



# ARUSHA TECHNICAL COLLEGE



Prospectus 2025/2026

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## Welcome to the Arusha Technical College !

The College is Committed to providing a learning environment that promotes passion for excellence in professionalism and enduring knowledge which stimulates creativity and Innovation Consistent with the demands of Labour market demands in the East African Region and Beyond!



## Message from the Rector



Dear Prospective Student,

What an exciting time lies ahead for you!

**Y**our decision to join Arusha Technical College is one of the most important decisions in life as it will not only determine your further education and career, but will also influence your personal development and growth as an individual.

Thank you for your interest in joining the Arusha Technical College, more popularly known as ATC. The College is a co-educational post-secondary tertiary education Institution operating under the jurisdiction of the Ministry of Education, Science and Technology (MoEST).

This Prospectus is published at an interesting time in

the history of the College. The College has recently introduced competency-based curricula (CBET) for technician and engineering programmes leading to the awards of Ordinary Diploma (National Technical Awards Levels 4 - 6) and Bachelor of Engineering (National Technical Awards Level 7 - 8) respectively. As you go through the Prospectus you will find information that best describe the College. The ATC staff are student centered, carrier focused and committed to student success. Our hands-on (competence based) philosophy distinguishes ATC from many other technical institutions in Tanzania and the East African Region.

Furthermore, this Prospectus also provides comprehensive information on the academic programmes currently being offered at ATC and those that are in pipelines. It is intended to serve as a guide to prospective and ongoing students in planning their study programmes as it provides an exhaustive list of all the programmes as well as the respective entry and graduation requirements.

The College aspires to become one of the prime contributors of demand driven experts in the fields of engineering, science and technology. With a view of realization of its aspirations, the College is obliged to train artisans, technicians and engineers.

Currently, the College has fifty-eight (58) long term (1-4 years) training programmes. These include twenty-four (24) Diploma Programs, twelve (12) Bachelor's programmes and twenty two (22) Vocational Education

Training (VET) Programmes. In so doing, the College supports the development and growth of the Tanzania economy .

ATC has two Campuses, namely the ATC main Campus and the Kikuletwa Campus. The Kikuletwa Campus is the center of Excellence dedicated for Renewable Energy in the areas of Bio Mass, Solar Power, Wind Energy, Hydropower and Geothermal Energy\*.

It is our goal to give students demand driven knowledge and skills to successfully enter the world of work, particularly engineering and service industries as professionals who will make a difference in everything they do, whether as employees or self-employed or employers. Remember that always 'Skills make the Difference!'. Thus, when thinking about the future and technical education, you should think about ATC!

Thank you

Professor Musa N. Chacha  
RECTOR

# **VISION | MISSION | CORE VALUES**

## **VISION:**

A society with practical knowledge, skills and attitude for sustainable development in Science, Technology and Innovation (STI).

## **MISSION:**

Solving society demand-driven needs by providing competence - based training, research and consultancy in Science, Technology and Innovation (STI).

## **CORE VALUES**

- Accountability
- Integrity
- Freedom with Right
- Excellence in performance
- Diversity and Inclusiveness
- Innovativeness

## MEMBERS OF THE ATC GOVERNING BOARD

1	Dr. Noel Eusebius Mbonde	Chairperson
2	Prof. Musa N. Chacha	Secretary
3	Dr. Erick Vicent Mgaya	Member
4	Prof. Kennedy Aliila Greyson	Member
5	Dr. Godfrey Alto Komba	Member
6	CPA. Angelo Fungwe Ngallo	Member
7	Mr. Tryforn Magabe	Member
8	Mr. Said Issa Shausi	Member

## COLLEGE EXECUTIVES

### **Rector**

#### **Prof. Musa N. Chacha**

PhD (Chemistry) University of Botswana, M(Philosophy) University of Botswana, BSc (Ed.) (Chemistry) University of Dar es Salaam.

### **Deputy Rector – Academic, Research and Consultancy**

#### **Dr. Yusuph B. Mhando**

PhD (Construction Engineering) Makerere University, MSc (Construction Economics and Management) Ardhi University, PGD (Construction Economics and Management) Ardhi University, Advanced Diploma (Civil Engineering) Dar es Salaam Institute of Technology (DIT), Diploma in Technical Education (DTE) Kleruu Teachers College, FTC (Civil Engineering) DIT, CSEE (Tanga), PEng. (7618) ERB.

### **Deputy Rector – Planning, Finance and Administration**

#### **Dr. Florence A. Mamboya**

PhD (Botany) Stockholm University, MSc (Marine Biology and Zoology ) University of Dar es Salaam, BSc (Chemistry and Marine Biology ) University of Dar es Salaam.

### **Director of Academic**

**Dr. Upendo E. Msovu**

PhD (Water Resources Engineering) University of Dar es Salaam; MSc (Water Resources Management and Technology) Birmingham University; BSc (Environmental Engineering) University of Dar es Salaam; Registered Graduate Engineer (ERB).

**Director of Academic Support Services****Prof. Baraka N. Kichonge**

PhD (Sustainable Renewable Energy Science and Engineering) (NM-AIST); MSc (Production Engineering) (UDSM); Post Graduate Diploma in Mechanical Engineering (PGD) (UDSM); Advanced Diploma in Mechanical Engineering (ADE) (DIT); Full Technician Certificate in Automotive Engineering (FTC) (TCA).

**Director of Research, Consultancy and Publication****Dr. Naisujaki Sephania Lyimo**

PhD-Curriculum Development (MOI University) M.A. (Ed.) (UDOM), B.Ed. (MMU), Dip. Ed. (Marangu T.T.C), Certificate (Facilitator Development) (BCIT-CANADA), Certificate in Instructional Skills (ATC), Certificate in Circular Economy and Entrepreneurship in TVET, (UNESCO-UNEVOC- Bonn Germany).

