DURATION
1 year, Full-time
2 years, Part-time

CREDITS REQUIRED FOR COMPLETION
40

ENTRY REQUIREMENTS

- A Bachelor's degree from an accredited college or university with a grade point average (GPA) of 3.0 or higher (normally an upper second degree)
- A Bachelor's degree with a grade point average (GPA) of 3.0 on any previous graduate work.
- Experience in Carnival, Carnival Studies or skills in Carnival related industry/ productive areas of the festival will serve as an asset for applicants.
- Skills in Carnival-related industries or in the productive areas of the festival will be considered as assets.

POTENTIAL CAREERS

- Artistic Directors
- Carnival Band Producers
- Choral Directors
- Composers
- Calypsonians
- Conductors of Music and Chorales
- Cultural, Academic and Artistic Education
- Entertainment writers for journals and magazines
- Event Management and Planning
- Lecturers, Instructors and Professors of Music and Carnival Studies
- Musical Directors
- Musical Theatre Personnel
- Music Educators in Private and Public Schools
- Music for Film and Television, Corporate Video Concerns
- Music Therapy

- Music Producers
- Musicians for the police, Army and other Military Bands
- National Carnival Commission Supervisors
- National Carnival Commission Commissioners
- Newspaper journalists
- Production Managers
- Radio and Advertising concerns
- Recording Studios
- Recording Industry Professionals
- Researchers into Carnival
- Show Producers (e.g. Dimanche Gras)
- Teachers in primary and secondary schools
- Tourist Guides
- Tourism Promotion Project Officers
- Lecturers/Instructors at tertiary level training institutions;
- Producers of carnival-related programmes on radio and television; and
- Directors of Carnival 'Mas Camps'
- Directors of Camps in general
- Ministries of Government
- National Carnival Bands Association

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
CAST5011	Caribbean Carnival and Culture	4
CAST5029	Pan Yard Studies	4
CAST5030	Calypso Tent Studies	4
CAST5028/ CAST5031	Academic Writing /Cultural Literacy	
	Total credits : 13	
Year 1, Semester 2		
CAST5016	Caribbean History and Civilisation	4
CAST5029	Pan Yard Studies II	-
CAST5030	Calypso Tent Studies II	-
CAST5026	Understanding the Social Sciences	3
	Total credits : 7	
Year 2, Semester 1		
CAST5007	Mas Camp Studies	4
CAST5000	Pro-Seminar in Ethnomusicology	3
CAST5013	Fundamentals and Techniques of Calypso Composition and Performance	3
CAST5005	Carnival Ethnography: Writing Empirical Research Reports ©	4
CAST5020	Exploratory Research in the Social Sciences (core)	3
	Total credits : 17	

COURSE CODE	COURSE TITLE	CRs
Year 2, Semester 2		
CAST5006	The Business of Carnival	4
CAST5004	Topics and Treatment of Themes in Calypso	3
CAST5003	Caribbean Music: Fundamentals Structure and Performance	3
CAST7001	Carnival Studies: Research Paper/Thesis ©	6

Total credits : 17

TOTAL CREDITS REQUIRED FOR COMPLETION: 40

CAST5000: PRO-SEMINAR IN ETHNOMUSICOLOGY

This course exposes students to the central issues confronted and the major concepts developed by ethnomusicologists over the past fifty (50) years or so. Specific issues such as the nature of musical creation, the definition and conceptualisation of music, the relationship between music and society as well as the geographical distribution of musical phenomena will all be examined. The diversity and universality of the world's music will at all times be stressed. Besides the fundamentals of a few, notable forms of notation, students will be exposed to the writings of the major ethnomusicologists and through critiques, reviews and debates, assess their contribution to ethnomusicology.

CAST5011: CARIBBEAN CARNIVAL AND CULTURE

The course introduces students to the origins of carnivals, and to the history and development of the Trinidad-style Carnival in particular, and Caribbean carnivals in general. Students will study the circumstances whereby the carnivals reached North American and European cities, and the laws, regulations and other social circumstances that have affected the music, dance and the many accompanying masquerades which today comprise the festivals.

CAST5016: CARIBBEAN HISTORY AND CIVILISATION

The course introduces students to the history of the Caribbean area from the era of Columbus up to the present and the development of social, political and economic institutions that are important for an understanding of the contemporary Caribbean. It will provide for students a broad analysis of Caribbean history, as they are led to consider the comparisons and contrasts, the uniformities and contradictions, the convergences and divergences, the various ideologies and thoughts that have plagued the difficult attempts at social construction, adaptation and reconstruction in this exciting and important area, that is so often forgotten by modern-day historians.

CAST5028: ACADEMIC WRITING

The course is a comprehensive introduction to the fundamentals of academic writing: selecting a topic, pre-writing technique, organizational technique, rhetoric and grammar. Regardless of the student's past achievement, graduate writing is a specific discipline most undergraduate courses do not engage. As such it is imperative that students orient themselves to the rigor of graduate academic writing and argumentation. During this course, students will also become familiar with Microsoft Word and Canvas.

CAST5007: MAS CAMP STUDIES

This course covers the origin and development of the masquerade/mas characters in the Trinidad and Tobago Carnival celebrations, with emphasis on the African masking traditions, religious aspects of the masquerade, the genesis of the traditional mas characters in the Carnival, the early mas camp tent, the mas band competitions, mas design and mas making,

the pioneering mas band leaders, some of the outstanding individual masqueraders of the Trinidad and Tobago Carnival.

CAST5013: FUNDAMENTALS AND TECHNIQUES OF CALYPSO COMPOSITION, LANGUAGE AND PERFORMANCE

This is an in-depth study of all the elements needed for the composition of a good calypso. It includes the art of rhyming and lyrical measurement, the history and development of the art form, the methods of arriving at suitable melodies to accompany the lyrics, and the history, development and understanding of the traditions that have guided, regulated and governed the various compositions and performances. Emphasis will be placed too, on the language of calypso as well as on the methods (lyrical, tuneful and otherwise) used by calypsonians to treat with compositions that underscore important concepts that affect Caribbean people such as identity, satire, smut, race, ethnicity, nationalism, colonialism and male-female relationships.

CAST5026: UNDERSTANDING THE SOCIAL SCIENCES

A topical examination of the social dimensions of Caribbean cultures from the origins of human habitation to the present. Its interdisciplinary approach will emphasises the perspectives of the various social sciences, with attention given to the arts of the Caribbean as well as the ideologies and thoughts that have emanated from academics, leaders and notable personalities of post- colonial, Caribbean society.

CAST5020: EXPLORATORY RESEARCH IN THE SOCIAL SCIENCES

This course is the second part of the programme on research methods and furthers the students' knowledge of the nature, value and methods of research in the social sciences. It explores how research findings come to assume the status of knowledge and the scientific structure that permits the findings to do so. The course also exposes students to problems that usually arise in the course of research and the methods of solving them.

CAST5029: PAN YARD STUDIES

This course gives students a practical knowledge of "Pan Yard." It will cover the history of the steelpan and the pan yard, and introduce students to the operations, events and management of a pan yard such as the selection of a music arranger, selection of musicians and music for music making, management, the holding of auditions for the selection of pannists and Panorama, the drawing up of the nightly/ weekly/ monthly programme, the bases for payment of players/ pannists, the purchasing of materials for decorations, the purchasing of pans for tuning, the tuning of pans, and the day to day operations of the yard, including advertising policies and the strategy for increasing the yard's patronage through lecture and immersion.

CAST5030: CALYPSO TENT STUDIES

This course gives students a practical knowledge of the "Calypso Tent." It will cover the history of Calypso and the calypso tent, and introduce students to the operations and management of a calypso tent. Students will learn about all the tent's activities such as the selection of musicians and music making, management, the holding of auditions for the selection of singers, the drawing up of the nightly programme, the bases for payment of singers, the purchasing of materials for decorations, and the day to day operations including advertising policies and the strategy for increasing the tent's patronage through lecture and immersion.

CAST7001: CARNIVAL STUDIES: RESEARCH PAPER/THESIS

This course reflects a comprehensive, systematic presentation of a researched topic using the scientific approach in the social sciences. The presentation underscores the relationship between theory and research and demonstrates the interrelated stages that normally define such methods.

CAST5005: CARNIVAL ETHNOGRAPHY: WRITING EMPIRICAL RESEARCH REPORT

This course emphasises the guidelines used by social science writers of empirical research. It is thus concerned with the

types of information that is normally included in a research report, the manner of expressing the information and where the data should be placed within the report itself. The focus throughout the course will be on carnival in Trinidad and Tobago and carnival ethnography. The course content also examines the many ways that research in the realm has been conducted over the years by well-known researchers, their methods of analysis as well as their ways of writing the reports.

CAST5004: TOPICS AND TREATMENT OF THEMES IN CALYPSO

The course explores calypso as a form of communication by examining how calypsonians treat with various themes using music, lyrics and performance. The selected themes, to a large extent, are meant to help the students to better understand the social structure and behavioral patterns of the people of Trinidad and Tobago in particular, and of those of the wider Caribbean in general.

CAST5003: CARIBBEAN MUSIC FUNDAMENTALS STRUCTURE AND PERFORMANCE

The course introduces students to the nature of musical expressions and elements of music, including rhythm, melody, harmony, form and colour. It will explore too, the most important musical traditions of the English, French and Spanish Caribbean, such as Zouk, Cadence, Salsa, Parang, Calypso Rapso and Chutney, through illustration of the many ways that aesthetics, ritual, communication, religion and social structure in the Caribbean are embodied in and contested through performance. It will focus on stylistic differences and similarities and consider the influences that culture and cultural ties have on musical expressions in the region.

CAST5031: CULTURAL LITERACY

The Course will introduce the learner to areas of learning that have lasting significance in the world of education today, as well as areas that will form the basics for a proper understanding of Carnival in the Caribbean and abroad. An emphasis on background information is indeed critical for the teaching of language arts especially those dealing with Carnival. An active understanding of the written language needs much more than the ability to call words: a successful understanding of reading, especially at a postgrad level, requires a knowledge of shared data that may not be printed on the accompanying pages held by the student. A high national and cultural literacy is the key to understanding all domains of learning in any university. Cultural literacy is therefore a course that will allow students to increase their reading ability by linking it with their learning ability since it has been shown in education that both depend on a diversity of prior knowledge, which in the case of carnival is knowledge cultural and historical in nature.

CAST5006: THE BUSINESS OF CARNIVAL

This Course of study is meant to let students become aware of the complex nature of entrepreneurial activities involved in the masquerade, the panyard, the calypso tent and the music of Carnival. It is meant too, to educate artists and budding carnivalists into understanding all the many ways that revenues flow from Carnival in particular and festivity in general, as well as their responsibilities and inputs into the financial flow. It is especially concerned with the business activities that allow the masquerade, the panyard and the calypso tent to function and the management practices involved. The course will also provide, for musicians especially, information on virtually every economic, legal and financial aspect of the complex music business, including themes such as recording companies, music publishers, trademarks, copyright and protection, contracts and related materials.

Master of Education in
EDUCATIONAL TECHNOLOGY

As a burgeoning field of study, educational technology emphasises communication skills and approaches to teaching and learning through the careful use and integration of diverse media. Scholars in the field examine the uses of innovative media and technologies for education, examining all aspects from direct student learning to management and impact on institutions. As in all forms of applied technology, the field of educational technology studies how theoretical knowledge and scientific principles can be applied to problems that arise in a social context. Practitioners in educational technology seek new and effective ways of organising the teaching and learning process through the best possible application of technological developments. These activities rely upon a body of knowledge for successful, rather than routine tasks or isolated technical skills. The programme comprises the following four options or concentrations:

- Interactive Learning Systems Development
- E-Learning Systems Development
- Classroom Technology Development and Usage
- Digital Media and Animation

PROGRAMME VENUE
UTT Tamana Campus

PROGRAMME DURATION
2 years, Full-time

CREDITS REQUIRED FOR COMPLETION
48

ENTRY REQUIREMENTS
Applicants for this programme must possess one of the following:

- A baccalaureate degree from an accredited college or university with a grade point average (GPA) of 3.0 (on a 4.0 scale) or higher in computer science, information systems, information technology, web development, media and technology, education, or other related fields
- A GPA of 3.0 on any previous graduate work
- In case of GPA deficiency, experiential and lifelong learning may be considered.

ADDITIONAL REQUIREMENTS

- A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level
- Statement of purpose clearly indicating that the proposed Master's degree is appropriate to the applicant's professional aspirations
- Statement of intent - a short description of the area of technology integration that would be the focus of the applicant.

MATURE STUDENT ENTRY
An applicant who does not satisfy all the stipulated minimum academic qualifications for admission to the programme, based on years of experience and the ability to handle the level of programme learning, may be accepted as a mature student. A petition should be submitted to the Centre for Education Programmes detailing the experience and qualifications in lieu of the required GPA.

POTENTIAL CAREERS

Students who graduate from the Master of Education in Educational Technology programme can pursue rewarding careers such as:

- Instructional software developers
- Evaluation and assessment specialists
- E-learning consultants
- Educational video producers
- Human performance technology managers
- Instructional designers
- Museum education specialists
- Technology support specialists
- Training coordinators
- Teachers/instructors/professors
- Technology directors
- Web and/or multimedia designers
- Distance learning developers
- Content development specialists
- Learning management systems developers

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
PSYC5001	Understanding Cognitive and Learning Processes	3
CURR5001	Curriculum Development, Implementation and Change	3
EVAL5001	Educational Assessment and Evaluation	3
TECH5003	Algorithm Development and Scripting Languages	3
	Total credits : 12	
Year 1, Semester 2		
TECH5001	Instructional Design	3
TECH5002	Foundations of Instructional Technology	3
TECH5004	Website Development	3
ERDM5001	Educational Research Methods	3
	Total credits : 12	
	Interactive Learning Systems Development option	
Year 2, Semester 1		
TECH6024	Interactive Interface Design	3
TECH6002	Interactive Multimedia Design and Development	3
TECH6003	Advanced Multimedia Design and Development	3
	Elective	3
	Total credits : 12	
Year 2, Semester 2		
TECH6004	Interactive Website Development	3
RESH6002	Final Project	6
	Elective	3
	Total credits : 12	

COURSE CODE	COURSE TITLE	CRs
	E-Learning Systems Development option	
Year 2, Semester 1		
TECH6005	Database Systems Development	3
TECH6006	Object Oriented Technology and Learning Objects	3
TECH6007	Content Management Systems	3
	Elective	3
		Total credits : 12
Year 2, Semester 2		
TECH6008	Social Construction in E-Learning	3
RESH6002	Final Project	6
	Elective	3
		Total credits : 12
	Classroom Technology Development and Usage option	
Year 2, Semester 1		
TECH6009	Teaching and Learning Support Technology	3
TECH6010	Internet Technology Development	3
TECH6011	Audio-visual Technology Development	3
	Elective	3
		Total credits : 12
Year 2, Semester 2		
TECH6012	Learning and Course Management Systems	3
RESH6002	Final Project	6
	Elective	3
		Total credits : 12

COURSE CODE	COURSE TITLE	CRs
	Digital Media and Animation option	
Year 2, Semester 1		
TECH6013	Introduction to Animation	3
TECH6014	Mastering Animation Software, Animation Studio and Flash 5	3
TECH6015	Digital Media	3
	Elective	3
		Total credits : 12
Year 2, Semester 2		
TECH6016	Digital Lighting and Rendering	3
RESH6002	Final Project	6
	Elective	3
		Total credits : 12
TOTAL CREDITS REQUIRED FOR COMPLETION: 48		

ELECTIVES

COURSE CODE	COURSE TITLE	CRs
LEAD5001	Educational Leadership and Organizational Behaviour	3
EDUC5001	Social, Historical and Philosophical Foundations of Education	3
TECH6017	Administration of Instructional Technology Programmes	3
TECH6018	Distance Learning: Theory and Practice	3
TECH6019	Integrating Technology across the Curriculum	3

PSYC5001: UNDERSTANDING COGNITIVE AND LEARNING PROCESSES

This course provides an introduction to the various schools of thought regarding how people learn and apply their learning to concrete situations. It provides a comprehensive survey of our progressive understanding of the learning process. Students will explore developmental, behaviourist, social, and adult learning theories. Additionally, this course looks at the practical implications of cognitive science which explores the mechanisms by which people acquire, process, and use knowledge. Students will apply these concepts in their respective fields by utilising the practical instructional strategies based on these theories.

CURR5001: CURRICULUM DEVELOPMENT, IMPLEMENTATION AND CHANGE

This course examines key principles underlying the design, development and implementation of the school curriculum. It focuses on schools as learning organisations and examines the various challenges associated with implementing and sustaining curriculum change initiatives in schools. Emphasis will be placed on methods of determining curriculum priorities, objectives, scope and sequence, student assessment and curriculum evaluation.

EVAL5001: EDUCATIONAL ASSESSMENT AND EVALUATION

This course covers the principles of constructing and evaluating traditional and alternate educational assessments. It includes crafting and using educational assessments, validity and reliability of assessment results, norm and criterion reference assessment, diagnostic and continuous assessment, formative and summative evaluations, preparing students for assessment, grading and grade use and interpreting, using and evaluating standardised tests.

RESH5002: EDUCATIONAL RESEARCH METHODS

This course covers basic concepts of educational research, ethics in research and the role of review boards in research. The major theories that underpin both quantitative and qualitative research will be discussed so that learners will develop an understanding of the strengths and weaknesses of both paradigms. The course will also focus on the major components of conducting research including: stating the research questions, selecting an appropriate design, selecting the research site, the participants, appropriate ways for gathering, analysing, interpreting and presenting the data.