**Examination Officer****J. Fabian**

BSc. in Mechanical Engineering (UDSM), Adv. Professional Training In JIGS and Fixture (ITD) Hyderabad-India

## **Admission Officer**

### **Victor Ngaai**

MA Educational Management and Leadership (University of Arusha), PGD in Education (University of Arusha) 2013, B.A in Mass Communication (Hons) (UDSM) 2009, Advanced certificate in Radio and TV Broadcasting (East Africa Training Institute) 2006.

## **HEADS OF ACADEMIC AND RELATED DEPARTMENTS**

### **Automotive Engineering Department**

#### **Eng. D.S. Mtunguja**

M.Tech. Automotive Electronics (VIT University-India)  
Adv. Diploma in Automotive Eng. (NIT)Diploma in  
Technical Education (Klerruu- Iringa) FTC (Automotive  
Engineering) (TCA),TVET TOT Program – Queensland  
Australia Professional Driving Instructor (NIT)

### **Civil Engineering Department**

#### **Dr. U.E. Msovu**

PhD in Water Resources Engineering (University of Dar  
es salaam – (UDSM),Tanzania),MSc. Water  
Resources Management and Technology (Birmingham  
University– United Kingdom (UK) BSc. Environmental  
Engineering (UDSM, Tanzania)

## **Electrical Engineering Department**

### **Dr. Nicodemus Msafiri**

Ph.D (Computer Science) Clemson University, USA; MSc. (Computer Science) Clemson University, USA; BEng. (Electronics and Telecommunication) DIT; FTC (Electronics and Telecommunication)

## **Transportation Engineering Department**

### **Eng. Thomas I. Chuwa**

Masters in Infrastructure and Geotechnical Engineering  
- University of Abou Bekir Belkaid Tlemcen (Algeria),  
Bachelor in Structure and Environmental Engineering  
- University of Abou Bekir Belkaid Tlemcen (Algeria),  
Registered Professional Engineer, P. Eng. (ERB)

## **Mechanical Engineering Department**

### **G. G. Mgaya**

B.Eng. (Mechanical Engineering) DIT; FTC (Mechanical Eng.) TCA; Certificate (Instructional Skills) ISW—TCA; Professional Training (Mechatronics) Politecnico diMilano- Italy; Certificate (Advanced Manufacturing with CAD/CAM) CTTC Bubaneswar, INDIA; Certificate (Master CAM) INDIA.

## **ICT Department**

### **P. Kaaya**

MBA (Information Technology) Coventry University-UK, Adv. Diploma in Information Technology (IAA), Cert. (Computer Network Engineering & Management) CDAC- India, Cert. (Software & Data processing)- NICT- India, Cert. (Instructional Skills)-Camosun-ATC, Registered Technical Teacher (NACTE), Cert (Training of Trainers on Problem Based Learning (PBL) under Higher Learning Education Partnerships for Sub Saharan Africa- Royal Academy of Engineering), Cert. (Research Methodology and Supervisory Skills - BICO-UDSM), Cert. (Project Management) – Mzumbe University, Cert. (Enhancing visibility and Marketing of Technical and Vocational Education and Training programs) – Nairobi.

## **Applied Sciences and Social Studies Department**

### **Dr. Naisujaki Sephania Lyimo**

PhD-Curriculum Development (MOI University) M.A. (Ed.)(UDOM),B.Ed.(MMU),Dip. Ed. (Marangu T.T.C), Certificate (Facilitator Development) (BCIT-CANADA), Certificate in Instructional Skills (ATC), Certificate in Circular Economy and Entrepreneurship in TVET, (UNESCO-UNEVOC- Bonn Germany).

## **Research, Consultancy and Publication Directorate**

### **Dr. Naisujaki Sephania Lyimo**

PhD (Curriculum Development) MOI University; M.A. (Ed.) University of Dodoma (UDOM); B. (Ed.) Mount Meru University (MMU); Dip. (Ed.) Marangu T.T.C; Certificate (Facilitator Development) BCIT-CANADA; Certificate (Instructional Skills) Arusha Technical College (ATC); Certificate (Circular Economy and Entrepreneurship in TVET) UNESCO-UNEVOC- Bonn Germany.

### **Industrial Liaison Office**

#### **Dr. Nicodemus Msafiri**

Ph.D (Computer Science) Clemson University, USA; MSc. (Computer Science) Clemson University, USA; BEng. (Electronics and Telecommunication) DIT; FTC (Electronics and Telecommunication)

### **Head of Library**

#### **Judith Mwase:**

Bachelor of Science in library and Information Management. BSc. LIM (Mzumbe University Morogoro). Diploma in Library Archive and Documentation studies (SLADS-Bagamoyo).

### **ATC – Production and Consulting Bureau (PCB)**

#### **Eng. F.M. Magania**

Bachelor's Degree in Civil and Irrigation Engineering, Arusha Technical College, Diploma in Irrigation Engineering (Igurusi, Mbeya), Registered Professional Engineer-PEng.No.567

## **Vocational Education and Training (VET) Department**

### **Ally Ngulugulu**

M.Eng (Biomedical Engineering) UESTC, China, MSc. (Biomedical Engineering) China; BEng. (Electronics and Communications) STJUIT; Diploma (Education) Monduli TTC.

### **Kikuletwa Renewable Energy Training and Research Campus Manager**

### **Mwakatage, S.E**

MSc. Renewable Energy (Oldenburg University German),  
BSc. Agricultural Engineering (SUA).

## **HEADS OF NON ACADEMIC DEPARTMENTS**

**Director of Human Resources Management and Administration**

**E.M, Ishika**

MBA- HRM ESAMI, BPA (Public Administration) Kampala University (Uganda)

**Manager of Planning and Development**

**W.E Mpepo**

Masters in Project Management (ESAMI) B.A (Population and Development Planning -IRDP), Certificate (Budget Analysis-REPOA), Certificate in Research Writing (INASP), Certificate in Organisation Development (FCS).