TECH5001: INSTRUCTIONAL DESIGN

This course is a key course in the Master's programme. All educational experiences developed in this course will be guided by the principles of this course. It provides a foundation for the practice of instructional design as well as an in-depth elaboration of standard instructional design models and associated methodologies. Modern design models such as Layers of Necessity and Rapid Prototyping will also be explored. The course includes strategies for development of objectives, taxonomy classification schemes, content analysis procedures, and instructional strategy selection, as well as adaptation and adoption of available resources.

TECH5002: FOUNDATIONS OF INSTRUCTIONAL TECHNOLOGY

This course introduces students to foundational concepts and skills for personal and professional use of technology. Students focus on teaching and learning models and essential skills required to use computers from a multimedia perspective. The components of design and the development of instructional technology will be explored. The course also covers the application of Instructional Design and Directed and Inquiry Based Theories to the development of Technology based lessons.

TECH5003: ALGORITHM DEVELOPMENT AND SCRIPTING LANGUAGES

The ability to write scripts or programs is fundamental to the development of any dynamic system. This course introduces the student to:

1. Algorithm Development
2. Transformation of algorithms to

scripting codes
3. Object manipulation using scripts.

TECH5004: WEBSITE DEVELOPMENT
This course is designed to enable students to develop web pages and websites with instructional content. Students will be able to convert their instructional designs into a functioning site. This may include but is not limited to: Web Pages, Wikis, Blogs and Chat Rooms

TECH6001: INTERACTIVE INTERFACE DESIGN
Interactivity is the process by which users and the medium communicate with each other. The primary method of communication takes place through the screen. This course is about the enabling of two way effective communication between the medium (the computer) and the user.

TECH6002: INTERACTIVE MULTIMEDIA DESIGN AND DEVELOPMENT
This course introduces the many facets of interactive multimedia design and production while focusing on instructional design principles to create interactive multimedia products. Students are introduced to authoring programmes used for information delivery with special attention on integrating various media assets for communication. Storage, management and retrieval of media assets in a production environment are also covered. Considerable time is spent on the systematic design of interactive media products to meet specified goals of communication.

TECH6003: ADVANCED MULTIMEDIA DESIGN AND DEVELOPMENT
This course builds on students' introduction to the world of multimedia, a combination of sound, animation, graphics, and video. Students will work with a variety of software including programmes used for sound and video production, multimedia presentations, web and desktop publishing, photo & image editing and CD and DVD production for educational purposes. This course builds skills and techniques for a variety of software programmes to create and edit interactive multimedia content.

TECH6004: INTERACTIVE WEBSITE DEVELOPMENT

Central to teaching and learning is interactivity between teacher and student. Traditional approaches to website development and automated instruction followed traditional pedagogical models where the teacher was the deliverer of knowledge and the student was the repository or receptacle of knowledge. Student-centered models portray the student as pivotal in the learning exercise where the knowledge and experiences of the student are explored and made to impact on the final learning outcome. This interactive website development course follows this model and will engage the student in making contributions dynamically to his learning experience.

TECH6005: DATABASE SYSTEMS DEVELOPMENT
This course provides participants with the ability to design and build databases and the skills and competencies to manipulate data stored in them. In any dynamic learning environment where learning is non-sequential and user controlled it is important that learning systems provide users with the ability to dynamically access learning information. A good command of Databases and DML will enable learning systems designers and developers to develop learning systems that provide this facility.

TECH6006: OBJECT ORIENTED TECHNOLOGY AND LEARNING OBJECTS
Using an object-oriented language such as C#, Java C++, the student will be able to design and develop objects. A learning object is defined as a unit of learning which can be accessed and reused. These units can be examples, illustrations, assessments, explanations, related to a particular topic. Learning objects can be combined or aggregated to form larger modules or units of learning. This course is about enabling students to design and develop learning objects which can be shared by their classmates and the wider community.

TECH6007: CONTENT MANAGEMENT SYSTEMS

A content management system is a software system which enables the development of content for Websites. This course equips students with the skills to use various content management systems software to develop content for Websites.

TECH6008: SOCIAL CONSTRUCTIVISM IN E-LEARNING

Social Constructivism in e-learning is about how learners construct their own knowledge through the use of social networks. It is concerned about the use of social networks to foster learning among students who are separated by distance and other physical differences. The course will examine the production, dissemination and consumption of knowledge within networked communities in the wider global context of social media services.

TECH6009: TEACHING AND LEARNING SUPPORT TECHNOLOGY

This course develops in the student competencies in utilising various software technologies in the classroom. With the computerisation of schools and the equipping of schools with various technologies there is an urgent need for the presence of support and maintenance skills in the classroom. The student will become competent in the use of Software support tools, Productivity Tools and Instructional Software and garner skills in classroom technology support.

TECH6010: INTERNET TECHNOLOGY DEVELOPMENT

This course develops the student proficiency in the construction, use and evaluation of internet technologies for teaching and learning. The student will learn how to develop technologies such as blogs, wikis, chat rooms, etc. and utilise technologies such as RSS Feeds, Cloud Storage and the like.

TECH6011: AUDIO-VISUAL TECHNOLOGY DEVELOPMENT

This course introduces the student to the development and uses of audio and video technologies utilised in teaching and learning. Students will learn how to operate and use technologies such as digital cameras, video cameras, sound recording systems, projectors, magic boards. Students will also develop competencies in the production of still pictures, videos, and audio to be utilised for teaching and learning.

TECH6012: LEARNING AND COURSE MANAGEMENT SYSTEMS

This course examines and explores the various course and learning management systems currently available. It will consider their characteristics, features and functionalities. The student will be able to evaluate these systems, make recommendations for their usage and implement them in their educational environment.

TECH6013: INTRODUCTION TO ANIMATION

This course introduces the student to the fundamentals of animation. The student learns to develop a story line influenced by sound instructional design principles and incorporating proven pedagogical principles. This instructional design is then transformed into animated story. The student learns to develop themes for learning and identifying appropriate vehicles which can exemplify the theme. Finally, the student transforms the movements of the vehicle into an animated medium.

TECH6014: MASTERING ANIMATION SOFTWARE, ANIMATION STUDIO AND FLASH 5

This course introduces the student to the use of animation software such as Animation Studio, Flash 5, Magna Studio 5, Toon Boom Studio 6 Software, Crayola Animation Studio, Motion Artist. The student will master at least TWO of these software gaining competencies in delivering animation material with them.

TECH6015: DIGITAL MEDIA

This course is about how sound, images and text, the three basic forms of human communication can be captured and stored in digital forms and subsequently accessed and manipulated to produce alternative

variations of the originally captured images. The output of digital media can be digital video, augmented reality, digital signage, digital audio, digital art or animation. Students in this course will acquire the skill of the development, production and utilisation of digital media to produce educational lessons. The power of digital media to foster interactivity and group forming will also be explored.

TECH6016: DIGITAL LIGHTING AND RENDERING

This course introduces students to professional ways of lighting and rendering a scene. It enables the student to create realistic looking illumination, shadows and textures. Students will become competent in the use of light and shadows to create well planned intended imageries.

RESH6001: FINAL PROJECT

The final project affords the candidate the formal opportunity to present the completed scholarly research in written format and then to defend it in an oral presentation. The final project represents the report of an original work which is data driven. It includes a research design that is best suited to answer the research questions. The student will learn to design appropriate data collecting instruments, collect the data, analyse, and report the findings working under the direction of the designated faculty supervisor. The minimum word count for the thesis is 15,000 words and maximum is 25,000 words (excluding cover page, table of contents, references and appendixes). The project must have a substantial research component and a focus that falls within the area of education, and it must be written in accordance with the UTT Post Graduate Policies and Procedures (2009). As the final element in the Master of Education in Educational Technology, the project gives the student an opportunity to demonstrate expertise in the chosen research area.

LEAD5001: EDUCATIONAL LEADERSHIP AND ORGANISATIONAL BEHAVIOUR

This course takes a behavioural science approach to understanding why and how people behave the way they do and how these behaviours impact group and organisational processes. Management, leadership, motivation, and conflict resolution techniques will be presented and researched. Particular attention is given to how perceptions and personality attributes shape human behaviours. A special emphasis is placed on organisational theories and practices as they relate to educational leadership.

EDUC5001: SOCIAL, HISTORICAL AND PHILOSOPHICAL FOUNDATIONS OF EDUCATION

Social, philosophical and historical fundamentals influence current educational process. This course offers issue-based study of historical, legal, social, political, and economic perspectives on the role of education and schools in society. These issues include such universal issues as reform movements, standards, testing, the profession of teaching, cultural diversity, equity, gender issues, mainstreaming, and global trends. Additionally, this course examines models of the school relationships to other social institutions, investigating how such relationships affect schooling practice with particular emphasis on understanding the pressures that affect such concerns.

TECH6017: ADMINISTRATION OF INSTRUCTIONAL TECHNOLOGY PROGRAMMES

This course provides an overview of the procedures in planning, administering, and evaluating Instructional Technology programmes in schools. Emphasised are: leadership skills, managing people and resources, effective training techniques, and trends and issues associated with school uses of instructional technology.

TECH6018: DISTANCE LEARNING: THEORY AND PRACTICE

This course explores the organisation, development, and delivery of distance education programmes. Additionally, this course explores course logistics, technology applications, and student management systems and issues related to ensuring accessibility of materials for everyone including students with special needs.

Students will engage in discourse with instructors, peers, and other experts while creating Internet resources to be used in their own educational settings, developing an electronic portfolio of their work.

TECH6019: INTEGRATING TECHNOLOGY ACROSS THE CURRICULUM

This course will focus on strategies for integration of technology into classroom practice. Students will explore a variety of teaching strategies and pedagogical approaches for implementing technology use across the curriculum. Students will design and implement lessons demonstrating appropriate ways to use technology to meet existing curricular objectives and to expand curricular options. Students will also design and implement professional development plans for helping other teachers develop these skills.

Master of Science in
CYBERSECURITY

The overall aim of the M.Sc. in Cybersecurity programme (Accredited by the Institution of Engineering and Technology (IET) of the United Kingdom) is to prepare students to perform a wide variety of technical and cybersecurity management functions in a multi-disciplinary environment and to provide a strong foundation for those students desirous of pursing a research career at the M.Phil. or a doctoral level.

The programme seeks to provide students with the skills and competencies to prevent, counter, and recover from cybercrimes and cyberattacks. The programme provides strong foundations in IT security, criminology, management, law, science, business technology, and psychology.

The programme offers two options or specialisations: Hacking and Cybercrime Investigation, and, Cybersecurity Management, Law and Policy.
The programme aims are to:

1. Prepare individuals for the challenges of a diversified career that allows for the application of networking, security, business and management principles within the industry.
2. Enhance quality of the graduates through curricula that achieves continuous articulation.
3. Produce graduates with skill sets that are immediately transferable to the cybersecurity field.
4. Develop the graduate's ability to analyse open-ended problems and design solutions related to security for companies and to evaluate the societal impact.
5. Promote effective oral and written technical communication skills, leadership skills, and team building skills
6. Work with industry and government representatives to identify current and future problems facing the government, industry and general public with regards to cybersecurity and cybercrime.

PROGRAMME VENUES
UTT John S. Donaldson Port-of-Spain and Point Lisas Campuses

PROGRAMME DURATION
1½ years, Full-time
2½ years, Part-time

CREDITS REQUIRED FOR COMPLETION
42

ENTRY REQUIREMENTS

- A bachelor's degree from an approved university with a B+ average or Upper Second Class honours or an equivalent GPA.
- A bachelor's degree with a lower than B+ average but with compensating experience and/or qualifications (Academic Regulations, Policy and Procedures for Post Graduate Programmes; September 2009).

NOTE:
For the Hacking and Cybercrime Investigation Option, the bachelor's degree should be in the areas of Computer Engineering, Computer Science, Information Technology, or an approved science or technical field.

For the Cybersecurity Management, Law and Policy Option, the bachelor's degree can be in the areas of Management, Law, Business, an approved social science, or any other qualifications and experiences deemed suitable by the relevant Postgraduate committee.

BRIDGING REQUIREMENTS

Applicants who have not attained prerequisite knowledge in key subject areas are required to complete relevant Undergraduate level (or M.Sc. bridging) courses. These courses carry zero credits and would not contribute to the cGPA of the Student.

MATURE STUDENT ENTRY

An applicant who does not satisfy all the stipulated minimum academic or technical qualifications for admission to a programme may be accepted as a Mature Student. He/she would need to possess the critical elements of the stipulated qualification and would be assessed by the UTT Programme Head as possessing a combination of qualifications and educational or experiential maturity to enable him/her to successfully participate in the programme.

POTENTIAL CAREERS

- Security Consultant
- Chief Information Security Officer
  Security Engineer
- Security Architect
- Intrusion Analyst
- Computer Forensics Expert
- Penetration Tester
- Security Analyst
- Security Auditor
- Systems Security Administrator
- Compliance Officer
- Cybercrime Lawyer
- Data Privacy Manager

COURSE CODE	COURSE TITLE	CRs
	Hacking and Cybercrime Investigation option	
Year 1, Semester 1		
CICC5001	Computer Security	4
CICC5002	Cybersecurity Law, Policy, Management and Economics	3
CICC5003	Cyber-Physical Security for Critical Infrastructure	3
CICC5004	Advanced Network and Web Security	4
	Total credits : 14	
Year 1, Semester 2		
CICC5011	Data Protection and Privacy	4
CICC5012	Cybercrime and Deep Web	4
CICC5013	Digital Forensics and Cybercrime Investigation	4
CICC5014	Hacking and Penetration Testing	4
	Total credits : 16	
Year 2, Semester 1		
CICC6001	Cybersecurity Thesis	12
	Total credits : 12	

COURSE CODE	COURSE TITLE	CRs
Cybersecurity Management, Law and Policy option		
Year 1, Semester 1		
CICC5001	Computer Security	4
CICC5002	Cybersecurity Law, Policy, Management and Economics	3
CICC5005	Information Security Risk, Audit and Compliance	3
CICC5006	Networks and Network Security	4
CICC5007	Introduction to Computer Programming	1
CICC5008	Essential Mathematics for Cryptography	1
	Total credits : 16	
Year 1, Semester 2		
CICC5011	Data Protection and Privacy	4
CICC5012	Cybercrime and Deep Web	4
Students are required to choose TWO of the following courses:		
CICC5015	Cyber Ethics	3
CICC5016	Psychology of Cybercrime	3
CICC5017	Violent Extremism, Terrorism and Radicalisation	3
	Total credits : 14	
Year 2, Semester 1		
CICC6001	Cybersecurity Thesis	12
	Total credits : 12	
TOTAL CREDITS REQUIRED FOR COMPLETION: 42		

CICC5001: COMPUTER SECURITY

The course introduces the most important features of computer security and privacy, including algorithms and protocols for encryption, cryptography, authentication, and key management, as well as malware detection, database security and other system-related security issues. The course covers threats and vulnerabilities in the computer systems, as well as rules, methods and mechanisms for data and system protection. After completing this course, students will be able to analyze, design and build secure systems of moderate complexity.

CICC5002: CYBERSECURITY LAW, POLICY, MANAGEMENT AND ECONOMICS

This course explores the managerial, legal, regulatory, and policy framework of cybersecurity, cyber terrorism, cyber violent extremism and cybercrime. It provides students with a framework for understanding the myriads of laws and regulations that govern this emerging field. While the focus of the course will be on U.S. cyber law and policy, law and policy of Caribbean countries will also be addressed. It examines important management issues associated with cybersecurity in industry. It also addresses critical issues for businesses to learn about the costs and investment decisions around securing their online systems. It will provide students with the economic concepts, measurement approaches and data analytics to make better security decisions and understand the forces that shape the security decisions of other businesses, products and services.

CICC5003: CYBER-PHYSICAL SECURITY FOR CRITICAL INFRASTRUCTURE

The cyber-physical security addresses security concerns for cyber physical systems (CPS) and internet of things (IoT) devices. CPS and IoT play an increasingly important role in critical infrastructure, government and everyday life. Automobiles, medical devices and building controls are examples of CPS. Water, transportation, telecommunication networks, oil/gas pipelines and plants, and power grids are examples of critical infrastructure. With the increased use of CPS and the parallel rise in cyber-attack capabilities, it is imperative that new methods for securing these systems be developed. This course will investigate key concepts behind CPS including identification and authentication technologies, protocol analysis and intrusion detection system (IDS) development.

CICC5004: ADVANCED NETWORK ANDWEB SECURITY

This course first presents various network and communication attack techniques and countermeasures, including various vulnerabilities of TCP/IP protocols, denial of service (DOS), attacks on routing, attacks on wireless networks, TCP session hijacking and so on. This course will also cover defending mechanisms, including intrusion detection, firewalls, tracing the source of attacks, anonymous communication, IPsec and virtual private networks. This course then introduces students to the field of web security: that is, how to build secure web applications. The web is our gateway to many critical services and is quickly evolving as a platform to connect all our devices. Web vulnerabilities are growing on a year-to-year basis and designing secure web applications is challenging. The course covers fundamental concepts of web programming, web vulnerability exploitation, web browser design flaws and key advanced topics in web privacy.