**Manager of Finance and Accounts**

**A. Msongole**

Msc.(Finance) (University of Strathclyde-Scotland), CPA (T) (NBAA), ADCA-IDM Mzumbe

**Chief Internal Auditor**

**K. O Sanga**

Ms. MBA (Mzumbe), PGDA (IFM), B.Com Acc (UDSM), CPA (T) NBAA

**Head of Procurement Management Unit**

**A. Robert**

MBA Procurement and Supplies Management (Coventry University UK), B.A Procurement and Supplies Management (MUCCOBS), CPSP (T)- PSPTB, Registered as Approved procurement and Supplies Professional (AU410), Awarded practicing licence as Procurement Professional by PSPTB (T) and Ministry of

Finance with Reg No. AU000410.

**Communication and Marketing Unit:**

**Gasto Leseiyo**

MBA (Marketing) (MMU) B.A. (Public Relations and Advertising) (Hons) (UDSM), Certificate in Instructional Material Design and Production for open education Resource (OER) NITTR- Bhopal, India

**Dean of Students:**

**Stella E. Ngowa**

MA. Community Development (Mount Meru University), B.A Home Economics and Human Nutrition (SUA), Dip. Education (Monduli TTC)

**Head of Estate Unit:**

**S. Abdallah**

B.A Architecture (UDSM), Cert. in Asset Management (IAA), Cert. Health Safety and Environment – HSE (ICH)

**Health Services Unit:**

**G.E.R Mushi**

Msc Life Science (Health and Biomed) NM- AIST, Bsc (Human Nutrition) OUT, (Adv. Dip. Medicine) (KCMC), SAMO, Registered

**Legal Services Unit:**

**Adv. E.H Mtui**

LLM (Mzumbe), LLB (OUT), Dip in International Relations and Diplomacy (CFR), Certified Director (IoDT), State Attorney, Notary Public and Commissioner

for Oaths

**Information and Communication Technology (ICT)  
Unit:**

**Dr. A. Mtaho.**

PhD (Computer Science) UDOM; MSc.  
(Telecommunication Engineering) UDOM; BSc.  
(Information Communication and Technology  
Management) Mzumbe University, FTC (Electrical  
Engineering) DIT.

**Curriculum Development Committee Coordinator**

**Dr. G. G. Moshi**

PhD (Electrical Engineering) Politecnico di Milano, Italy;  
MSc (Electrical  
Engineering and Renewable Energy Systems) University  
of Leeds, UK; BSc  
(Electrical Power Engineering) UDSM.

**Local and International Academics Link Coordinator**

**Dr. Mwanza J.S**

PhD (Production Engineering-UDSM), MSc (Machine  
Building Tech) The Kursk State Technical University-  
Kurk- Russia), Full Technician Certificate in Mechanical  
Engineering (TCA) Arusha.

**Industrial Liaison Officer**

**Dr. Nicodemus Msafiri Mbwambo.**

Ph.D (Computer Science) Clemson University, USA;  
MSc. (Computer Science) Clemson University, USA;

BEng. (Electronics and Telecommunication) DIT; FTC (Electronics and Telecommunication) DIT.

**Transport Officer:**

**Kimweri E. Samri**

Cert (Motor Vehicle Mechanics) ATC

**Student Welfare Officer:**

**Jeremia Y. Wana**

B.A Sociology (UDSM)

**Matron:**

**Neema Sambo**

Adv. Diploma in Community Development  
(Participatory Project Planning and Management)  
(CDTI)

**MAJOR CONTACT ADDRESSES**  
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**RECTOR**

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**COMMUNICATION AND MARKETING UNIT**

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**INTERNAL AUDIT UNIT**

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## CHAPTER I

### INTRODUCTION TO ARUSHA TECHNICAL COLLEGE

#### 1.1 *Arusha Technical College in Brief*

The institution which has become the Arusha Technical College (ATC) was established in 1978 jointly by the Governments of the United Republic of Tanzania and Germany (West German), under the name of the Technical College Arusha (TCA). The College is located at the Central Business District of the Arusha City which is the Northern Tanzania's centre of agriculture, commerce, trade and tourism.

Arusha City is also the Head Quarter of the East Africa Community and is the central point in Africa between Cape Town and Cairo.

It is surrounded by famous mountains such as Mount Kilimanjaro and Mount Meru. In addition, it is the door to the world's great wildlife refuges including Ngorongoro Crater, Serengeti and Tarangire. All these make the location of the College an ideal place for education, training and applied research.

Part of the responsibilities of ATC at the time of its inception was to train technicians for three years to the level of the Full Technician Certificate (FTC) in the fields of Automotive Engineering, Civil Engineering, Electrical Engineering, Highway Eng/Transport Engineering and Mechanical Engineering. In March 2007, the name changed to the Arusha Technical College (ATC) through

the Arusha Technical College Establishment Order No. 78 as enabled by the NACTE Act No. 9 of 1997. This Establishment Order granted autonomy and elevated the status of the College to a higher tertiary education institution. Following elevation of the status of the College to a higher tertiary education institution and grant of autonomy, the College introduced award of the Ordinary Diploma in the above mentioned programmes and introduced more Ordinary Diploma and Certificate awards in various professions namely: Electronics and Telecommunications Engineering; Civil and Irrigation Engineering, Auto electric and Electronics Engineering, Laboratory Sciences and Technology, Lapidary & Jewelry Technology , Computer Science and Information Technology.

The College is registered and accredited by the National Council for Technical and Vocational Education and Training (NACTVET) to train technicians and engineers. Currently, the College is undergoing both administrative and Academic transformations to match with its new structure, roles and functions.