CICC5005: INFORMATION SECURITY RISK, AUDIT AND COMPLIANCE

This course provides context, best practice frameworks and practical tools to operate at the highest levels in risk management, internal audit and compliance in the corporate/government environment. It teaches students about information security risk management framework and its practices and how to identify and model information security risks and apply both qualitative and quantitative risk assessment methods. It also examines issues of compliance which is similar to security in that it drives a business to practice due diligence in the protection of its digital assets, the motive behind compliance is different: It is centered around the requirements of a third party,

such as a government, security framework or client's contractual terms. It develops audit knowledge of security and controls to properly identify and categorise risks and achieve audit objectives.

CICC5006: NETWORKS AND NETWORK SECURITY

Networking and telecommunications form a vital foundation for an organisation's functions and strategies and new technologies have increased the importance of reliable networks. This course introduces students to important concepts in a non-technical format focusing on technology and protocols utilised by most people using the Internet. This course also introduces students to the interdisciplinary field of cybersecurity by discussing cybersecurity theory and the relationship of cybersecurity to businesses, society and people. Students will be exposed to multiple cybersecurity technologies, processes and procedures.

CICC5012: CYBERCRIME AND DEEP WEB

This course mainly explores technical aspects of cybercrime, Darknet and Deep Web. Deep Web – which includes dark web as a subset – is the part of the World Wide Web not indexed by the search engines like Google and Bing. The origins and extent of cybercrime and Deep Web, responses from legal systems to cyber-criminals and the social impact of cybercrimes will be addressed. Various types of cybercrimes, cyber-criminals, as well as the motivations and methods involved in cyber-offences will be studied. The etiology of cybercrimes will be analysed from cultural, subcultural, sociological and opportunity perspectives. International issues and jurisdictional challenges will be critically examined.

CICC5007: INTRODUCTION TO COMPUTER PROGRAMMING

This short course will give students the basic understanding and skills needed to get started in the world of cybersecurity programming, hacking and penetration testing. Students will gain foundational knowledge and skills that all programmers use whether they program mobile apps, create web pages, penetration testing or analyse data. More than just exposure to programming, they will gain a powerful set of thinking and problem-solving skills that can be applied to their lives.

CICC5011: DATA PROTECTION AND PRIVACY

This course introduces privacy and data protection practices in the development, engineering, deployment and auditing of ICT products and services. Those taking the course will develop an understanding of privacy-related issues and practices in the context of the design and implementation of information and communication technologies and systems. The course teaches key European/US/Canada data protection laws and regulatory bodies, describing the evolution toward a harmonized legislative framework. It discusses the applications of relevant data protection laws, legal bases and compliance requirements for processing personal data in practice. The course also identifies privacy program management responsibilities and describes the role of accountability in privacy program management. It examines considerations for developing and implementing a privacy program, including the position of the privacy function within the organisation, program scope and charter, privacy strategy, support and ongoing involvement of key functions and privacy frameworks.

CICC5013: DIGITAL FORENSICS AND CYBERCRIME INVESTIGATION

This course examines essential digital forensics concepts and techniques of profiling and categorising cybercriminals. The topics include network forensics, computer forensics, web forensics, mobile cellular forensics, etc. A further aim of this course is to introduce students to developing areas of cybercrime analysis, cybercrime profiling and counter terrorism and to provide the skills for investigating new areas of digital forensics, such as covert analysis and intruder artefacts. This course also examines the legal obligations of digital forensics and cyber profiling, in order to gain an understanding of the relevant statutes and industry guidelines for improving the authenticity of evidence via a chain of custody from collecting evidence through to presenting findings in a professional manner.

CICC5014: HACKING AND PENETRATION TESTING

This course provides students with a broad understanding and knowledge of network/system/web/physical infrastructure vulnerabilities and provides unique applications involved in the professional domain of Cyber Security and Information Assurance. It discusses the latest cutting-edge insidious attack vectors and the patterns of denial-of-service attacks. The course is directed toward ethical hacking and penetration (Pen) testing. Penetration tests probe network and information system security components by conducting simulated attacks on systems. This specialisation prepares the student to develop rules of engagement, prepare a tool kit, discover and exploit system vulnerabilities, ethically conduct a penetration test and prepare penetration test documentation.

CICC5015: CYBER ETHICS

This course is designed to enhance students' understanding of human behaviour in the cyber world. Consideration will be given to cultural and regulatory practices of the judicial system of societies and the global nature and impact of computer crime. The course focuses on responsible behaviour within cyberspace and the effects of irresponsible behaviour including cyberbullying, cyber stalking, plagiarism, malware use, hacking, password theft and the unauthorised downloading of materials from criminological and psychological perspectives. Emphasis will also be placed on the Ten Commandments of Computer Ethics.

CICC5016: PSYCHOLOGY OF CYBERCRIME

This course takes a deeper examination into the mind of criminals using scientific methods. The course introduces basic principles in criminal psychology, applied psychology, investigative psychology as well as offender profiling particularly as they relate to cybercrimes. It also looks into the impact of cybercrime on victims, punishment and preventative measures. It is designed as a MSc level course for researchers and practitioners in the disciplines of criminology, cyberpsychology and forensic psychology, though it is also likely to be of significant interest to many students of information technology and other related disciplines.

CICC6001: CYBERSECURITY THESIS

Comprehensive project culminating in a Thesis document and presentation; students undertake a major individual project which involves addressing a significant technical problem which they embark on under the guidance of one or more supervisors; students are expected to demonstrate an ability to apply structured, disciplined approaches of the curricula in addressing the solution to the problem; students produce a technical report thesis of their work together with a demonstration of the working system.

CICC5008: ESSENTIAL MATHEMATICS FOR CRYPTOGRAPHY

Math is one of the most essential skills in cryptography. However, it can be one of the most difficult for many to master. With this short mathematical course, non-technical cybersecurity professionals learn mathematics from the level they're at. This short course covers a wide range of mathematical topics essential for public key infrastructure, cryptographic algorithms and hacking.

CICC5017: VIOLENT EXTREMISM, TERRORISM AND RADICALIZATION

This course discusses the various types of terrorism, violent extremism and elements of radicalization. It also enables the students to be able to plan, implement and evaluate appropriate counter-terrorism plans, measures to counteract violent extremism and reduce radicalization. It advocates that human rights be duly considered. As a result, a close examination of relevant legislation will be undertaken as part of the course. The course allows the students to look at existing anti-terrorism strategies, countering violent extremism policies and de-radicalization principles in other jurisdictions and determine its applicability to the local context.

Master of Science in

ENERGY ENGINEERING

with Specialisation in Renewable Energy

The Master of Science in Energy Engineering with Specialisation in Renewable Energy is designed to train the future graduate engineers to adapt to the constant changes required to meet the energy demands of Trinidad and Tobago and the wider Caribbean. The programme will develop the graduate's ability to analyze open-ended problems and design solutions for petroleum engineering and related disciplines. This includes evaluation of associated uncertainties and risks and evaluation of societal impact. Postgraduate Energy Engineers will acquire the relevant skills in management, project management, economics, risk evaluation and decision-making required by the energy industry.

PROGRAMME VENUE
UTT Point Lisas Campus

PROGRAMME DURATION
1 year, Full-time
2 years, Part-time

CREDITS REQUIRED FOR COMPLETION
47

ENTRY REQUIREMENTS

- A Bachelor's degree in Engineering, Petroleum Geoscience or Natural Science with a minimum GPA 2.50 on a 4.0 scale.
- A combination of undergraduate education and equivalent experience will also be considered.

MATURE STUDENT ENTRY
An applicant who does not satisfy all the stipulated minimum academic qualifications for admission to the programme, based on years of experience and the ability to handle the level of programme learning, may be accepted as a mature student. The applicant would need to possess the critical elements of the stipulated qualification and would be assessed by UTT's Programme Leader as possessing a combination of qualifications and educational or experiential maturity to enable him/her to successfully participate in the programme.

Note: The Master of Science in Energy Engineering with Specialisation in Renewable Energy programme is accredited by the Energy Institute (EI) of the United Kingdom (UK).

POTENTIAL CAREERS
Careers in these sectors include, but are not limited to:

- Simulation Modelling Engineer
- Surveillance Engineer
- Energy Specialisation in Clean Energy Production and Conversion
- Energy Specialisation in Energy Efficiency and Sustainability
- Energy Specialisation in Energy Systems Modelling and Optimization
- Energy Specialisation in Solar and other Renewable Energy Resources
- Facilities Management
- Project Management
- Commercial Analyst
- Business Development
- Energy Regulatory Officer

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
CCSQ5001	Carbon Capture and Sequestration	4
ENAP5001	Sustainable Energy Analysis and Policy	4
ENGD5001	Engineering Data Science	4
FLMT5001	Fluid Mechanics and Heat Transfer	4
RNGY3002	Renewable Energy Systems	3
	Total credits : 19	
Year 1, Semester 2		
	Students are required to choose FOUR of the following courses:	
ALFS6001	Alternative Fuels	4
EGPI6001	Energy Policy and Implementation	4
EGRS6001	Renewable Energy Systems Simulation	4
EGSS6001	Introduction to Energy Storage Systems	4
FCHT6001	Fuel Cell and Hydrogen Technology	4
SRWT6001	Solar and Wind Technology	4
RESR4006	Geothermal Reservoir Engineering	4
	Total credits : 16	
Year 1, Semester 3		
PRJT6001	Project Thesis	12
	Total credits : 12	
TOTAL CREDITS REQUIRED FOR COMPLETION: 47		

CCSQ5001: CARBON CAPTURE AND SEQUESTRATION

At the end of this course, the student will understand how Carbon Capture and Storage can contribute to limiting climate change, the key role it can take across economies, the principles of the technology and its role in future energy-related activities.

ENAP5001: SUSTAINABLE ENERGY ANALYSIS AND POLICY

This course presents the economics of energy supply and use and the consequences for environmental quality, energy security, and sustainable economic growth and development. A variety of energy types is examined including fossil fuels, nuclear power, and a range of renewable energy technologies including biomass, hydro, solar, and wind power.

ENGD5001: ENGINEERING DATA SCIENCE

Data Analytics is being widely adopted in many organizations today from data mining to video games. This course focuses on the statistical processing of data, through the use of mathematical tools such as: computer science, statistics and Machine Learning (ML).

FLMT5001: FLUID MECHANICS AND HEAT TRANSFER

Energy systems are multiphase and multiscale in nature. This course addresses the quantitative understanding of fundamental physical processes that govern fluid flow and mass/heat transfer processes, critical to many energy systems.

RNGY3002: RENEWABLE ENERGY SYSTEMS

This course introduces renewable energy and explores the concepts and principles of renewable energy technologies such as Solar, Wind, Biomass, Bioenergy, Geothermal, Hydro, Tidal and Wave Power. The past, present and projected future technical aspects of various renewable energy systems are explored and an overview of the key Physics principles and technologies related to power extraction from renewable resources is given.

ALFS6001: ALTERNATIVE FUELS

This course explores the twin challenges of reducing emissions from widely used fossil fuels and enabling the transition to renewable, sustainable alternatives. It emphasises the technical, environmental, economic and regulatory issues around the transition from fossil-based power systems to renewable alternatives, and reviews chemical fuels and renewable energy as part of the energy mix.

EGPI6001: ENERGY POLICY AND IMPLEMENTATION

This course prepares students to operate effectively across the changing energy landscape by exposing them to change management tools and other techniques which will allow them to facilitate the transition from traditional energy uses to a sustainable energy mix. The course covers effective change management strategies and the underpinning of renewable energy policy formulation and implementation at the global and local level.

EGRS6001: RENEWABLE ENERGY SYSTEMS SIMULATION

This course will introduce the student to recommended simulation workflows for different renewable energy systems including solar and wind. The HOMER software will be used to conduct this course.

EGSS6001: INTRODUCTION TO ENERGY STORAGE SYSTEMS

The course delves into the necessary technical knowledge pertinent to the fundamental principles and application areas of established technologies and materials for energy storage solutions. It examines the management and storage of mechanical, heat and electrical energy via a number of energy storage techniques and provides an overview of developing trends in various engineering fields.

FCHT6001: FUEL CELL AND HYDROGEN TECHNOLOGY

In this course, Master's students will gain knowledge about the history of fuel cells, basics of their operation and comparison of fuel cells with other power sources. It is intended for engineers in all disciplines who want to learn more about this type of clean energy conversion.

SWRT6001: SOLAR AND WIND TECHNOLOGY
This course will give students an overview of the considerations required to successfully design solar and wind energy systems to replace or supplement traditional electrical energy generation.

RESR4006: GEOTHERMAL RESERVOIR ENGINEERING
This course teaches students about the various types of geothermal reservoirs in the Caribbean and elsewhere. Students are taught to apply the principles of reservoir engineering in the economic evaluation and exploitation of this renewable resource.

Master's in

HEALTH ADMINISTRATION – HEALTH SYSTEMS

The applied focus of the Master in Health Administration programme aims at producing graduates with practical expertise in the leadership and management of projects, health agencies, units and programmes. Throughout the programme a combination of formal coursework and practical learning components is provided. The MHA programme also provides an opportunity for current Health Managers to engage in the formal study of health services management while acquiring a foundation in health management knowledge and skills at the postgraduate level. It presumes no specific prerequisite knowledge in management. Students must however satisfy all the requirements of Years 1 and 2 before gaining acceptance into the Programme Specialisation areas of Year 3.

PROGRAMME VENUE
UTT Chaguanas Campus

PROGRAMME DURATION
2 years, Part-time

CREDITS REQUIRED FOR COMPLETION
49

ENTRY REQUIREMENTS

- A Bachelor's degree in a related field and has at least four years professional working experience in the health sector (Pu\s who have an interest in transitioning to health must meet the minimum grade requirement for admission consideration: a GPA of 3.0-3.5 (B or equivalent) in the last two years of study within a four-year undergraduate (or equivalent) bachelor's degree and have at least two (2) years professional experience.
- Applicants are also required to submit a statement of reasons for study and two (2) referees.

MATURE STUDENT ENTRY
An applicant who does not satisfy all the stipulated minimum academic or technical qualifications for admission to the programme may be accepted as a Mature Student. It is proposed that applicants without an undergraduate degree, but with formal training and experience in the health sector (clinical) or entry into the programme. These students may be required to undertake prerequisite studies as a condition prior to acceptance and entry.

POTENTIAL CAREERS

- Executive Management Positions (RHAs, Ministry of Health, NGOs, Private Hospitals and Health Sector organizations) – General Managers, Director of Health, Chief Executive Officer etc.
- Senior Manager in RHAs, NGOs and Private Health Institutions
- Head of Department/Department Manager in RHAs, NGOs and Private Institutions
- Consultancy
- Research
- Academia

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
HMGT5004	Organising and Managing in the Health Sector	3
HEPQ7007	Health Sector Quality Management	3
HMGT5003	Introduction to Health Sector Management	3
HMGT6005	Managerial Communication	2
	Total credits : 11	
Year 1, Semester 2		
HESY5007	Biostatistics	3
HESY5008	Epidemiology	3
HESY5003	Introduction to Health Systems of Trinidad and Tobago/Health Systems	2
HESY6001	Primary Health Care/Community Oriented PHC	2
HPRJ7004	Research Methods	2
	Total credits : 12	
Year 2, Semester 1		
LEAD5003	Leadership and Management in Health	3
LEAD6003	Health Planning	3
HEOM7008	Managing Health Organisations: Cases and Applications	3
HESY6005	Health, Policy and Management	2
HEPQ7008	Programme Planning and Evaluation	2
	Total credits : 13	
Year 2, Semester 2		
HMGT6004	Health Economics	2
HESY6006	Management Ethics	1
HMGT6006	Financial Management in Health	3
HSEM7001	Seminars in Health	1
HPRJ7005	Postgraduate Thesis	6
	Total credits : 13	
TOTAL CREDITS REQUIRED FOR COMPLETION: 49		

HMGT5004: ORGANISING AND MANAGING IN THE HEALTH SECTOR

This course examines the attitudes and behaviour of individuals and groups in organizations (i.e., human resources) to understand the factors which affect organizational effectiveness and efficiency, and ultimately service delivery. Students will be exposed to individual, group, and organisational theories of behaviour. Furthermore, they will learn about the implications of these behavioural theories for human resource management practices in the health sector such as employee selection, training and development, performance and reward management, and health and well-being. It is believed that an understanding of the underlying factors behind organisational behaviour will facilitate the successful management of healthcare workers, and that effective management of healthcare workers is critical to quality service delivery.

HMGT5003: INTRODUCTION TO HEALTH SECTOR MANAGEMENT

This introductory course, provides the context for the other modules of the MHA-Health Systems programme. It indicates that health care organisations are complex, and there are growing expectations and competing demands for quality health services while there are challenges with respect to changes in technology, need for quality initiatives, and inadequacy of resources. The provision of this service occurs within a dynamic environment by professionals with a mix of skills. Managing this complexity requires health care administrators with management skills to exert authority, allocate resources, gain support and mobilise action to achieve quality outcomes. It will introduce the student to information relevant to their role in the management of health service organisations but more particularly the coordination of a continuum of care which would support those who have chronic illnesses in addition to encouraging and maintaining wellness such that the health status of a defined population would be improved.

HEPQ7007: HEALTH SECTOR QUALITY MANAGEMENT

This course aims to provide an overview of strategies for system-wide quality, across the health sector, for ensuring sector-wide quality through the functions of health facility audits, licensure, credentialing, and accreditation and quality improvement through health care collaboratives. Students in this course are introduced to the basis for quality and patient safety and are provided an overview of health sector quality, methods of assessing quality, and techniques for improving quality. They will learn key terminology and concepts, including defining quality; measuring quality in terms of the structure process-outcomes model; distinguishing between clinical/ technical and customer service quality; identifying techniques to avoid adverse clinical events; and exploring customer service quality in terms of defining, measuring, and improving patient satisfaction. Students will also explore and discuss the roles of governmental agencies in promoting and reporting quality information regarding hospitals and other health organisations, accrediting bodies, and performance initiatives of government. They will apply course concepts to current issues for improving management, clinical and service quality in health organisations.