The expectations and aspirations of Tanzanians towards ATC are very high as expressed in the National Technical Education and Training Policy of 1996, National Higher Education Policy of 1999 and Tanzania Development Vision 2025 of 1999. The ultimate goal is to transform ATC to a centre of excellence that provides a national and international high-level human resource through exemplary competence based Technical Education and Training. ATC boasts on an established reputation as an institution that is widely acclaimed by industry for

producing work-ready, demand-driven and competent graduates who can meet the expectations and demands of the employers. ATC takes pride in the high employability of her graduates and the appreciations expressed by employers for the excellent quality and relevance of her academic programmes and so ATC seeks to continuously upgrade support to her students.

This Prospectus therefore, describes the main features of the ATC in line with the customers' and stakeholders' interest. It provides an Outline of academic programmes offered at ATC. It gives important information on the basic requirements, procedures and regulations to be met for one to get admission and graduate at the College. It also highlights course programmes, course duration and other necessary information.

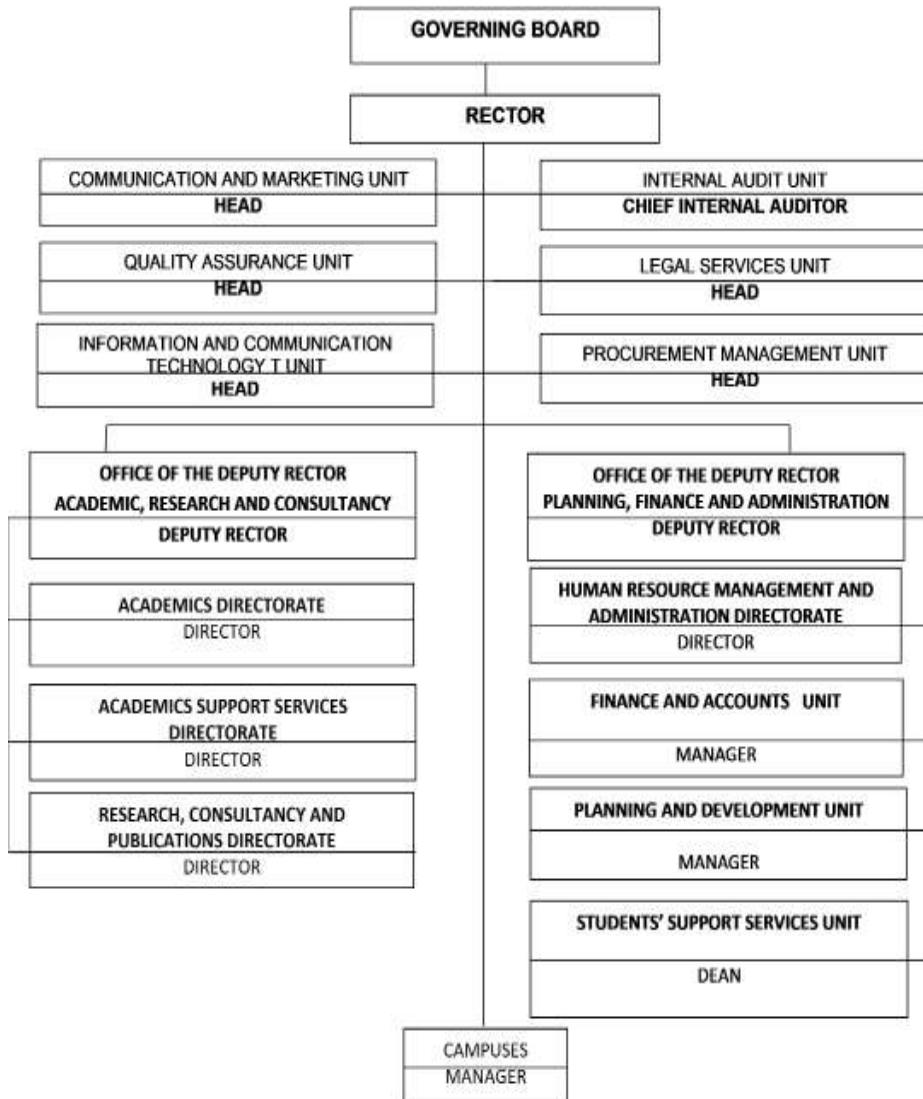
## **1.2 Mode of Functioning**

ATC is governed by the Governing Board consisting of Board members lead by the Board Chairperson. The Chief Executive of the College is the Rector who is inline supported by the Deputy Rector Academics, Research and Consultancy and the Deputy Rector Planning, Administration and Finance, as indicated in Figure 1.1

# Organizational Structure of ATC

## THE APPROVED ORGANIZATION STRUCTURE OF ARUSHA TECHNICAL COLLEGE (ATC)

(Approved by the President on 07<sup>th</sup> May, 2023)



## **1.3 Organization of the Prospectus**

The prospectus Outlines the academic programmes currently offered by ATC and the near- future plans towards the realization of the mission of the College with respect to training.

Information on procedures and regulations for admission to such programmes and the corresponding fees are given in Chapters 2 and 3 respectively.

Chapter 4 presents Examination Regulations which detail the course of action to be taken on all matters related to examinations conducted by the College for programmes leading to the awards of the Ordinary Diploma and the Bachelor degree of Engineering (NTAs 4-8 levels).

Chapter 5 gives structure of academic programmes. Profiles of academic departments including list of academic staff and course modules for academic programmes offered by respective departments are given in Chapter 6.

Further, profiles of academic related departments/units are presented in Chapter 7.

The inputs of the Prospectus as highlighted above are complemented with some additional general information for the ATC accommodation, catering services available to students, academic calendar and Establishment Order in Chapter 8.

## **CHAPTER 2**

### **ACADEMIC PROGRAMMES OFFERED**

As previously mentioned, the College is accredited by the National Council for Technical and Vocational Education and Training (NACTVET) to run and grant awards to successful candidates in technician and Engineering programmes. Awards offered are Ordinary Diploma namely the National Technical Awards (NTA) Level 4 – 6 and the prospective Bachelor of Engineering namely the National Technical Award (NTA) Level 7 - 8.

Sn	Program Name	Duration		Combination	Direct Entry Qualifications Form VI	Equivalent Entry Qualifications
		OD	Form 6			
1	Bachelor Degree in Mechanical Engineering	3	4	PCM	Two principal passes in Physics, Mathematics and Chemistry.	Ordinary Diploma certificate (NTA level 6) in Mechanical Engineering, Automotive Engineering, Pipe Works, Oil and Gas Engineering, Mechanical and Bio-energy Engineering and Renewable Energy Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes should be mathematics

## ACADEMIC PROGRAMMES OFFERED

2	Bachelor Degree in Electrical and Automation Engineering	3	-	-	-	Ordinary Diploma (NTA level 6) in Electrical and Bio-medical Engineering or Biomedical Engineering or Electronics Engineering, or Computer Engineering or Electrical Engineering or Electronics and Telecommunication Engineering all with at least GPA of 3.0 and at least four O-Level passes and one of these passes must be mathematics OR Holders of Full Technician Certificate (FTC) in Electrical and Biomedical Engineering or Biomedical Engineering or Electronics Engineering, or Computer Engineering or Electrical Engineering or Electronics and Telecommunication Engineering all with at least with at least average of C grade (3 points) and at least four O-Level passes (Ds and above) and one of these passes must be mathematics
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## ACADEMIC PROGRAMMES OFFERED

## ACADEMIC PROGRAMMES OFFERED

				Engineering or Electronics and Telecommunication Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes must be mathematics OR b) Qualified applicants should be holders of Full Technician Certificate in Electrical and Biomedical Engineering/Biomedical Engineering OR Electronics Engineering or Electronics and Telecommunication Engineering all with at least average of C grade (3 points) and at least four O-Level passes (Ds and above) and one of these passes must be mathematics.
Bachelor Degree in Civil and Irrigation Engineering	3			Ordinary Diploma Certificate (NTA level 6) in Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes must be mathematics OR b) Qualified applicants should be a holders of Full Technician Certificate (FTC) in Civil Engineering OR Transportation/Highway Engineering OR Water Supply and Sanitation OR irrigation Engineering all with at least average of C grade (3 points) and at least four O-Level passes (Ds and above) and one of these passes must be mathematics

## ACADEMIC PROGRAMMES OFFERED

Bachelor Degree in Computer Science	3	4	PCM, PCB, PGM, HGE, CBG	Holders of advanced Certificate of secondary Education (ACSEE) with at least two principal passes in Physics, Mathematics, Geography, Biology, Chemistry, Economics with total points not below 4.0	Ordinary Diploma certificate (NTA level 6) in Computer Science OR Information Technology OR Information System OR Software Engineering OR Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering OR Electrical and Biomedical Engineering/Biomedical Engineering OR Electronics Engineering OR Electronics AND Telecommunication Engineering OR Mechanical Engineering OR Automotive Engineering OR Electrical Engineering OR Auto- Electrical Engineering OR Laboratory Science and Technology OR Education with Science OR any other Science and Allied Technologies all with at least GPA of 3.0 AND at least four O-Level passes (Ds and above) OR equivalent foreign qualifications as established by either NECTA or VETA. OR c) Qualified applicants should be holder of Full Technician Certificate in Computer Science OR Information Technology OR Information System OR Software Engineering OR Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering OR Electrical and Biomedical
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## ACADEMIC PROGRAMMES OFFERED

					Engineering/Biomedical Engineering OR Electronics Engineering OR Electronics AND Telecommunication Engineering OR Mechanical Engineering OR Automotive Engineering OR Electrical Engineering OR Auto-Electrical Engineering OR Laboratory Science and Technology OR Education with Science, Ordinary Diploma in Secondary Education chemistry & mathematics OR any other Science and Allied Technologies all with at least average of C grade (3 points) and at least four O-Level passes (Ds and above)
Bachelor Degree in Automotive Electronics Engineering	3				Ordinary Diploma in NTA 6 in Automotive Engineering, Automotive-Electrical, Electronics Engineering, Heavy Duty Equipment, Mechanical Engineering, Oil and Gas Engineering, Air Craft Engineering, Electrical Engineering, Computer Engineering, Electrical and electronics Engineering, Electronics and Telecommunication Engineering and any other related program as approved by College Academic Committee
Bachelor Degree in Mechatronics and Material Engineering	3	4	PCM	A-Level Two principal passes in Physics, Mathematics, Chemistry.	Ordinary Diploma certificate (NTA level 6) in Mechatronics Engineering, Automotive Engineering, Electrical Engineering, Electrical and Hydropower Engineering, Mechanical and Bio-Energy Engineering, Mechanical Engineering, Electronics Engineering, Pipe Works Oil

## ACADEMIC PROGRAMMES OFFERED

				and Gas Engineering, Electrical and Electronics Engineering or Electronics and Telecommunication Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes should be mathematics.
Bachelor Degree in Civil and Highway Engineering	3			Ordinary Diploma Certificate (NTA level 6) in Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes must be mathematics OR b)Qualified applicants should be a holders of Full Technician Certificate (FTC) in Civil Engineering OR Transportation/Highway Engineering OR Water Supply and Sanitation OR irrigation Engineering all with at least average of C grade (3 points) and at least four O-Level passes (Ds and above) and one of these passes must be mathematics
Bachelor Degree in Renewable Energy Engineering	3	-	-	Ordinary Diploma certificate (NTA level 6) in Renewable Energy Engineering, Electrical Engineering, Electrical and Hydropower Engineering, Electrical and Solar Energy Engineering, Electrical and Wind energy, Mechanical and Bio-Energy Engineering, Mechanical Engineering, Electrical and Biomedical Engineering/Biomedical

Engineering, Electronics Engineering, Electrical and Electronics Engineering, Mechatronics Engineering or Electronics and Telecommunication Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes should be mathematics.