HMGT6005: MANAGERIAL COMMUNICATION

In this course, the aim is to provide students with the tools to think strategically about communication as manager, at both the personal and organisation levels. Students will learn techniques to write and present more effectively, and build their interpersonal communication skills within the managerial setting.

This course in Epidemiology covers the principles and methods of epidemiologic investigation including describing the patterns ofillness in populations and research designs for investigating the aetiology of disease. It also introduces quantitative measures to determine risk, association and procedures for standardisation of rates. It also focuses on various epidemiologic study designs for investigating associations

between risk factors and disease outcomes. The application of these disciplines in the areas of health services, screening, genetics, and environment policy are presented. The influence of epidemiology on legal and ethical issues is also discussed. By applying the concepts learned in this course to current public health problems and issues, students will understand the practice of epidemiology as it relates to real life and makes for a better appreciation of public health programs and policies.

HESY5003: INTRODUCTION TO HEALTH SYSTEMS OF TRINIDAD AND TOBAGO

This introductory course sets the stage for understanding the Trinidad and Tobago Health System. It includes an examination and analysis of how the system works and the cultural bases of its organisation and financing. The course provides a comprehensive overview of health system development theory as it relates to the planning and development of health sectors within the Caribbean region and, particularly, in Trinidad and Tobago. The course will provide students with a conceptual framework for understanding the relationship between this course and other core MHA-Health Systems courses. The course will build on Open Systems Theory and explore the nexus between health and development. A fundamental assumption of the course is that Health Services Development (HSD) is as much a prerequisite for health service delivery as it is an Organisational Development (OD) tool for managing change in health services. Topics covered in this course will include leadership and governance, politics in health, financing, health workforce, regulation, organisation and delivery of health services in Trinidad and Tobago.

HESY5007: BIOSTATISTICS

This course introduces basic statistical concepts and analytical methods as applied to data encountered in public health, applied research and management decision making. The course content focuses on quantitative study designs and nonparametric statistical procedures; additional consideration will be given to understanding the implementation of qualitative research designs with reference to experimental and survey design. Quantitative analysis of data and the accompanying inferential analysis will be examined. The course provides students with an understanding of the use of statistical procedures in the medical sciences, public health and for decision making. The course prepares students to critically analyse and evaluate professional health literature and is a foundation for the development of research projects and studies.

HESY6001: PRIMARY HEALTH CARE

This course seeks to provide students with an introduction to the concepts and components of Primary Health Care, the international evidence ofits impact on the health status of populations, and the elements needed for building health systems based on Primary Health Care in order to assure access to high quality, affordable services and reduce inequities in the population.

The course also aims to equip students with a working knowledge and basic skills in conducting a health-needs assessment (Rapid Needs Assessment) that will inform planning for the development of service delivery models based on key Primary Health Care principles.

HPRJ7004: RESEARCH METHODS

This course focuses on exposing students to the main components of academic research and ethics, specifically the design of a protocol to conduct research in a health administration and/or management area. Students will examine and define a health sector problem to research and propose how they will design the study, collect data, address ethical issues, report, and present their findings. Students will also learn how to critically analyse literary debates in relation to the identified research problem, position their study within the context of the larger body of work in the research area, develop hypotheses (specifying independent and dependent variables) or research questions, and assess strengths and weaknesses of their proposed methodologies and those of past studies.

LEAD6003: HEALTH PLANNING

This course seeks to provide students with the opportunity to apply health planning principles and tools in the development of strategic plans to address problems in the health sector using a systems perspective. The course will refine their strategic health planning management skills by providing exposure to the tools, approaches, and methodologies that underpin strategic analysis, then requiring them to apply each to real-world problems. The course also aims to develop requisite analytic and strategy development skills critical to the implementation of a strategic management approach in the health sector.

HEOM7008: MANAGING HEALTH ORGANISATIONS: CASES AND APPLICATIONS

This course will review management practices in the health sector such that through improvement in their efficiency, effectiveness, and cost control, high quality service can be delivered and maintained to the public. The course will provide the context within which various units and organisations are located and operated. Students will be exposed to, and required to apply, aspects of operations; management best practice; planning; quality management to cases in the health sector.

LEAD5003: LEADERSHIP AND MANAGEMENT IN HEALTH

In this course, students will become familiar with leading and managing others within their roles in the health sector by critically analysing and exploring the applicability of leadership theories to diverse healthcare situations. Of particular importance, is the shift from an emphasis on the characteristics or traits of "heroic individuals" to understanding that leadership in the face of uncertainty and rapid change in a complex health sector must now be shared and distributed among many actors throughout health organizations (Hartley & Benington, 2010, p. 11). The course will systematically examine these leadership debates by exploring the nature of leadership including the difference between leadership and management, how leaders use influence and power, the evolution of organisational leadership theory, the role of effective leadership in conflict management, and organizational change, the ethical, legal, and professional contexts within which health professionals lead, the challenges concerned with leading and the consequences of effective leadership. Continuous improvement of healthcare professionals' leadership skills is a critical aspect of effectiveness in healthcare service delivery. Good leadership can make a positive difference in the organisational lives of the healthcare staff and the care of their patients.

HESY6005: HEALTH POLICY AND MANAGEMENT

This course is intended to introduce health policy, with students expected to identify a specific area of interest regarding a health policy issue in Trinidad and Tobago. The rapidly evolving health system presents the health sector manager with complex challenges and risks. Health Administrators and Managers must possess the skills needed to assess external and internal health polices to influence organisational design and delivery of health services. Students will assess and discuss key policy initiatives.

HESY6006: MANAGEMENT ETHICS

This course is designed to provide students with a framework for identifying, analyzing and effectively addressing ethical dilemmas associated with the health sector at the organisational and health system levels. The course examines the impact of ethical issues on leadership decision making. It will explore dominant ethical theories and principles relevant to every aspect of health leadership. Both clinical and organisational ethical issues are considered along with communication and stakeholder strategies.

HEPQ7008: PROGRAMME PLANNING & EVALUATION

This course is aimed at examining and comparing the performance indicators used by various countries and international organisations for monitoring, assessing, and managing health systems in order to achieve effectiveness, better quality, efficiency, equity and sustainability. Students will familiarise themselves with different types

of programme evaluations including: needs assessment, formative research, process evaluation, monitoring of outputs and outcomes, impact assessment and cost analysis. Consideration will be given to the usefulness of these performance indicators for Trinidad and Tobago's health sector organisations and the health sector.

HMGT6004: HEALTH ECONOMICS

The course Health Economics introduces the basic concepts of microeconomics and the issues surrounding the economics of health. The course will pave the way for the students to understand the basic theory of supply and demand as it relates to the provision of health services, given scarce/limited resources and a concern for improving the quality of life. In addition, the application of these theories to health policy (linking epidemiology and resource allocation) and the provision of services will be introduced and examples discussed.

HMGT6006: FINANCIAL MANAGEMENT IN HEALTH

This course provides students with a thorough understanding of financial accounting concepts and practical approaches to budgeting, financial analysis and the management of financial resources as well as provide an overview of health financing options highlighting the various issues that impact health management and policy. Key topics include the role of health insurance as well as an examination of provider payments – types of payment systems, methods of administration, reporting and cost control, monitoring and evaluation. Special emphasis will be placed on national health insurance and issues relating to its design, functions, management, regulation and evaluation. In so doing, a comparative review of national health insurance systems and financing of health systems, internationally and regionally, will also be conducted. Case studies will be an integral part of the course material.

HSEM7001: SEMINARS IN HEALTH

This course is a taught course and will be guided by in-sector experts and professionals to expose students to a practical overview of how the health sector in Trinidad and Tobago works. It will cover various seminars in health related contemporary topics such as: Health Insurance Provider Payments, Health Sector Reform, Supply Chain & Logistics, Human Resource competencies, Decision Making in Health etc.

HPRJ7005: POSTGRADUATE THESIS

Students must have successfully completed a combination of Biostatistics and Research Methods to proceed.

This is not a taught course. Students will be required to complete their Thesis/Post Graduate Project following the University stipulated guidelines.

Master of Science in

INFORMATION AND COMMUNICATION TECHNOLOGY

The overall aim of the M.Sc. in ICT programme is to prepare students to perform a wide variety of technical and ICT management functions in a multi-disciplinary environment and provides a strong foundation for those students desirous of pursing a research career at the M.Phil. or a doctoral level.

The programme aims are to:

1. Prepare individuals for the challenges of a diversified career that allows for the application of software, hardware, networking and communications technologies to various aspects of the IT industry
2. Enhance quality of the graduates through curricula that achieves continuous articulation
3. Produce graduates with skill sets that are immediately transferable to ICT industries
4. Develop the graduate's ability to analyse open-ended problems and design solutions for related disciplines and to evaluate the societal impact
5. Promote effective oral and written technical communication skills, leadership skills, and team building skills
6. Work with industry and government representatives to identify current and future problems facing the ICT industry
7. Infuse students with a global vision and an entrepreneurial mind-set

PROGRAMME VENUES
UTT John S. Donaldson Port-of-Spain and Point Lisas Campuses

PROGRAMME DURATION
1½ years, Full-time
2 years, Part-time

CREDITS REQUIRED FOR COMPLETION
36

PROGRAMME SPECIALISATIONS
The MSc in ICT is offered with three (3) specialisations in:

- Networking and Telecommunications Engineering
- Software Engineering and
- ICT in Business and Government.

The students take two common courses and take six ICT specialisation courses depending on their option chosen

ENTRY REQUIREMENTS

- A Bachelor's degree from an approved university with a B+ average or Upper Second Class honours or an equivalent GPA.
- Bachelor's degree with a lower than B+ average but with compensating experience and/or qualifications Note: The Bachelor's degree should be in the areas of:
  - Computer Engineering,
  - Computer Science, or
  - An approved science or technical field.
- Other qualifications and experiences deemed suitable by the relevant Postgraduate committee.

BRIDGING REQUIREMENTS
Applicants who have not attained prerequisite knowledge in key subject areas are required to complete relevant Undergraduate level (or M.Sc. bridging) courses. These courses carry zero credits and would not contribute to the cGPA of the Student.

MATURE STUDENT ENTRY

An applicant who does not satisfy all the stipulated minimum academic or technical qualifications for admission to a programme may be accepted as a Mature Student. He/she would need to possess the critical elements of the stipulated qualification and would be assessed by the UTT Programme Head as possessing a combination of qualifications and educational or experiential maturity to enable him/her to successfully participate in the programme.

POTENTIAL CAREERS

Areas of employment for graduates fall within both the Public and Private sectors and include:

- System/Database/Network/Web Administrator.
- Telecommunication Engineer/Analyst.
- Programmer.
- Technician.
- Software Engineer.
- Information Technology Specialist.
- Security Analyst.

The programme prepares graduates for employment in the following areas/industries:

- Computational Systems Companies: e.g. International Business Machines Corporation (IBM), Microsoft Corporation, Fujitsu Corporation.
- Telecommunications Companies: e.g. Telecommunication Services of Trinidad and Tobago (TSTT), Digicel Corporation, FLOW, Huawei Technologies Ltd.
- Energy Sector.
- Banking Institutions.
- Government Organisations/Public Sector.
- ICT Consulting.
- Entrepreneurial Ventures.

COURSE CODE	COURSE TITLE	CRs
	ICT in Business and Government option	
Year 1, Semester 1		
CNET5003	Computer Networks and Inter-networking	3
DBST5001	Advanced Database Systems	3
RESH6001	Research Methodologies	3
	Total credits : 9	
Year 1, Semester 2		
COMM5001	Effective communications for ICT Professionals	3
ILAG5002	ICT Law and Governance	3
DATA6001	Data Analysis	3
DIGI5001	Digital Business and Innovation	3
	Total credits : 9	
Year 2, Semester 1		
SECR5001	Security and Cryptography	3
PRJT6011	ICT Thesis	3
WTEC5001	Web Technologies	12
PROJ5001	Project management for ICT	3
	Total credits : 18	

COURSE CODE	COURSE TITLE	CRs
Software Engineering option		
Year 1, Semester 1		
RESH6001	Research Methodologies	3
DBST5001	Advanced Database System	3
CNET5003	Computer Networks and Internetworking	3
		Total credits : 9
Year 1, Semester 2		
COMM5001	Effective Communications for ICT Professionals	3
SFEN5001	Advanced Software Engineering	3
COMP6014	Artificial Intelligence and Machine Learning	3
DATA6001	Data Analytics	3
		Total credits : 9
Year 2, Semester 1		
SECR5001	Security and Cryptography	3
PROJ5001	Project Management for ICT Professionals	3
PRJT6011	ICT Thesis	12
		Total credits : 18
Networking and Telecommunication Engineering option		
Year 1, Semester 1		
DBST5001	Advanced Database Systems	3
RESH6001	Research Methodologies for ICT	3
CNET5003	Computer Networks and Internetworking	3
		Total credits : 9
Year 1, Semester 2		
CNET5001	Advanced Networking Systems	3
COMM5001	Effective Communication for ICT professionals	3
OCOM5001	Optical Communications Networks	3
NEXT5001	Next Generation Mobile Networks	3
		Total credits : 9

COURSE CODE	COURSE TITLE	CRs
Year 2, Semester 1		
SECR5001	Security and Cryptography	3
PRJT6011	ICT Thesis	12
WCOM5002	Wireless Communication	3

Total credits : 18

TOTAL CREDITS REQUIRED FOR COMPLETION: 36

SECR5001: SECURITY AND CRYPTOGRAPHY
This course introduces advanced concepts of modern computer and telecommunication networks. The course assumes that students have theoretical and working knowledge of various networking technologies. The state- of-the-art hardware and software networking technologies are introduced. These include, for example, Fibre-optic (WDM and Free-space), Mobile/Cellular communications (4G and Mobile Ad Hoc), and MPLS (Multi-Protocol Label Switching); Next generation access networks (e.g., PON) and Internet (GENI), Survivable (virtual) networks and cloud computing and cyber transportation systems, to name a few.

COMP6014: MACHINE LEARNING
Machine learning, also known as Statistical Learning, refers to a broad set of algorithms which are used to identify patterns in data. These patterns are then generalized to build statistical models that are trained and tested on various datasets to build prediction models that can be used with unknown datasets. The course looks into some of the historical precepts and developments as well as explores a wide range of machine learning approaches used in the academic literature and industry. A PBL - Problem Based Learning pedagogy is utilized throughout the course to develop students' competencies towards achieving the required learning outcomes. Students are challenged to explore a real world problem and use real world datasets to solve a ML problem. The course is examined though a continuous assessment framework comprising of jury panel presentation, reports and research paper submission.

OCOM5001: OPTICAL COMMUNICATION NETWORKS
The course will give the student in-depth understanding of the functionality of optical networks and how they may be implemented. An optical backbone network together with an IP-based network infrastructure is emphasized. Backbone network protocols, e.g. MPLS, and RSVP-TE are addressed. It also introduces components for optical networks such as multimode and single mode optical fibers, transmitters, as well as transmission properties.

COMM5001: EFFECTIVE COMMUNICATION FOR ICT PROFESSIONALS
The aim of this course is to provide the fundamentals of effective communication to the participants in an effort to enhance their communication skills, such that they are able to operate with greater confidence and authority – both in their personal and professional lives. Through the use of a series of carefully selected lessons, this course is intended to enrich students' understanding of the communication process, and enhance their ability to produce and present high-quality written communication, as well as make effective oral presentations. Recognizing that we are always communicating, there will also be a focus on tangential knowledge, skills, abilities and other attributes that enhances our professional image.

WCOM5002: WIRELESS COMMUNICATIONS
The focus of this course is the physical layer, data link layer, and network layer associated with wireless communications and networks. At the physical layer, the emphasis is on

radio channel characterization, modulation, equalization, diversity and channel coding. At the link layer, the emphasis is on how the spectrum is shared, either in time (TDMA), frequency (FDMA), code (CDMA), area, or angular direction (SDMA).

PROJ5001: PROJECT MANAGEMENT FOR ICT PROFESSIONALS

This course introduces the tasks and challenges fundamental to project management, the vital function of managing complex projects. Successful project managers possess the skills necessary to manage their teams, schedules, risks, and resources to produce a desired outcome. In this course, students learn the skills and tools of project management with a practical, ethical, hands-on approach. A key and often overlooked challenge for project managers is the ability to manage without influence—to gain the support of stakeholders and access to resources not directly under their management control. This course guides students through many of the fundamental project management tools and behavioral skills required in profit and non- profit organizations. There is a special emphasis on ICT projects and the risks associated with these projects.

DATA6001: DATA ANALYTICS

Data analytics is among today's fastest-growing and highest-paid professions as organizations increasingly rely on data to drive strategic business decisions. This course focuses on building a strong foundation in data analytics for ICT professionals and corporate managers. It covers the application of data analysis tools to assist strategic decision-making. It leans on practical and conceptual approaches that will be addressed through the sophisticated data analytic software. It also aims at providing a good understanding Web analytics and Business analytics. And it gives a brief overview of big data analysis to develop strategies based on the findings from the big data, to manage the organization.

DBST5001: ADVANCED DATABASE SYSTEMS

This course covers the collection, analysis and maintenance of data using advanced techniques with an objective to designing, developing and implementing modern databases and information systems for all disciplines of science and engineering. Students will be encouraged to examine research issues in the field that specifically addresses structured and unstructured data sets for use over the web, streaming from satellites remote devices. Topics covered include core principles and techniques of data and information management, processing and optimisation strategies for relational database systems, information integration, data mining, data warehousing, XML query engines, SQL and PL/SQL. Oracle is used to exemplify all concepts. The course material is drawn from textbooks, research papers, journals and conferences.

CNET5001: ADVANCED NETWORKING SYSTEMS

This course covers emerging topics in Advanced Networking Systems focusing on recent trends on wireless networking technologies. The course starts with a review of some basics of networking related to data link, network and transport layers. Then, detailed studies of the MAC sub-layer mechanisms and related research topics are covered. Subsequently, an overview of Ad Hoc Networks is provided. The focus is on covering some famous routing protocols. The following topic covers Mobile Ad Hoc Networks (MANETs) and Vehicular Ad Hoc Networks (VANETs) defining the distinguishing features of each of them. The next topic is concerned with Wireless Mesh Networks (WMNs) and related research issues. Then Sensor networks and Wireless TCP topics will wrap up the course.

WCOM6001: THE NEXT GENERATION MOBILE NETWORKS

This course will focus on Next Generation Mobile and Wireless systems. It will cover the mobile network from 1G to 4G mobile networks. It focuses on the mathematical foundations of spread spectrum technologies, FDMA, TDMA, CDMA, and OFDMA. It analyses GSM and UMTS in great details. Furthermore, the course will investigate 4G LTE including the advanced features (carrier aggregation, relay nodes),

system architecture, services support, and its business applications. Also, the course will briefly cover Mobile WiMAX 2.0 (4G), including technologies in the access and core networks, spectrum management, QoS support, femtocells and self-organising networks, VoIP and IPTV over mobile WiMAX 2.0, as well as regulation and business aspects.

RESH6001: RESEARCH METHODOLOGY FOR ICT

This stage of the project guides the student through the conceptualisation and design of a project and is specifically tailored to support ICT students engaging in research at the Master's level. The original foci of Experimental Design and Statistical Data Analysis have been expanded to include the design of soft instruments such as the structured questionnaire and the focus group. Students are trained to recognise the importance of the use of these instruments in product development, market identification, and market analysis (demand and sustainability, inter alia). To aid in the actual conceptualisation and design of a project, students are taught to frame a research question and to develop an experimental plan, incorporating controlled experimental conditions, where possible, with clearly operationalised variables of interest, pertinent sampling schemes, and reliable and valid method(s) of data collection and analysis. Several statistical methods of data reduction and analysis are covered including basic parametric univariate tests of inference, Chi Square tests, several ANOVA designs, MANOVA, ANCOVA, Correlation Analysis, Multivariate Linear Regression.

WTEC5001: WEB TECHNOLOGIES

This course introduces students to web design using HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets). The course does not require any prior knowledge of HTML or web design. Throughout the course students are introduced to planning and designing effective web pages; implementing web pages by writing HTML and CSS code; enhancing web pages with the use of page layout techniques, text formatting, graphics, images, and multimedia; and producing a functional, multi-page website.

SFEN5001: ADVANCED SOFTWARE ENGINEERING

Software Engineering is one of the fields of Computer Engineering which deals with the establishment and use of sound engineering principles, methods, tools and techniques in order to produce software that is reliable and works on real machines. It is a discipline concerned with the practical problems of developing large-scale software systems. Software engineers are the architects of the software component of any computer-based system, providing several levels of representations or blueprints leading to specifications through which programmers build the subsystems and modules of the system. In this course, students build a strong foundation of theory and best-practice knowledge which can be applied in a variety of technical and business environments today and in the future. They will gain an understanding of advanced software development and management techniques, and exposure to the most recent developments and emerging technologies in SE. At the end of this course students will be able to use advanced engineering concepts and skills to contribute as key members of software development project teams, engage in further postgraduate research in software systems and in commercial ventures involving software engineering, design, development and maintenance of mobile applications.

PRJT6011: ICT THESIS

Comprehensive project spanning culminating in a Thesis document and presentation; students undertake a major individual project which involves addressing a significant technical problem which they embark on under the guidance of one or more supervisors; student are expected to demonstrate an ability to apply structured, disciplined approaches of the curricula in addressing the solution to the problem; students produce a technical report thesis of their work together with a demonstration of the working system. This forms the main

assessment of the course.

DIGI5001: DIGITAL BUSINESS INNOVATION

As digital technologies offer new ways to connect, collaborate, conduct business and build bridges between people, it touches the core of all business functions and even the ways organizations are managed. Digital technologies have also challenged existing business models and continue to do so. One of the key driving forces of it is the capacity of innovation and the consumerization of ICT certainly also plays a role. Digital business is about that stage you see in many maturity models (in marketing, ICT, social, business, you name it): the converged – or fully connected/integrated stage. From a sheer technology perspective it goes beyond the famous third platform and the evolutions we are witnessing today: cloud computing, the Internet of Things (IoT), mobile, Big Data, etc. The course considers content, processes and challenges for ICT from a business and enterprise software architecture perspective, either externally driven by economical, technological or societal drivers or internally driven such as management directives for better executive or operational control or focus.

EGOV5011: E-GOVERNMENT

E-Government is the use of information and communication technologies (ICT) to improve the activities of public sector organizations. It is in government's interest that businesses and individuals are able to carry out transactions with the government safely and easily online. The transactions consist of citizens communicating with all levels of government (town, city, national, and international), facilitating citizen involvement in governance using ICT and business process re-engineering (BPR).

The course focuses on ICT challenges and solutions from a public governance perspective. The course will include problems and solutions that are specific to working with ICT in such public environments.

CNET5003: COMPUTER NETWORKS AND INTERNETWORKING

This course examines the basics of networking and internet protocols and algorithms which provides us with the communication links for social network, business and enterprise, and information that we have become reliant upon in our everyday lives. It provides students with a detailed understanding of how the communications and networking involved in large computer installations operate to underpin a system's ability to deliver what is required. The course is vendor neutral, giving you practical experience in a range of technologies (including Microsoft and Cisco) and is excellent preparation for specialist networking.

CNET6001: TELECOMMUNICATIONS, NETWORK PLANNING, MANAGEMENT AND ECONOMICS

This course introduces planning and management techniques and practices for 4G/5G networks and computer networks, as well as network management protocols and procedures: auto-discovery, performance monitoring, fault isolation. It addresses optical BACKBONE network design and optimization issues. It looks at inter-operation issues with existing networks, issues of LTE deployment and troubleshooting. It also explores the economics (market structure and shares, pricing, investment) of a telecom network industry, as well as regulations, rules and policies.

COMP5016: CLOUD COMPUTING

This course focuses on the current practice of cloud computing, as well as, its economic drivers and underlying technologies. The course also discusses the key cloud concepts such as Service Infrastructure, Service Platform and Software Application Services. Students work with public cloud storage systems and services to implement and deploy applications that run on these resources.

ILAG5001: ICT LAW AND GOVERNANCE

This course deals with the understanding of legal and regulatory ICT industry frameworks, the structure of the industry, the roles and functions of regulators, the purpose and need for ICT policy, the evolution of the and convergence of the

sector, technology policy and international strategies and the roles of international organizations such as ITU, WTO, UNDP, OECD, etc. in regulation and standardization of the sector. The topics covered in the course aim to demonstrate two things. Firstly, how technology has reshaped governance and public administration in many countries. Secondly, how the efficient use of information and communications technology (ICT) can significantly improve institutional and organizational performance as ICTs can simplify procedures, accelerate communication and facilitate decision- and policymaking

SFEN5007: SOFTWARE ENGINEERING MANAGEMENT

Software architecture, design, quality assurance are major fields of Computer Engineering which deals with the establishment and use of sound engineering principles, methods, tools and techniques in order to produce software that is reliable and works on real machines. It is a discipline concerned with the practical problems of developing large-scale software systems. Software engineers are the architects of the software component of any computer-based system, providing several levels of representations or blueprints leading to specifications through which Programmers build the subsystems and modules of the system. In this course, students build a strong foundation of theory and best-practice knowledge which can be applied in a variety of technical and business environments today and in the future. They will gain an understanding of advanced software development and management techniques, and exposure to the most recent developments and emerging technologies in SE. At the end of this course students will be able to use advanced engineering concepts and skills to contribute as key members of software development project teams, engage in further postgraduate research in software systems and in commercial ventures involving software engineering, design, development and maintenance of mobile applications.

Master of Science in

INNOVATION, MANUFACTURING MANAGEMENT AND ENTREPRENEURSHIP

The Master in Innovation, Manufacturing Management and Entrepreneurship programme is designed to provide graduates with the technical skills, personal development and industrial experience needed to be effective in their industrial, business or entrepreneurial careers. The programmes expose the graduates to a number of business and technical subject areas, which cover the fundamentals of strategy, marketing, entrepreneurship, human resource management, operations management and product and process design.

PROGRAMME VENUE
UTT Camden Campus

PROGRAMME DURATION
1½ years, Part-time (Evening delivery; blended/hybrid/e-learning)

CREDITS REQUIRED FOR COMPLETION
45

ENTRY REQUIREMENTS
Entry to the M.Sc. programmes will normally require the following qualifications and/or experience:

- Persons holding a Bachelor's degree from an approved university with a B+ average or Upper Second Class honours or an equivalent GPA.
- Persons holding a Bachelor's degree with a lower than B+ average but with compensating experience and/or qualifications.
- Persons with other qualifications and experience deemed suitable by the Board for Post Graduate Studies, Research and Development.

MATURE STUDENT ENTRY
An applicant who may not possess all the stipulated minimum academic qualifications for admission to the programme may be accepted as a Mature Student provided that upon assessment, he/she possesses critical elements of academic and/or industry experience to enable successful entry into the programme.

POTENTIAL CAREERS

- Manufacturing / Design Engineer
- Manufacturing Manager
- Supply Chain Manager
- Production Development Specialist
- Operations Manager
- Business Development Specialist
- Consultant

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
MGMT6011	Company Law	3
PRAC6007	Industry Management Project	4
MGMT6009	Innovation and Technology Management	3
IENG6002	Operations and Supply Chain Management	3
	Total credits : 13	
Year 1, Semester 2		
MGMT6007	Entrepreneurship	3
MKTG6002	Business Strategy and Marketing	3
PRAC6006	Industry Project	4
MGMT6008	Leadership and Human Resource Management	3
	Total credits : 13	
Year 2, Semester 1		
PRJT6012	Research Project	6
MGMT6010	New Venture Proposition	9
TOUR6002	International Study Tour	4
	Total credits : 19	
TOTAL CREDITS REQUIRED FOR COMPLETION: 45		

MKTG6002: BUSINESS STRATEGY AND MARKETING

Strategy formulation, implementation and evaluation are key elements determining the competitive success of companies. In this course, graduates are exposed to general strategic management frameworks, and focuses specifically on two functional-level strategy types: Manufacturing Strategy and Marketing Strategy.

MGMT6007: ENTREPRENEURSHIP

The course centres on the role and process of entrepreneurship, issues involved in the creation of new business ventures and includes a number of business components such as conceptualising, creating and managing a business as well as the process of development of new products. The module is geared towards the graduates initiating the process of developing a new venture proposal starting with an Elevator Pitch for presenting a business idea. The course incorporates creativity exercises to discern the balance of idea and opportunity generation. The elements of entrepreneurship are discussed and the students are taken through the process from simple finance to the steps involved in developing a full business plan.

Separate sessions are held on different business models and structures and the early stages of setting up a business. The framework of Industry Project is introduced. Students will be exposed to Entrepreneurs and Industry Practitioners /Experts in seminar settings to give a reality orientation in the Trinidad and Tobago / Regional context.

MGMT6008: LEADERSHIP AND HUMAN RESOURCE MANAGEMENT

Organisations rely on leaders to set direction, envision the future and accomplish goals. The underlying premise of this course is that the exercise of values- driven, principled leadership enables organizations and their members to be effective and adaptive in order to achieve their desired results. More than ever before and in this period of global turbulence, organisations and their leadership are required to revitalise and transform themselves in the face of continual change. The purpose of this course is to help develop an understanding of the role of the organisational leader, while focusing on the essential knowledge and skills required. The course is designed to provide a framework for understanding the process of working effectively with and leading others. Much emphasis will be placed on the development of a personal leadership philosophy and approach to the practice of Leadership and Strategic Human Resource Management in organisations.

PRAC6006: INDUSTRY PROJECT

Project work is the backbone of IMME and IDE and students will have the opportunity to practise the skills that have been developed in formal lectures during the year. Each project is based on a live company problem and students will work in the company with the company staff to develop solutions to the problem. On occasion, the chance to try out some of those solutions would be afforded to the students. Each project ends with the task of selling the ideas to senior staff within the company. This takes the forms of a presentation, a poster and a formal report.

MGMT6009: INNOVATION AND TECHNOLOGY MANAGEMENT

Innovation is a fundamental driver of competitiveness, and as such, its management is a critical element in all organisations. Similarly, technology plays an essential role in not only the creation and production of a company's goods and services but oftentimes, technology itself represents the product or service offering. As such, technology must also be managed effectively.

IENG6002: OPERATIONS AND SUPPLY CHAIN MANAGEMENT

It is virtually impossible for any organisation to successfully accomplish its mission without the effective management of operations. Operations management is concerned with the design and deployment of activities leading to the production of goods and services to satisfy the needs of customers. Customers typically require goods and services to be delivered inexpensively, speedily, when and where needed, and of the highest quality. Such requirements have major implications

for operations management. As such, the effective management of operations is critical to the success of for-profit as well as not-for-profit organisations.

MGMT6011: COMPANY LAW

This course is based largely on the following pieces of statute: Companies Act, Ch. 81:01 (Trinidad and Tobago); Partnership Act, Ch. 81:02 (Trinidad and Tobago); and Securities Industry Act, Ch. 83:02 (Trinidad and Tobago). It is also based on the judicial principles concerning the same areas of law. As a lecture-based course, there will be ten lectures spread out over the 12-week period. These lectures are aimed at familiarising the student with various business mechanisms to pursue commercial objectives. The entrepreneurial student will even be able to use the information learned in this course to seek financial assistance from companies like the Business Development Company and the National Entrepreneurship Development Company.

PRAC6007: INDUSTRY MANAGEMENT PROJECT

Project work is the backbone of the IMME and students will have the opportunity to practise the skills that have been developed in formal lectures during the year. Each project is based on a live company problem and students will work in the company with the company staff to develop solutions to the problem. On occasion, the chance to try out some of those solutions would be afforded to the students. Each project ends with the task of selling the ideas to senior staff within the company. This takes the forms of a presentation, a poster and a formal report.

TOUR6002: INTERNATIONAL STUDY TOUR

The course is intended to expose students to international best practices in the manufacturing design areas. Each year, the students will focus on a specific area, e.g. logistics and supply chain management, design and manufacturing processes and technology. During the study, four selected companies will be visited and the operation examined with a view to compare what exists in Trinidad and Tobago to enable the introduction of best practices locally. A formal group report and presentation will be made to an invited group of academics and industry persons.

MGMT6010: NEW VENTURE PROPOSITION

While this course focuses on the development of a new venture for presentation to an investor group, students will be exposed to the techniques of planning and tracking performance and making the business case for resources within an organisation.

There are two distinct elements:

- Preparing a written proposal to be marked by a first and second examiner.
- Preparing a presentation for an investor group represented by a panel with a background in venture capital, investment banking, finance, marketing and business consulting. The style, format and content of the presentation are intended to showcase the team's product or service in the best possible light and "sell" the investor - not just inform.

PRJT6012: RESEARCH PROJECT

The course comprises mostly in-class lectures, with some group discussions and activities. The lectures are aimed at introducing the students to the concept of doing a research project, and equipping them with some of the essential skills needed. The group activities involve doing a short literature review, which includes a focus on referencing. The following week consists of self-directed work where the students decide on a broad research area, find a suitable supervisor with expertise in the field and fine-tune the research area into a research topic/question. The students also use this time to write a short (<10 pages) report with an introduction, rationale, brief literature review, proposed methodology, and proper references. The aim of this exercise is to ensure that the students appreciate how time-consuming conducting research and writing a research proposal/ report actually are as well as to understand how to properly reference works used. These short reports are submitted on the final Friday, and the students also give a 3-minute presentation to staff and their peers, so that the students can get feedback on their choice of topic/ research plan from all staff present

Master of Science in

INNOVATIVE DESIGN AND ENTREPRENEURSHIP

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PROGRAMME VENUE
UTT Camden Campus

PROGRAMME DURATION
1½ years, Part-time (Evening delivery; blended/hybrid/e-learning)

CREDITS REQUIRED FOR COMPLETION
45

ENTRY REQUIREMENTS

- Persons holding a Bachelor's degree in Engineering, Applied Science, Architecture or any numerate design discipline from an approved university with a B+ average or Upper Second Class honours or an equivalent cGPA;
- Persons holding a Bachelor's degree in engineering, applied science, architecture or any numerate design discipline with a lower than B+ average but with compensating experience and/or qualifications.

MATURE CANDIDATE ROUTE
Persons with significant industrial/ managerial experience or with a significant number of advanced courses in design or engineering. These persons will be subjected to an assessment by a departmental panel for suitability.