## ACADEMIC PROGRAMMES OFFERED

Programme Name	Duration		A-Level Combination	Direct Entry Qualifications Form VI	Equivalent Entry Qualifications
	Diploma	Form 6			
Bachelor Degree in Mechanical Engineering	3	4	PCM,	Two principal passes in Physics, Mathematics, Chemistry	Ordinary Diploma certificate (NTA level 6) in Mechanical Engineering, Automotive Engineering, Pipe Works, Oil and Gas Engineering, Mechanical and Bio-energy Engineering and Renewable Energy Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes should be mathematics
Bachelor Degree in Electrical and Automation Engineering	3	-	-	-	Ordinary Diploma (NTA level 6) in Electrical and Biomedical Engineering or Biomedical Engineering or Electronics Engineering, or Computer Engineering or Electrical Engineering or Electronics and Telecommunication Engineering all with at least GPA of 3.0 and at least four O-Level passes and one of these passes must be mathematics OR Holders of Full Technician Certificate (FTC) in Electrical and Biomedical Engineering or Biomedical Engineering or Electronics Engineering, or Computer Engineering or Electrical Engineering or Electronics and Telecommunication Engineering all with at least with at least average of C grade (3 points) and at least four O-Level passes (Ds and above) and one of these passes must be mathematics
Bachelor Degree in	3	3	PCM, PCB,	holders of advanced	Ordinary Diploma certificate (NTA level 6) in Computer

## ACADEMIC PROGRAMMES OFFERED

Information Technology			PGM, HGE, CBG	Certificate of secondary Education (ACSEE) with at least two principal passes in Physics, Mathematics, Geography, Biology, Chemistry, Economics with total points not below 4.0	Science OR Information Technology OR Information System OR Software Engineering OR Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering OR Electrical and Biomedical Engineering/Biomedical Engineering OR Electronics Engineering OR Electronics AND Telecommunication Engineering OR Mechanical Engineering OR Automotive Engineering OR Electrical Engineering OR Auto-Electrical Engineering OR Laboratory Science and Technology OR Education with Science OR any other Science and Allied Technologies all with at least GPA of 3.0 AND at least four O-Level passes (Ds and above) OR equivalent foreign qualifications as established by either NECTA or VETA. Qualified applicants should be holder of Full Technician Certificate in Computer Science OR Information Technology OR Information System OR Software Engineering OR Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering OR Electrical and Biomedical Engineering/Biomedical Engineering OR Electronics
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## ACADEMIC PROGRAMMES OFFERED

					Engineering OR Electronics AND Telecommunication Engineering OR Mechanical Engineering OR Automotive Engineering OR Electrical Engineering OR Auto-Electrical Engineering OR Laboratory Science and Technology OR Education with Science OR any other Science and Allied Technologies all with at least average of C grade (3 points) and at least four O-Level passes (Ds and above)
Bachelor Degree in Laboratory Science and Industrial Technology	3	3	PCM, PCB, PGM, HGE, CBG	Holders of advanced Certificate of secondary Education (ACSEE) with at least two principals in Chemistry and Biology or Physics and must have a Certificate of Secondary Education Examination (CSEE) with a pass in Basic Applied Mathematics, Physics, Chemistry and Biology	Ordinary Diploma in Laboratory Science, Laboratory Science and Technology, Water Laboratory Technology, Food Science and Technology, nuclear science and technology, Education in science, and Biotechnology with average or a minimum GPA of 3.0, or equivalent as approved by the Council
Bachelor Degree in Civil Engineering	3				Ordinary Diploma in Civil Engineering, Irrigation Engineering, Water Supply and Sanitation Engineering, Agro-Mechanical Engineering, Transportation Engineering, Highway Engineering and equivalent as may be approved by the NACTVET.
Bachelor Degree in	3				Ordinary Diploma certificate (NTA level 6) in Electrical and

## ACADEMIC PROGRAMMES OFFERED

Electrical and Biomedical Engineering					Biomedical Engineering/Biomedical Engineering OR Electronics Engineering or Electronics and Telecommunication Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes must be mathematics OR b) Qualified applicants should be holders of Full Technician Certificate in Electrical and Biomedical Engineering/Biomedical Engineering OR Electronics Engineering or Electronics and Telecommunication Engineering all with at least average of C grade (3 points) and at least four O-Level passes (Ds and above) and one of these passes must be mathematics.
Bachelor Degree in Civil and Irrigation Engineering	3				Ordinary Diploma Certificate (NTA level 6) in Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes must be mathematics OR b) Qualified applicants should be a holders of Full Technician Certificate (FTC) in Civil Engineering OR Transportation/Highway Engineering OR Water Supply and Sanitation OR irrigation Engineering all with at least average of C grade (3 points) and at least four O-Level

## ACADEMIC PROGRAMMES OFFERED

					passes (Ds and above) and one of these passes must be mathematics
Bachelor Degree in Computer Science	3	4	PCM, PCB, PGM, HGE, CBG	Holders of advanced Certificate of secondary Education (ACSEE) with at least two principal passes in Physics, Mathematics, Geography, Biology, Chemistry, Economics with total points not below 4.0	Ordinary Diploma certificate (NTA level 6) in Computer Science OR Information Technology OR Information System OR Software Engineering OR Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering OR Electrical and Biomedical Engineering/Biomedical Engineering OR Electronics Engineering OR Electronics AND Telecommunication Engineering OR Mechanical Engineering OR Automotive Engineering OR Electrical Engineering OR Auto-Electrical Engineering OR Laboratory Science and Technology OR Education with Science OR any other Science and Allied Technologies all with at least GPA of 3.0 AND at least four O-Level passes (Ds and above) OR equivalent foreign qualifications as established by either NECTA or VETA. OR c) Qualified applicants should be holder of Full Technician Certificate in Computer Science OR Information Technology OR Information System OR Software Engineering OR Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply

## ACADEMIC PROGRAMMES OFFERED

					and Sanitation OR irrigation Engineering OR Electrical and Biomedical Engineering/Biomedical Engineering OR Electronics Engineering OR Electronics AND Telecommunication Engineering OR Mechanical Engineering OR Automotive Engineering OR Electrical Engineering OR Auto-Electrical Engineering OR Laboratory Science and Technology OR Education with Science, Ordinary Diploma in Secondary Education chemistry & mathematics OR any other Science and Allied Technologies all with at least average of C grade (3 points) and at least four O-Level passes (Ds and above)
Bachelor Degree in Automotive Electronics Engineering	3		PCM, PCB, PGM, HGE, CBG		Ordinary Diploma in NTA 6 in Automotive Engineering, Automotive-Electrical, Electronics Engineering, Heavy Duty Equipment, Mechanical Engineering, Oil and Gas Engineering, Air Craft Engineering, Electrical Engineering, Computer Engineering, Electrical and electronics Engineering, Electronics and Telecommunication Engineering and any other related program as approved by College Academic Committee
Bachelor Degree in Mechatronics and Material Engineering	3	4	PCM, PCB, PGM, HGE, CBG	A-Level Two principal passes in Physics, Mathematics, Geography, Biology, Chemistry or Economics,	Ordinary Diploma certificate (NTA level 6) in Mechatronics Engineering, Automotive Engineering, Electrical Engineering, Electrical and Hydropower Engineering, Mechanical and Bio-Energy

## ACADEMIC PROGRAMMES OFFERED

					Engineering, Mechanical Engineering, Electronics Engineering, Pipe Works Oil and Gas Engineering, Electrical and Electronics Engineering or Electronics and Telecommunication Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes should be mathematics.
Bachelor Degree in Civil and Highway Engineering	3				Ordinary Diploma Certificate (NTA level 6) in Civil Engineering OR Civil and Irrigation Engineering OR Transportation/highway Engineering OR Water Supply and Sanitation OR irrigation Engineering all with at least GPA of 3.0 and at least four O-Level passes (Ds and above) and one of these passes must be mathematics OR b)Qualified applicants should be a holders of Full Technician Certificate (FTC) in Civil Engineering OR Transportation/Highway Engineering OR Water Supply and Sanitation OR irrigation Engineering all with at least average of C grade (3 points) and at least four O-Level passes (Ds and above) and one of these passes must be mathematics
Bachelor Degree in Renewable Energy Engineering	3	-	-	-	Ordinary Diploma certificate (NTA level 6) in Renewable Energy Engineering, Electrical Engineering, Electrical and Hydropower Engineering, Electrical and Solar Energy Engineering, Electrical and Wind energy, Mechanical and Bio-Energy Engineering

Mechanical Engineering,  
Electrical and Biomedical  
Engineering/Biomedical  
Engineering, Electronics  
Engineering, Electrical and  
Electronics Engineering,  
Mechatronics Engineering or  
Electronics and  
Telecommunication  
Engineering all with at least  
GPA of 3.0 and at least four O-  
Level passes (Ds and above)  
and one of these passes should  
be mathematics.



Programme Name	Duration	Direct Entry Qualifications Form IV
Ordinary Diploma in Instrumentation Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry, and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Computer Science	3	Certificate of Secondary Examination Education (CSEE) with at least four (4) passes in non-religious subjects including passes in Basic Mathematics and English Language. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Information Technology	3	Certificate of Secondary Examination Education (CSEE) with at least four (4) passes in non-religious subjects include English Language. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Cyber Security and Digital Forensic	3	Certificate of Secondary Examination Education (CSEE) with at least four (4) passes in non-religious subjects including passes in Basic Mathematics and English Language. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Electrical and Wind Energy Systems Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry, and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Multimedia and Animation Technology.	3	Certificate of Secondary Examination Education (CSEE) with at least four (4) passes in non-religious subjects include English Language. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Basic Mathematics,

Architecture Engineering		Physics/Engineering Science, English Language or English as a first Language, Chemistry/Geography OR a Certificate of Secondary Education with NVA Level 3 offered by NACTVET or its equivalent as may be evaluated and approved by the College.
Ordinary Diploma in Geology and Gemstone Processing Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum passes of D grades in either of these five (5) subjects: Physics/Engineering Science, Mathematics, English, Chemistry and Geography. OR Holder of Pre-technology certificate who have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Nuclear Science and Technology	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry, and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Electrical and Biomedical Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry, Biology and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Electronics and Telecommunications Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Mechanical Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR

Civil and Highway Engineering		Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Laboratory Science and Technology	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry, Biology and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Mechanical and Bio-energy Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Electrical Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Civil and Irrigation Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Civil Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Pipe Works, oil And Gas Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.

## ACADEMIC PROGRAMMES OFFERED

Ordinary Diploma in Electrical and Hydro Power Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Auto-electrical And Electronics Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Heavy Duty Equipment Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Electrical and Solar Pv Systems Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.
Ordinary Diploma in Automotive Engineering	3	Certificate of Secondary Education Examination (CSEE) with a minimum of four (4) passes of D grades in Physics or Engineering Science, Mathematics, Chemistry and English. OR Holder of Pre-technology certificate must have completed Certificate of Secondary Education Examination (CSEE) and National Vocational Awards (NVA) Level III or Grade Test I.

## CHAPTER 3

# ATC ADMISSION, REGISTRATION, FEES AND CERTIFICATION REGULATIONS

## PART I ADMISSION AND REGISTRATION

### 3.1 General College Admission Regulations

Applications from qualified candidates for admission into programmes offered by ATC shall be through ATC Online Admission System available at <https://www.oas.atc.ac.tz>. An applicant should pay a non-refundable application fee of TZS 20,000/- for NVA 1-3 and TZS 15,000/- for NTA level 4 – 8 through College designated bank accounts or by any other acceptable and approved modes.