POTENTIAL CAREERS

- Manufacturing / Design Engineer
- Manufacturing Manager
- Supply Chain Manager
- Production Development Specialist
- Operations Manager
- Business Development Specialist
- Consultant

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
DGPA6008	Design of Mechatronic Systems	3
MGMT6007	Entrepreneurship	3
DGPA6006	Innovative Design Process	3
PRAC6008	Industry Design Project	4
	Total credits : 13	
Year 1, Semester 2		
DGPA6007	Computational Modelling and Design	3
PRAC6006	Industry Project	4
MKTG6002	Business Strategy and Marketing	3
MGMT6008	Leadership and Human Resource Management	3
	Total credits : 13	
Year 2, Semester 1		
PRJT6009	Innovative Design Project	9
TOUR6002	International Study Tour	4
MGMT6010	New Venture Proposition	6
	Total credits : 19	
TOTAL CREDITS REQUIRED FOR COMPLETION: 45		

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The course centres on the role and process of entrepreneurship, issues involved in the creation of new business ventures and includes a number of business components such as conceptualising, creating and managing a business as well as the process of development of new products. The module is geared towards the graduates initiating the process of developing a new venture proposal starting with an Elevator Pitch for presenting a business idea. The course incorporates creativity exercises to discern the balance of idea and opportunity generation. The elements of entrepreneurship are discussed and the students are taken through the process from simple finance to the steps involved in developing a full business plan.

Separate sessions are held on different business models and structures and the early stages of setting up a business. The framework of Industry Project is introduced. Students will be exposed to Entrepreneurs and Industry Practitioners/Experts in seminar settings to give a reality orientation in the Trinidad and Tobago/Regional context.

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PRAC6006: INDUSTRY PROJECT

Project work is the backbone of IMME and IDE and students will have the opportunity to practise the skills that have been developed in formal lectures during the year. Each project is based on a live company problem and students will work in the company with the company staff to develop solutions to the problem. On occasion, the chance to try out some of those solutions would be afforded to the students. Each project ends with the task of selling the ideas to senior staff within the company. This takes the forms of a presentation, a poster and a formal report.

DGPA6006: INNOVATIVE DESIGN PROCESS

This course introduces students to product development, presents tools and techniques for each phase of the process, and focuses on key areas such as need finding, deep conceptual exploration, creativity techniques, virtual prototyping and Design for X. The course is activity oriented rather than being predominantly lecture based. Lectures are delivered through online media, and students are required to view the lectures before the design studio sessions. Students work in multidisciplinary teams and go through the conceptual design process in an attempt to mimic real-world design. Teams are facilitated in this process as they apply the tools and techniques learnt in the lectures and activity sessions. The outcome of the process should be a functional prototype for a new and innovative product that solves an unmet need.

DGPA6007: COMPUTATIONAL MODELLING AND DESIGN

This course focuses on analysing mechanical to hybrid systems using the FEM method. The finite model aspects of a method save time and resources. The FEM techniques

are applied to determine the strength characteristics and for thermal properties in order to design and simulate systems. The Consol software which is an industry standard will be used in order to facilitate smooth transition into the domain of engineering practice.

DGPA6008: DESIGN OF MECHATRONIC SYSTEMS

Mechatronics is the synergistic integration of mechanical systems, electronics and computer control to achieve a functional system. Since there is an emphasis upon integration, this course will first introduce students to the necessary theory and then centre on laboratory exercises and projects in which small teams of students will configure, design and simulate a succession of mechatronic subsystems. They can then use the knowledge from this, in designing their course project which will integrate subsystems into a mechatronic product or system.

The lectures will complement the laboratory experience with operational principles and integrated design issues associated with the spectrum of mechanisms, electronics, and control components. Class lectures will cover topics intended to complement the laboratory assignments and final project. The nature of mechatronics is multidisciplinary and so students will be exposed to elements of mechanical engineering, electrical engineering and computer engineering.

PRAC6008: INDUSTRY DESIGN PROJECT

Project work is the backbone of the programmes and students will have the opportunity to practise the skills that have been developed in formal lectures during the year. Each project is based on a live company problem and students will work in the company with the company staff to develop solutions to the problem. On occasions, the chance to try out some of those solutions would be afforded to the students. Each project ends with the task of selling the ideas to senior staff within the company. This takes the forms of a presentation, a poster and a formal report.

TOUR6002: INTERNATIONAL STUDY TOUR

The course is intended to expose students to international best practices in the manufacturing design areas. Each year, the students will focus on a specific area, e.g. logistics and supply chain management, design and manufacturing processes and technology. During the study, four selected companies will be visited and the operation examined with a view to compare what exists in Trinidad and Tobago to enable the introduction of best practices locally. A formal group report and presentation will be made to an invited group of academics and industry person.

MGMT6010: NEW VENTURE PROPOSITION

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There are two distinct elements:

- Preparing a written proposal to be marked by a first and second examiner.
- Preparing a presentation for an investor group represented by a panel with a background in venture capital, investment banking, finance, marketing and business consulting. The style, format and content of the presentation are intended to showcase the team's product or service in the best possible light and "sell" the investor - not just inform.

PRJT6009: INNOVATIVE DESIGN PROJECT

The Course entails the following

- Identification and approval of project
- Preliminary Design
- Design Evaluation
- Final Design
- Electrical/Simulation Project write-up

This course brings together the elements of design, manufacturing and life cycle costing in the development of a product that has potential commercial applications and which may be patentable.

Master of Science in

INTEGRATED COASTAL AND OCEAN MANAGEMENT

The Master of Science (M.Sc.) in Integrated Coastal and Ocean Management (ICOM) provides training and research experience to support sustainable use and rehabilitation of our coasts and oceans.

The programme emphasizes inter-relationships among core areas within the marine sciences such as:

- Current threats
- Legislative and policy
- Coastal ecosystem functions
- Advanced field and analysis techniques

Students will also be exposed to various practical training exercises, both simulated and in the field. The simulated training exercises will be done on campus. The field training components will be conducted in a range of niche habitats (mangroves, seagrasses, coral reefs, beaches and coastal areas, ponds, streams and rivers) in both Trinidad and Tobago.

This unique Caribbean attitude to the learning process will provide theoretical and practical knowledge and experience that will be relevant to national, regional and international development and enterprise. Training will also supply a hands-on approach to leading edge techniques and technologies and assist improvement of life-skills that will support entrepreneurship.

PROGRAMME VENUE
UTT Chaguaramas Campus

PROGRAMME DURATION
2 years, Full-time
3 years, Part-time

CREDITS REQUIRED FOR COMPLETION
36

ENTRY REQUIREMENTS

- Persons holding a Bachelor's degree.
- Persons with other professional qualifications and/or experience.
- General computer skills.

POTENTIAL CAREERS
The Masters in Integrated Coastal and Ocean Management (ICOM) will be able to assume positions within areas such as:

- UTT and other Research and Teaching positions
- Ministry – e.g. Fisheries Division, Tourism
- Coastal Resources Management Specialist
- Marine Protected Areas Manager
- Marine Environmental Manager/Officer
- Sustainable Development Analyst
- Environmental Educator
- Fisheries Officer
- Integrated Coastal Zone / Natural Resource Manager
- Industry (e.g. Energy)
- NGOs
- Aquaculture Development Officer
- Applied Environmental Research Scientist
- Research Analyst
- Environmental Policy Analyst
- Nearshore / Offshore Mariculture Management
- Educators (Universities, Secondary and Tertiary Institutions)
- Research and teaching positions
- Integrated Coastal Zone Management
- Research and teaching positions
- Graduates will be able to be self-employed through entrepreneurial development of marine, coastal and environmental areas

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
COOS5001	Tropical Marine Ecosystems	3
STAT6001	Statistical Data Analysis	3
	ELECTIVES	
COOS5004	Marine Pollution	3
COOS5005	Coastal and Oceanic Applications of GIS	3
		Total credits : 9
Year 1, Semester 2		
COOS5002	Marine Environmental Law and Policy	3
COOS6005	Post-graduate Seminar	3
	ELECTIVES	
MGMT6001	Entrepreneurship and Transferable Skills	4.5
COOS5006	Remote Sensing Coasts and Oceans	3
COOS5003	Tropical Aquaculture	3
		Total credits : 19
Year 2, Semester 1		
COOS6001	Marine Research Tools and Techniques	3
	ELECTIVES	
COOS6002	Tropical Fisheries Management	3
COOS6003	MPAs, Parks and Tourism Management	3
MGMT6002	Innovation and Technology Management	5.5
		Total credits : 9
Year 2, Semester 2		
COOS6004	Coasts, Oceans and Climate Change	3
COOS6006	Integrated Coastal and Ocean Management	3
COOS6007	Marine Research Project	3
		Total credits : 9
TOTAL CREDITS REQUIRED FOR COMPLETION: 36		

COOS5001: TROPICAL MARINE ECOSYSTEMS

This course provides students with the knowledge of marine ecosystem dynamics, in relation to biotic communities, energy flow, sensitivity to disturbance, current threats, and key components. This course aims to integrate physical, chemical and biological factors to achieve an understanding in tropical marine dynamics. This course will address advance topics in: aquatic ecology (ocean and coastal water column), coastal ecology (coral reef, mangrove seagrasses, rocky shore, beaches), and substrates (offshore rock, and sediments).

COOS5002: MARINE ENVIRONMENTAL LAW AND POLICY

This course will provide postgraduate students with an introduction to the principles underlying international environmental law as these apply to coastal and oceanic issues. Coverage will include consideration of State Sovereignty with respect to territorial waters and the natural resources contained therein. Principles governing the management of shared and common properties and the obligation of states to cooperate with respect to the same will be covered with reference to case studies and the development of international conventions and agreements. The idea of "sustainable development" and how this has become a central theme in international environmental law will be examined. Legal aspects relating to climate change and the North/South divide and how existing principles and differences in global environmental standards impact the conception of international law will be examined. Application of the "precautionary approach" to legal frameworks that consider issues of uncertainty (e.g., climate change, fished stocks) shall be analysed and its use evaluated with reference to case studies. The relevance of environmental law to impact assessments and the need for harmonisation of international regulations as these relate to economic activities, transboundary pollution, biodiversity and human rights will be examined.

COOS5003: TROPICAL AQUACULTURE

This course provides a broad overview of all aspects of tropical aquaculture and will provide students with a comprehensive and practical introduction to principles, practices and management of tropical aquaculture systems. It will introduce students to the production of economically important aquatic animals for food, recreation, commercial products and ecosystem management and spans various disciplines including nutrition, growth, reproduction, health management, husbandry, engineering and economics relevant to overall aquaculture production. It will explore captive breeding and artificial rearing, and the maintenance of organisms under controlled conditions. This course is designed to increase the student's technical and managerial competencies in production aquaculture.

COOS5004: MARINE POLLUTION

This course will introduce students to the scientific principles and theory related to pollution in the marine environment. Topics will include the sources and nature of pollutants and their detection through chemical and biomarker means. The effects of different types of pollution on marine and estuarine organisms, biotic communities and humans will be examined with reference to case studies. The course will include examination of eutrophication, runoff (including sediments), toxins (industrial, agricultural, domestic), hydrocarbons, solid waste, pathogens, bioaccumulation, ecotoxicology, transport of pollutants, importance of hydrology modelling and the various management and mitigation issues surrounding the subject.

COOS5005: COASTAL AND OCEAN APPLICATIONS OF GIS

This course would introduce the foundational concepts and theories behind geographic information systems (GIS), as well as provide practical training in using and applying GIS tools/software. It will present different aspects of a GIS towards addressing environmental issues, problem solving and decision support. Students will

learn the properties of spatial data, the integration of spatial and non-spatial data using GIS software on a desktop PC, and how to research and answer environmental questions using GIS. The course will consist of lectures covering theoretical background and concepts, tutorials to learn the use of GIS software, and assignments involving problem solving and analysis. This course incorporates computer lab time.

COOS504G: REMOTE SENSING COASTS AND OCEANS

This course is intended to introduce students to the concept of remote sensing and some of its applications as they pertain to coastal and oceanic datasets. Techniques in image processing, image interpretation and the extraction of spatial information from remotely sensed imagery are examined. Practical experience in data manipulation and display will be given.

COOS5006: MARINE RESEARCH TOOLS AND TECHNIQUES

This course provides students with practical knowledge, skills and techniques required to carry out a major project in marine research, including contributions to the design and conduct of such a project. Special attention is paid to experimental design and methods currently utilised at research institutions for sampling and assessing marine environments and habitats. Environments to be sampled will include terrestrial, coastal, estuarine and the land/ water interfaces. In addition, specific habitats in marine and nearshore waters (e.g. coral reefs, seagrasses, mangroves), offshore, pelagic, and benthic zones will be addressed. This course will include lectures, practical and field exercises where applicable.

COOS6002: TROPICAL FISHERIES MANAGEMENT

This course provides students with an overview of the approach and process of tropical fisheries management with an emphasis on a system-based method. Students will examine quantitative methods of fisheries assessment and discuss management options and how regulations can be used to achieve specific economic, social and biological objectives. In addition, this course will expose students to current primary literature related to fisheries management.

COOS6003: MPAS, PARKS AND TOURISM MANAGEMENT

This course investigates Marine Protected Areas (MPAs) and Marine Parks in relation to their use in promoting sustainable tourism. After briefly describing the other functions of MPAs (e.g. Fisheries Management) the interests of tourists in marine life and processes are described and a tourism value placed on biodiversity (e.g. fishes, corals, birds) and system function (e.g. beach sand regeneration, coastal protection). Methods for estimating the success of MPA management in the conservation of resources are discussed. The economic value of tourism in the Caribbean is reviewed to assist in the valuation of resources within MPAs. Case studies from the Caribbean region and elsewhere are used to outline the range of management practices, including co- management, and to gain a pragmatic understanding of best practice in the face of competing demands. The role of legal processes in MPA establishment and support is also discussed.

COOS6004: COASTS, OCEANS AND CLIMATE CHANGE

This course provides students with an understanding of the causes of climate change and of the numerous possible consequences that these changes may have on coastal and oceanic environments. The uncertainty surrounding climate change predictions, both in terms of their extent and geography, will be discussed. Direct physical and indirect biological and ecological impacts of climate change will be considered. Necessary adaptations by human coastal communities and their vulnerability to the probable effects of climate change will be examined in context to a broad range of coastal management issues. Biological and ecological adaptations as well as potential future consequences of climatic perturbations will be described for selected marine ecosystems.

COOS6005: POSTGRADUATE SEMINAR

This unit is designed to develop and improve student's ability in proposal writing, critical analysis of written documents (such as technical papers, peer reviewed articles), report writing, presentation, communication and public relations skills. It will build on interpersonal and team building skills as well as cultivate effective oral and written communication skills. This course has two primary foci (individual and group):

1. Individual - writing individual research/project proposals, planning, and management, critical analysis of written documents, and fundamentals of presentation skills. Students will be expected to prepare proposals and documents, critique and debate documents and contemporary issues.
2. Group - introduction to project management techniques, project planning framework, improving research output, communication and public relations skills, effective presentations, communicating with a diverse audience, negotiating and conflict resolution. Students will be expected to prepare various documents and presentations, work in assigned groups/teams, and given realist challenges that they will face as Principle Investigators and/or managers.

COOS631G: INTEGRATED COASTAL AND OCEAN MANAGEMENT

This course will draw from the students' existing knowledge of ecological, economic, cultural, technical, legal issues and social questions and apply these to the study of the coastal and ocean environment. It allows students to consolidate much of the understandings, skills and techniques acquired in previous courses in the programme. Students will use investigative projects, critical reviews and discussions to examine management principles, impact assessments, and legislative and administrative arrangements relative to integrated coastal and ocean management (ICOM). Case studies will be taken from sources local, regional and global.

COOS632G: MARINE RESEARCH PROJECT

This unit will require the student to write a technical paper that demonstrates evidence of a comprehensive understanding of the biological, chemical and physical elements of the environment, and the role they play on living organisms and marine ecosystems. The project can either be direct data collection focused on an approved coastal and/or oceanic topic or problem; or the characterisation of biological, chemical and/or physical factors on human or ecosystem health; or development of management strategies and policy recommendations; or conceptualisation, design, implementation, and evaluation of existing programmes and policies to protect and promote environmental sustainability in Trinidad and Tobago; or a critical analysis of primary and secondary literature in a pre-approved field of marine science; or a combination of themes.

STAT6001: STATISTICAL DATA ANALYSIS

This course focuses on basic concepts and methods of statistics and their application to problems in the Environmental, Marine, and Biological sciences. Topics include graphical and numerical descriptions and summarisation of data, basic probability theory, probability distributions, point and confidence interval estimation, and hypothesis testing with emphasis on one- and two- sample comparisons involving continuous and categorical data. Correlation, simple linear regression, and analysis of variance will be introduced. Components of sampling design will be discussed, as well as the sampling protocols and methods for the three main environmental spheres (air, soil, water). Students will be involved in applied work through statistical computing using relevant software.

MGMT6001: ENTREPRENEURSHIP AND TRANSFERABLE SKILLS

The module centers on the role and process of entrepreneurship and includes several business components such as conceptualizing, creating and managing a business. The module is built around the graduates creating a business plan pitch based on the Cambridge £1K competition.

The module starts with creativity exercises to discuss the balance of idea vs opportunity generation and the graduates are required to come up with viable ideas to use as cases in the module. The elements of entrepreneurship are discussed, and the graduates are taken through the process from simple finance to the steps involved in developing a business plan. Separate sessions are held on different business models and structures and the early stages of setting up a business. The framework of IP is discussed. Invited external guests are used in seminar settings to act as role models and to discuss the T&T context of legal frameworks, financing and legalities.

MGMT6002: INNOVATION AND TECHNOLOGY MANAGEMENT

The business environment for manufacturing industry is changing significantly due to the accelerating rate of innovation and technological change. Anticipating the impact of emerging technologies and innovations is a critically important task for companies today. Technology lies at the heart of any manufacturing company – whether used in making the products or forming an integral part of the products themselves. In the context of an increasing dependence on successful innovation to sustain and enhance business competitiveness, the sourcing of new technologies is a key aspect for many companies. Manufacturing graduates need a good understanding of the tools, techniques and skills needed to manage innovation, balancing both technological and commercial drivers for change. This course provides participants with frameworks for technology and innovation management, so that they can evaluate technologies and innovations and propose how these could be managed to deliver sustainable commercial benefits. It enables the participants to understand how to apply their knowledge and skills in any of the broad range of organizations working in the technology and innovation field from large corporations and research organizations to university spinouts and new start-ups.

Master of Science in
KINESIOLOGY

The Master of Science in Kinesiology is an advanced multidisciplinary degree that exposes students to diverse knowledge and skills in human movement. The goal of the programme is to provide students with experiential learning to meet the growing needs of sport in the Caribbean. There are five options from which students can select:

- Sport Therapy
- Sport and Exercise Psychology
- Sport for Development
- Sport Management
- Elite Sport Coaching

PROGRAMME VENUE
UTT San Fernando Campus

PROGRAMME DURATION
Sport Therapy option: 2 years Full-time
All other options: 2 years, Part-time

CREDITS REQUIRED FOR COMPLETION
Sport Therapy option : 61
All other options: 36

ENTRY REQUIREMENTS
Entry to the Masters of Science in Kinesiology Programme will normally require the following qualifications and/or experience:

- Persons holding a Bachelor's degree from an approved university with a B+ average or Upper Second-Class honors or an equivalent GPA.
- Persons holding a Bachelor's degree with a lower than B+ average but with compensating experience and/or qualifications.
- Persons with other qualifications and experience deemed suitable by the Board for Post Graduate Studies, Research and Development.
- The Sport therapy specialization requires that students have the following prerequisite courses in addition to requirements a or b or c; Anatomy I and II with Lab, Physiology I and II with lab, Chemistry I and II with Lab, Biology I and II with Lab, Sociology, University Math and English.
- The Elite Sport Coaching specialization requires the following prerequisites in addition to a or b or c above: Anatomy, Physiology and Coaching certification.

MATURE STUDENT ENTRY
An applicant who does not satisfy all the stipulated minimum academic or technical qualifications for admission to a programme may be accepted as a Mature Student. He/she would need to possess the critical elements of the stipulated qualification and would be assessed by UTT's Programme Professor as possessing a combination of qualifications and educational or experiential maturity to enable him/her to successfully participate in the programme.

POTENTIAL CAREERS

- Sport for Development Programming
- Sport for Development Policy
- Sport for Development Promotion
- Research in Sport for Development
- Monitoring and Evaluation of Sport for Development Programmes
- Sport for Development Project Management
- Coaching/Teaching in Sport for Development Programmes
- Community Sport for Development Officers
- Community Sport for Development Officers
- Sport Psychologist
- Lecturers
- Coaches
- Sport Therapist
- Athletic Trainers
- Fitness Coaches
- Sport Journalist
- Sport Marketing
- Sport Public Relation Officer
- Entrepreneurship
- Sport Managers.
- Sport Administrators
- Consultants
- Personal Trainers
- Fitness Instructors

COURSE CODE	COURSE TITLE	CRs
	Sport and Exercise Psychology option	
Year 1, Semester 1		
SPRE6005	Advanced Research Methods	3
SPEP6005	Advanced Sport and Exercise Psychology	3
SPRE6006	Graduate Academic Writing	3
	Total credits : 9	
Year 1, Semester 2		
SPEP6006	Educational and Psychological Statistics	3
SPEP6007	Advanced Applied Sport and Exercise Psychology	3
ESPC6005	Advanced Exercise Physiology	3
	Total credits : 9	
Year 2, Semester 1		
SPRE6007	Proposal Design	3
SPEP6008	Field Experience in Sport and Exercise Psychology	3
ESPC6006	Advanced Sport Nutrition	3
	Total credits : 9	
Year 2, Semester 2		
ESPC6007	Advanced Motor Learning and Pedagogy	3
SPRE6008	Thesis\Project	6
	Total credits : 9	
TOTAL CREDITS REQUIRED FOR COMPLETION: 36		

COURSE CODE	COURSE TITLE	CRs
	Sport for Development option	
Year 1, Semester 1		
SPRE6005	Advanced Research Methods	3
SPFD6005	Foundations in Sport for Development	3
SPRE6006	Graduate Academic Writing	3
		Total credits : 9
Year 1, Semester 2		
SPFD6006	Current Topics in SFD	3
SPFD6007	Community Development and Initiative Management	3
SPFD6008	Field Experience	3
		Total credits : 9
Year 2, Semester 1		
SPRE6007	Proposal Design	3
SPFD6009	International Cultural Studies	3
SPFD6010	Advance Developmental Studies	3
		Total credits : 9
Year 2, Semester 2		
SPFD6011	Social Problem Solving and Entrepreneurship	3
SPRE6008	Thesis\Project	6
		Total credits : 9
TOTAL CREDITS REQUIRED FOR COMPLETION: 36		

COURSE CODE	COURSE TITLE	CRs
	Sport Management option	
Year 1, Semester 1		
SPRE6005	Advanced Research Methods	3
SPMA6005	Contemporary Issues in Sport Management	3
SPRE6006	Graduate Academic Writing	3
		Total credits : 9
Year 1, Semester 2		
SPMA6006	Sport Business Leadership	3
SPMA6007	Sport Marketing	3
SPMA6008	Sport Facilities and Event Management	3
		Total credits : 9
Year 2, Semester 1		
SPRE6007	Proposal Design	3
SPMA6009	Sport Communication and Public Relations	3
SPMA6010	Economics and Financial Management in Sport	3
		Total credits : 9
Year 2, Semester 2		
SPRE6008	Thesis\Project	3
SPMA6011	Field Experience in Sport Management	6
		Total credits : 9
TOTAL CREDITS REQUIRED FOR COMPLETION: 36		

COURSE CODE	COURSE TITLE	CRs
	Elite Sport Coaching option	
Year 1, Semester 1		
SPRE6005	Advanced Research Methods	3
ESPC6008	Functional Anatomy	3
SPRE6006	Graduate Academic Writing	3
		Total credits : 9
Year 1, Semester 2		
ESPC6009	Advanced Motor Learning and Control	3
ESPC6005	Advanced Exercise Physiology	3
ESPC6010	Elite Coaching/Training Practicum	3
		Total credits : 9
Year 2, Semester 1		
SPRE6007	Proposal and Design	3
ESPC6011	Functional Strength Training and Programme Design	3
ESPC6012	Elite Coaching/Training Practicum	3
		Total credits : 9
Year 2, Semester 2		
ESPC6006	Advanced Sport Nutrition	3
SPRE6008	Thesis\Project	6
		Total credits : 9
TOTAL CREDITS REQUIRED FOR COMPLETION: 36		

COURSE CODE	COURSE TITLE	CRs
	Sport Therapy option	
Year 1, Semester 1		
SPRE6005	Advanced Research Methods	3
SPRE6006	Graduate Academic Writing	3
SPTH6005	Clinical Exercise Physiology	3
SPTH6006	Clinically Oriented Anatomy I	3
SPTH6021	Emergency Response Management	3
	Total credits : 15	
Year 1, Semester 2		
SPTH6008	Clinical Examination Skills I	3
SPTH6009	Rehab Principles and Techniques	3
SPTH6010	Sport Therapy I	3
SPRE6012	Exercise Prescription	3
SPTH6011	Clinical Practicum I	2
SPTH6007	Clinically Oriented Anatomy II	3
	Total credits : 17	
Year 2, Semester 1		
SPRE6007	Proposal and Design	3
SPTH6013	Sport Therapy II	3
SPTH6014	Clinical Examination Skills II	3
SPTH6015	Therapeutic Modalities	3
SPTH6016	Clinical Practicum II	2
	Total credits : 14	
Year 2, Semester 2		
SPTH6017	Nutrition and Healing in Sport	3
SPTH6018	Ethics and Values in Sports Therapy	2
SPTH6019	Sports Therapy Administration and Entrepreneurship	2
SPTH6020	Clinical Practicum III	2
SPRE6008	Thesis\Project	6
	Total credits : 15	
	TOTAL CREDITS REQUIRED FOR COMPLETION: 61	

SPRE6006: GRADUATE ACADEMIC WRITING
This course covers the fundamental tenets of academic writing at the graduate level. Students would be exposed to the writing process, elements of writing, and the accuracy of writing. Students would use principles from the three areas stated to write, analyze, critique and synthesize material across the curriculum in kinesiology

SPEP6005: ADVANCED SPORT AND EXERCISE PSYCHOLOGY
This course exposes students to the diverse set of psychological theories used in the sport and exercise settings. More specifically, theories that facilitates the cognitive, emotional, and behavioral aspect of sport performances would be critically examined. Areas to be covered include anxiety, motivation, leadership, cohesion etc. and the interaction of these constructs in understanding sport & exercise psychology. The scientific approach will be adopted in class discussion and used as the model for criticizing and evaluating the theories espoused.

SPRE6005: ADVANCED RESEARCH METHODS
This course emphasizes the scientific method by which knowledge is attain in kinesiology related fields. It utilizes the seven-step approach to investigating truth; therefore, problem statements, literature review, hypothesis testing, data collection mechanisms, analysis of data, and a discussion section would be elucidated. The Statistical Package for the Social Science (SPSS) would be used to analyze data from multiple research designs and perspectives. Both validity and reliability of research design, and the diverse tests used to produce these results would be covered in the course.

SPEP6006: EDUCATIONAL AND PSYCHOLOGICAL STATISTICS
This course exposes students to statistics needed to answer research problems in sport and exercise psychology. Areas such as descriptive statistics, null hypothesis testing, correlation, regression, ANOVA, and inferential statistics would be covered. Differences in parametric and nonparametric testing will also be discussed.

SPEP6007: ADVANCED APPLIED SPORT AND EXERCISE PSYCHOLOGY
This course provides students with techniques, strategies and interventions used in the sport and exercise domain. Specifically, students would use several cognitive, emotional and behavioral strategies to improve and examine sporting performances. Settings investigated may include gyms, parks, fitness clubs, individual and team sport. All interventions would be based on theoretical and empirical findings, and would be rooted in the scientific approach to truth.

SPRE6007: PROPOSAL AND DESIGN
This course will equip students with the tenets needed to plan, organize and develop a research proposal at a graduate level in kinesiology. Students will devise an original research problem, explain its originality, suggest how it adds to the extant literature in the field, and provide a cogent argument for pursuing this line of research. Additionally, students will provide a tentative title for their research, hypothesize, develop theoretical and conceptual frameworks, and discuss how their research fits into a global discourse criticizing and evaluating the theories espoused.

SPFD6005: FOUNDATIONS IN SPORT FOR DEVELOPMENT
This course will allow students to interrogate the genesis of sport for development. Students will be guided to engage in the analysis of SfD. A range of topics will be examined to ascertain the impact sport has on human and non-human resources. Students will be exposed to the so called "best practices" in the area of sport for development, and will be challenged to consider "fit practices" for their theorizing and or implementing context.

SPFD6011: SOCIAL PROBLEM SOLVING AND ENTREPRENEURSHIP
Students will learn the process of problem solving and the opportunities that could emerge from this process. Additionally, students will be exposed to the theoretical and practical steps for turning solutions into social entrepreneurship ventures.

SPFD6009: INTERNATIONAL CULTURAL STUDIES

This course will allow students who have been educated and integrated into the dynamics of cultures, to fully function and work with the leaders and organizations of these cultures. Also, students will also be able to conduct research on cultures afflicted by disease, poverty, social injustice etc., and develop strategies to mollify these problems.

SPFD6008: FIELD EXPERIENCE IN SPORT FOR DEVELOPMENT

Students have six months to attend to their field experience, to complete it and accumulate 240 hours and submit their reports to their supervisor. This six-month period can see students acquire only one experience at one organization with 40 hours of work being done per month. Periodic meetings must be done with both student and supervisor for feedback and analysis since this will be the foundation that will take students into their Final Internship course at the end of the programme.

SPFD6006: CURRENT TOPICS IN SPORT FOR DEVELOPMENT

This course involves the integration and application of research principles in a sport for development setting. Topics related to sport for development would be identified by students, and with the aid of an assigned instructor\professor, interrogate the topic selected using quantitative and qualitative research approaches.

SPFD6007: COMMUNITY DEVELOPMENT AND INITIATIVE MANAGEMENT

Students will partner with communities to identify strengths, weaknesses, and needs related to the community. Additionally, students will design and implement SfD initiatives to address community goals. Informed initiative conceptualization, and monitoring\evaluation will be used as key initiatives in these exercises.

SPFD6010: ADVANCED DEVELOPMENT STUDIES

During the course, students will acquire an understanding of human problems and the capacity needed to manage social transformation. Students will use critical and historical perspective to address contemporary development issues such as poverty, social justice, social peace, social love etc. Students will evaluate the roles and agendas of international governments, national governments, organizations, and community-based organizations in the development discourse and practice

SPMA6009: SPORT COMMUNICATION AND PUBLIC RELATIONS

This course focuses on the importance of communications and public relations in the sporting industry. Students will examine communications and public relations within sport management organization, external agencies and media outlets. Additionally, students will explore the various approaches available to the professional manager in the sport, recreation and fitness industry.

SPMA6005: CONTEMPORARY ISSUES IN SPORT MANAGEMENT

This course is designed to provide students with an understanding of the contemporary issues and challenges involved in managing a sport organisation in the local and international context. Decision making and problem-solving techniques will be explored, along with the processes used to develop the stabilizing capacities that enable an organization to achieve its mission and vision. Innovation, exploiting opportunities, and using adaptive capacities in the external environment will be explored.

SPMA6010: ECONOMICS AND FINANCIAL MANAGEMENT

This course will expose students to the strategic and operational importance of financial management while developing a critical understanding of major financial statements. Economic principles will be used to analyse a wide range of issues in the local and international sports industry. Included in this analysis are product markets, the nonprofit sector, industrial organization and public financing of sport.

SPMA6008: SPORTS FACILITIES AND EVENT MANAGEMENT

This course is designed to give students an understanding of the operation and management of sport and recreational

facilities. Students will develop the capacity to scan external and internal facility environments, as well as develop and market traditional and niche sporting events. Students will be exposed to the management, leadership and innovation required to succeed in contemporary sport business industry.or other sport organisations). They will be responsible for all stages of the project, from design to information dissemination.

SPMA6007: SPORTS MARKETING

This course will provide an overview of facets of the marketing industry in sports including segmentation, strategy, branding, sponsorship and social media. Students will also be introduced to taste fashion and customer needs by examining marketing design and innovative techniques. The concepts of new product development, lifecycle and the role of design in enhancing competitiveness will be examined to gain an understanding of the design process. explore how the organisation operates, how community needs are assessed, how needs are translated into programme design, and how programmes are implemented, managed and evaluated.

SPMA6006: SPORT BUSINESS LEADERSHIP

This course examines leadership issues involved in strategic decision making in the management of the business aspects of the sport industry. It exposes the prospective sport and recreation professional to the importance of leadership in the theory and practice of business in the broad spectrum of sport organizations and business ventures.

ESPC6005: ADVANCED EXERCISE PHYSIOLOGY

This course seeks to provide students with an advanced critical understanding of the theoretical and practical applications of exercise physiology in sport and exercise settings. The primary focus is on the physiological responses of the human organism (including cardiovascular, neuromuscular and bioenergetics) to bouts of acute exercise, and the longitudinal adaptations that occur as a result of extended periods of training.

ESPC6011: FUNCTIONAL STRENGTH TRAINING AND PROGRAMME DESIGN

Functional training seeks to improve movement efficiency, reduce the risk of injury, enhance balance and flexibility and increase strength in athletes. The aim of this course is to introduce students to evidence-based instruction in innovative programming and implementation including functional exercises, advanced strength training and programming. Students will become acquainted to the theories, methods, exercises and programs that can optimize athletes' physical preparation for competitions.

ESPC6006: ADVANCED SPORTS NUTRITION

Advanced nutrition provides students with knowledge to design, organize, and execute programs needed for athletes to perform at an elite level in sport. Students would be able to advise coaches, athletes, and athletic trainers on diets required to improve sporting performances. Topics to be discussed include energy production, energy nutrients, macro and micro nutrients, timing and composition of intakes, hydration, and intervention planning.

ESPC6010: ELITE SPORT COACHING PRACTICUM

The coaching practicum consists of two mandatory year-long courses in the Elite Sport Coaching Degree. This course will give students the opportunity to gain practical and hands on experience in the world of work and in their field of specialization. It is expected that students maximize this coaching practicum opportunity to network and exchange ideas and correspondence to assist in building their professional work resume. The coaching practicum is crucial in allowing students to provide support and contemporary strategies to both established and upcoming national governing bodies.

ESPC6009: ADANCED MOTOR LEARNING AND PEDAGOGY

This course will expose students to theories, principles and concepts associated with the performance of motor skills in kinesiology. It will also explore basic physiological, bio-mechanical and cognitive influences that affect movement. Throughout the course,

theories used in clinical settings, and how movements are learnt, re-learnt, and maintained will be discussed

ESPC6008: FUNCTIONAL ANATOMY
Sport and exercise participation engage the joint complexes to achieve specialized movements. Functional anatomy examines, in detail, the structures responsible for these movements. It is therefore described as the study of anatomy as it relates to function during sport and exercise.

SPTH6021: EMERGENCY RESPONSE MANAGEMENT
This course will assist students in planning and organizing responses to emergency situations that may be life-threatening or require prompt/immediate attention for survival of injured athletes.

SPTH6008: CLINICAL EXAMINATIONS SKILLS I
Students will be provided with knowledge and tools to undertake a professional examination and assessment of common upper and lower extremity injuries. Students will also develop their clinical reasoning to be able to provide clinical and/or differential diagnoses for these common injuries.

SPTH 6009: REHAB PRINICIPLES AND TECHNIQUES
Students will learn the skills and techniques needed to provide appropriate care of injuries for athletes. These techniques will include taping and bracing, manual therapy, mobilization techniques, dry needling, aqua-therapy, sport massage and many others. Students will be able to utilize these techniques to develop rehabilitation programs which would take the injured athlete to "return-to-play" status

SPTH6014: CLINICAL EXAMINATION SKILLS II
Students will be provided with the knowledge, skills and tools to undertake a professional examination and assessment of common back and spine injuries. Students will develop clinical reasoning needed to provide clinical and/or differential diagnoses for these injuries

SPTH6010: SPORT THERAPY I
This course provides the student with knowledge of all musculoskeletal injuries related to the upper and lower extremities. The student will learn to recognize and classify these injuries by their specific signs and symptoms as well as be able to provide initial treatment for these various types of injuries which may be seen in the athletic population.

SPTH6013: SPORT THERAPY II
This course provides the student with knowledge of all musculoskeletal injuries related to the back and spine. The student will learn to recognize and classify these injuries by their specific signs and symptoms as well as be able to provide initial treatment for these various types of injuries which may be seen in the athletic population.

SPTH6011: CLINICAL PRACTICUM I
This course will allow students experiential learning opportunities through off-site placement in real-life job settings. The students will be supervised by clinical instructors who will be responsible for guiding the learning process at the clinical sites. Students will be able to apply the knowledge gained in the classroom and gain invaluable insight by learning through doing.

SPTH6016: CLINICAL PRACTICUM II
This course will allow students experiential learning opportunities through off-site placement in real-life job settings. The students will be supervised by clinical instructors who will be responsible for guiding the learning process at the clinical sites. Students will be able to apply the knowledge gained in the classroom and gain invaluable insight by learning through doing.

SPTH6020: CLINICAL PRACTICUM III
This course will allow students experiential learning opportunities through off-site placement in real-life job settings. The students will be supervised by clinical instructors who will be responsible for guiding the learning process at the clinical sites. Students will be able to apply the knowledge gained in the classroom and gain invaluable insight by learning through doing.

SPTH6019: SPORT THERAPY ADMINSTRATION AND ENTREPRENEURSHIP

Students will learn the role of entrepreneurship in a context where an industry is non-existent or emerging. Entrepreneurship is important to sport as it encourages innovative activity that can impact economically and socially. This course will expose students to local entrepreneurs to learn from their experiences, which should highlight that entrepreneurship is an integral part of sport in Trinidad & Tobago. Information will be provided in the classroom to assist students in the preparation of a detailed Business Plan for a sports business they conceive.

SPTH6012: EXERCISE PRESCRIPTION

This course will provide the students with the knowledge to determine the appropriate types and quantities of exercise, during rehabilitation of injuries, in order to achieve the goal of having the athlete return to full participation after injury. Students will also be able to advise athletes on the proper form and technique for a variety of exercises that may be recommended during rehabilitation

SPTH6015: THERAPEUTIC MODALITIES

During rehabilitation of injuries, various modalities can be utilized to assist in recovery from an injury in the quickest possible time. The use of some of these modalities, which will be taught in this course, will allow students to gain the necessary knowledge of and practice in utilization of these modalities.

SPTH6006: CLINICALLY ORIENTED ANATOMY I

This course presents an in-depth overview of the concepts of the structure of the human body and focuses on providing the student with the type of foundation needed to assess, diagnose and treat impairments in any anatomical system. Areas covered would include the structure of the all the major systems in the human body which includes but are not limited to the Cardiovascular, Integumentary, Skeletal, Muscular, Endocrine, Reproductive and Nervous systems

SPTH6007: CLINICALLY ORIENTED ANATOMY II

This course is a continuation of Clinically Oriented Anatomy I. It continues to provide an in-depth overview of the structure of the human body and focuses on providing the student with the type of foundation needed for clinical practice. Areas covered would include the structure of the all the major systems in the human body which includes but are not limited to the Muscular II, Endocrine, Reproductive, Nervous systems II, Digestive systems. The body would be studied by major anatomical structures (back, abdomen, upper and lower limbs)

SPTH6017: NUTRITION AND HEALING IN SPORT

This course will give students an in-depth look into nutrition and its' importance in healing. Students would learn the importance or micro and macronutrients and how they may improve and or impact healing. All of the essential nutrients must be supplied in the right amounts and at the right times for an athlete to achieve optimal health and performance. In addition, when devising eating strategies that will help athletes meet their goals, sports nutritionists must take account of personal preferences, social and cultural issues, and a whole range of other factors.

SPTH6018: ETHICS AND VALUES IN SPORT THERAPY

This course provides students with the necessary tools to make ethical decisions in all sports therapy profession. It presents several ethical models that the sports therapy professional can use as a platform to make ethical decisions. Directed at all future sport therapy professionals; this course contains numerous case studies which allow students to apply the ethical decision-making process to a sports-related ethical dispute.

SPRE6008: THESIS/PROJECT

A very critical component of the M.Sc. Kinesiology programme, students will engage in a project or thesis that shall be approved by their supervisor. The project involves

creating and executing a sustainable, yet novel idea in sport that would have a valuable impact on the local community. The thesis involves a research component where students are expected to follow the research process in an area of interest that would have an impact on the community. Both the thesis and project involve writing of five chapters and a final oral presentation.

ESPC6007: ADVANCE MOTOR LEARNING & PEDAGAGY

This course explores the fundamental concepts in motor learning and pedagogy. Topics related movement neurology, stages of skill acquisition, integration of the motor movement, feedback, motor memory, conditions of practice, attention, and perception will be explored.

ESPC6012: ELITE SPORT COACHING/ TRAINING PRACTICUM

The coaching practicum consists of two mandatory year-long courses in the Elite Sport Coaching Degree. This course will give students the opportunity to gain practical and hands on experience in the world of work and in their field of specialization. It is expected that students maximize this coaching practicum opportunity to network and exchange ideas and correspondence to assist in building their professional work resume. The coaching practicum is crucial in allowing students to provide support and contemporary strategies to both established and upcoming national governing bodies.

SPEP6008: FIELD EXERCISE IN SPORTS MANAGEMENT

In this course, students will apply the principles and theories of sport and exercise psychology with participants of their choice. Students will choose the settings in which to apply these experiential learning strategies using a variety of performance enhancement techniques. A minimum of 104 hours of field experience will be required to successfully complete the course

SPTH6005: CLINICAL EXERCISE PSYCHOLOGY

Clinical Exercise Physiology explores the application of physiological principles to the prevention, management and treatment of chronic conditions. The course examines, inter alia, the pathophysiology of several chronic conditions; the development of general, appropriate conditioning and training programmes for treating these conditions; and the acute and chronic responses to exercise interventions for populations in various disease states.

SPMA6011: FIELD EXERCISE IN SPORTS MANAGEMENT

Lectures, Discussions, Independent study, Peer Tutoring and conducting experiments

Master of Science in

OPERATIONAL MARITIME MANAGEMENT

The Master of Science (M.Sc.) in Operational Maritime Management is designed to equip graduates with the vital skills and knowledge necessary for success in shore-based maritime management roles. This programme addresses the growing need for maritime professionals, offering an in-depth understanding of maritime operations, port management, and the maritime industry as a whole.

Targeting maritime professionals from the Caribbean and worldwide, the programme is ideal for those transitioning from offshore roles to shore-based positions. These roles include port operators, port planners, harbour masters, specialists in environmental protection of waterways, and experts in maritime risk and safety management. The programme aims to provide the skills and knowledge needed to facilitate this career shift, ensuring participants are well-prepared for the responsibilities and challenges of shore-based maritime roles.

Offered in a hybrid format, this part-time programme combines both in-person and online instruction over a duration of 4 semesters (2 years). This flexible approach enables students to balance their studies with professional and personal commitments effectively.

The programme is ideal for:

- Senior sea-going officers transitioning to shore-based management roles.
- Individuals with experience in shore-based maritime sectors at middle management levels.
- Professionals from related industries seeking to enhance their maritime knowledge and management skill

The curriculum covers a wide range of essential topics for maritime management, including:

- Marine Safety Management I and II
- Law of the sea
- Maritime Law
- Shipping Economics and Maritime Logistics
- Port Economics and Maritime Logistics
- Marine Environmental Management I and II
- Project
- Research Project

The M.Sc. programme emphasizes practical, real-world applications. Students engage with case studies, industry projects, and interact with maritime professionals to ensure that the skills they acquire are directly applicable to their careers. A key component of the programme is the student project, which enables students to specialize in a specific area of maritime.

Graduates of the programme are well-prepared for senior positions in the maritime and energy industries. Notably, many alumni have advanced to senior roles in ports and terminal operations within these sectors. The comprehensive training provided by the programme ensures they are capable of handling complex management challenges.

PROGRAMME VENUE
UTT Chaguaramas Campus

PROGRAMME DURATION
2 years, Part-time

CREDITS REQUIRED FOR COMPLETION
38

ENTRY REQUIREMENTS

- An officer in the Merchant Navy who holds a Management Level Certificate of Competency in compliance with the International Convention Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended in 1995 and a minimum of two (2) years' service in this capacity; OR
- An officer in the Merchant Navy who holds an Operational Level Certificate of Competency in compliance with the International Convention Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended in 1995 OR
- A relevant Bachelor's degree
- A minimum of ten (10) years middle–management experience in a maritime–related company.

POTENTIAL CAREERS
It is expected that the main areas for employment will be:

- Port Operations
- Port Planning
- Harbourmaster
- Freight Forwarding and associated Maritime Logistics
- Environmental Protection of Waterways and the Coast
- Maritime Risk and Safety Management

Although many possible career paths are not addressed directly in the Programme, its research element may follow a student's specific interest that could be focused on a particular career.

COURSE CODE	COURSE TITLE	CRs
Year 1, Semester 1		
LSEA5001	Law of the Sea	3
MASM5001	Maritime Safety Management 1	3
		Total credits : 6
Year 1, Semester 2		
SEML5001	Shipping Economics and Maritime Logistics	3
MEMT5003	Marine Environmental Management I	3
		Total credits : 6
Year 2, Semester 1		
PEML6002	Port Economics and Maritime Logistics	3
MEMT6003	Marine Environmental Management II	3
RESH6004	Research Project Proposal	6
		Total credits : 12
Year 2, Semester 2		
MARL6003	Maritime Law	3
MASM6002	Maritime Safety Management II	3
PROJ6008	Project	8
		Total credits : 14
TOTAL CREDITS REQUIRED FOR COMPLETION: 38		

LSEA5001: LAW OF THE SEA

This course provides students with an understanding of the United Nations Convention on the Law of the Sea (UNCLOS), Jurisdiction, International Environmental Law and the Implementation of International law within the State. The role of key international organizations such as the International Maritime Organization (IMO), the United Nations Environmental Programme (UNEP), The Global Environmental Fund (GEF) and their relevant initiatives form a core component of the areas of study. Contemporary issues arising from recent international influences will form part of the routine class discussions. The operation of the local legal and instructional framework in the implementation of international law will also be explored.

MASM5001: MARITIME SAFETY MANAGEMENT I

This course provides students with an understanding of the total quality management issues required in managing a shipping operation both onboard ship and ashore. The course explores how compliance with maritime safety codes and regulations is just the beginning - and that creating an effective safety culture within an organization can provide competitiveness in the business. The inter-relationship of management throughout the operation and how ship and shore are linked is studied to promote an understanding of how this will enhance the commercial and safety aims of the maritime venture. These issues are examined with due regard to the requirements of major international maritime legislation, as well as Flag State and Port State requirements. The main topics covered are the operational management of vessels, the technical management of vessels, maritime human resource management and seafarer competence.

The course is intended to provide the students with a broad understanding of the role of the ship manager and the knowledge and skills required to manage a fleet of modern vessels with particular regard to safety and care of the marine environment.

SEML5001: SHIPPING ECONOMICS AND MARITIME LOGISTICS

The course will introduce the student to the basic principles of economics and international trade theory as a foundation to its application to maritime shipping economics and international seaborne trade and the transport system. The course will then cover the structure of international seaborne trade, the major commodity trades and the organization of the major shipping markets. The course will also examine the stages of the shipping cycle and the relationship between the determinants of supply and demand for seaborne transport in the determination of freight rates. The course will also examine current developments in the shipping

MEMT5003: MARINE ENVIRONMENTAL MANAGEMENT I

This Course will provide the student with an insight into contemporary environmental issues and sustainability. These will be further explored within the context of the Maritime Sector. It will examine issues of coastal degradation, oil pollution, and climate change that currently threaten the environment. The core international environmental challenges of climate change adaptation, biodiversity conservation and coastal management will form integral aspects of the course content. Fundamental to this, the course will also include values and evolution of environmental thinking as it concerns issues of pollution, management, control, and sustainability.

PEML6002: PORT ECONOMICS AND MARITIME LOGISTICS

In this course the students will study the principles of port economics, maritime logistics, port management, logistics and supply chain management. The student will study trends in international trade and the national economy, seaborne trade and the demand and supply of port services. The student will also study issues of strategic importance in port policy, port ownership and administration, port investment, port financing, port tariffs, port marketing, port competition, transhipment, maritime logistics, global supply chain management

and trade competitiveness. Students will also review UNCTAD international case studies, examine current issues in port management and make comparisons with the national and regional ports system.

MEMT6003: MARITIME ENVIRONMENTAL MANAGEMENT II

This unit provides students with an understanding of Quality Management within the maritime industry with particular reference to ships.

The principles of risk assessment and risk management are examined from both an operational and management standpoint. Understanding on the HR management is highlighted as it forms the foundation of any organization. Technical resource management with particular emphasis on business sense of relevant decision making will be discusses in detail with case studies. A study of Crisis Management techniques with particular reference to major maritime accidents is also studied. Integral to this is a study of press relations in times of crisis and how management should be aware of how this might affect the Company. A full escalating crisis exercise is carried out in the bridge simulator to reinforce the lessons learnt.

PROJ6008: PROJECT

This Research Project forms an integral part of the programme in which the student will conduct substantive research into an area relevant to the programme, which has to be accepted by the Programme Leader. The student will be expected to draw upon the specific areas of study from the core eight courses that make up the programme to assist in the research. The undertaking of this research project will prepare students for a professional role within the Maritime Sector through exploration and careful examination of a wide range research topics related to the sector. This will provide students with an understanding of sector on a national and global scale with students being encouraged to acquire an outlook of the wider industry instead of a focus on only national issues. Through this project they will be exposed to the successful development and management of a research project and additionally the organizational and strategic aspects. Primary and secondary supervisors will be assigned to each student for the project, taking into consideration their nominations, with every effort being made to meet their choice.

MARL6003: MARITIME LAW

This course provides students with an understanding of the major international maritime conventions and how these impact upon the management of shipping operations both onboard ship and ashore. It will expose students to the essential rules of private maritime law.

Core areas include laws governing registration of ships, arrest of ships, carriage of goods by sea, salvage and towage. Legal requirements of the ship to shore interface will be studied from both national and international perspectives to promote an understanding of the commercial and safety aims of the maritime venture.

MASM6002: MARITIME SAFETY MANAGEMENT II

This unit provides students with an understanding of Quality Management within the maritime industry with particular reference to ships. The principles of risk assessment and risk management are examined from both an operational and management standpoint. Understanding on the HR management is highlighted as it forms the foundation of any organization. Technical resource management with particular emphasis on business sense of relevant decision making will be discusses in detail with case studies. A study of Crisis Management techniques with particular reference to major maritime accidents is also studied. Integral to this is a study of press relations in times of crisis and how management should be aware of how this might affect the Company. A full escalating crisis exercise is carried out in the bridge simulator to reinforce the lessons learnt.

RESH6004: RESEARCH PROJECT PROPOSAL

This Research Project forms an integral part of the programme in which the student will conduct substantive research into an area relevant to the programme, which has to

be accepted by the Programme Leader. The student will be expected to draw upon the specific areas of study from the core eight courses that make up the programme to assist in the research. This phase of the research project will focus on the conceptual development of the research project while PROJ6008 will focus on the implementation of the project. Through this research on the development of the project. This will provide students with an understanding of sector on a national and global scale with students being encouraged to acquire an outlook of the wider industry instead of a focus on only national issues. Through this project they will be exposed to the successful development and management of a research project and additionally the organizational and strategic aspects. Primary and secondary supervisors will be assigned to each student for the project, taking into consideration their nominations, with every effort being made to meet their choice.

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This document is intended to serve as a general guide for current and prospective postgraduate students of The University of Trinidad and Tobago. In this capacity, it includes information from several policies, procedures, rules, regulations and academic requirements students may need to access throughout their tenure with the University. This document is designed to be used in conjunction with the Assessment Regulations for Taught Programmes and the General Academic Regulations Policies and Procedures for All Academic Programmes.

This document is not a complete statement of all policies, procedures, rules, regulations and academic requirements. UTT reserves the right to make amendments to the information in this document without prior notice.