It is an offence to submit false information when applying for admission into ATC programmes. Applicants who will be found to have submitted forged documents or any other false information will not be considered for admission and appropriate legal action will be taken against them.

The applications are scrutinized and ranked according to the performance in terms of qualifications.

Former students who have been discontinued from studies cannot be admitted unless they fulfill the following conditions stipulated in ATC Examination Regulations:

*4. Students discontinued from studies on academic grounds may be readmitted to a different programme in*

*the immediate next academic year*

5. *Students discontinued from studies on academic grounds may be readmitted in the same programme after lapse of two years.*

6. *Students discontinued from studies on disciplinary and cheating grounds are barred from re-admission to any programme at the College*

The closing date for receiving application is strictly to be adhered to and will be as advertised on the College website or any other means as may be determined by the management for each academic year.

Applicants seeking transfer from other institutions to ATC would only be considered if they meet admission conditions approved by National Council for Technical Education (NACTE) or Tanzania Commission for Universities (TCU). Applicants who have been awarded certificates at accredited universities or similar institutions of higher learning which issue academic documents in languages other than English shall submit notarized English translations of all supporting documentation including, but not limited to, transcripts and diplomas.

The academic levels or equivalence of the qualifications obtained from foreign institutions must be authenticated by the TCU for bachelor degree programmes applicants and NACTE for certificate and ordinary diploma applicants.

## **Registration Regulations**

3 *All new students are required to report for the orientation programme that normally takes place during*

*the week preceding the beginning of the new academic year.*

4 *A student shall be registered after paying College tuition and other approved fees. For first year students, registration will be done after verification of original certificates and any other documents as shown in the 'Joining Instructions'.*

5 *The deadline for registration of first year students shall be three weeks, from the first day of the orientation week and for continuing students, it shall be the Friday (or last working day) of the second week after the beginning of the first semester.*

6 *All ATC students shall have to register into 'online admission system' every semester of each academic year. Any examination or activity done by a student who is not registered into online admission system shall be considered as 'null' and 'void'.*

7 *Each student shall be registered and assigned a unique registration number before attending classes after showing proof of applicable fee payment.*

8 *The Head of Academic Department shall be responsible to ensure that all continuing students under his/her department are registered. Class attendance list shall be prepared using registered students at 'online admission system' only.*

9 *A student who fails to register into ATC online admission system within two weeks after the commencement date for classes shall automatically be considered to absent himself/herself in that academic year without notice. The student shall have to re-apply for the same level and semester in the next academic*

year if he/she wishes to continue with studies.

10 Apart from in exceptional circumstances, no student shall be allowed to change programme of study later than the Friday of the second week after the beginning of the first semester. Transferring from one academic programme to another shall be allowed only where the student has the required admission criteria for the academic programme for which he/she wishes to transfer.

Upon admission, all new students must obtain, read thoroughly and conform entirely to the following College regulations:

- a) *Conditions for Government sponsorship (in case of Government sponsored students)*
- b) *Students General Welfare, Conduct and Disciplinary Regulations*
- c) *ATC Examination Regulations*
- d) *The Constitution of the Students Organization of the Arusha Technical College (SOATECO).*
- e) *Industrial Practical Training (IPT) Regulations*
- f) *Library Regulations*
- g) *Any other regulations issued by the College from time to time.*

During registration, every student must produce the following documents:

- *Joining Instructions letter sent to him/her*
- *A duly filled acceptance form to abide by the College Rules and Regulations.*
- *A duly filled medical examination form*

- All the original receipts/pay-in slips of the fees paid to the College through designated Bank accounts.
- Recently taken passport size photographs as indicated in joining instruction.
- Declaration form
- All foreign students are required to apply for residence permit from their nearest Tanzania Embassy or High Commission before they depart for Tanzania.
- Any other documents as instructed/requested by the College from time to time.

New students who have been selected but cannot register at the College for any reason for the first time, shall not defer the admission to the next academic year. Such students need to re-apply in the coming academic years (s) they want to join and abiding to the entry requirements as approved by NACTE/TCU.

There shall be no change of names by students during the course of study at the College. Names appearing on the original Certificate of Secondary Education Examination (CSEE) or any other certificate(s) approved by TCU/ NACTE shall be used as official names.

#### Postponement and Resuming of Studies Regulations

No student shall be allowed to postpone studies after effective commencement of an academic year except under special circumstances. Special circumstances shall include but not be limited to:

- a) Sickness;
- b) Serious social problems (each case to be considered on its own merit); and
- c) Severe sponsorship/financial problem.

## **BURSARIES AND FEE REGULATIONS**

### **Fee Payments**

At the beginning of each academic year, all students shall be required to produce evidence of sponsorship by the Government or any other organizations, otherwise they shall be expected to pay College tuition fees (or the portion not covered by the sponsor) by the beginning of the semester before they can be permitted to use any facilities and services.

Annual fee structure shall be communicated to all continuing students well in advance before commencement of following academic year through student management system (SMS) and for the new students it will be communicated through their joining instructions. Fee structure information will also be available at the College website (<https://www.atc.ac.tz/>).

In addition to fees as described in 2.1.1&2.1.2, all students are required to have sufficient funds to cater for special Departmental requirements. Such requirements may be in the form of safety boots, overalls, drawing instruments, etc. as well as funds for Industrial Practical Training (IPT) depending on the programme and sponsorship status. Students also need to have separate funds to cater for stationery, books, meals and accommodation at the College or private hostels.

All fees and other payments shall be paid through designated bank accounts or by any other acceptable

modes approved by the College. All payments must be strictly College receipted.

If a student is discontinued or has decided to abscond, withdraw entirely or transfer himself/herself to another Institution, tuition fees and other applicable payments shall NOT be refunded under whatsoever reason(s). It is the responsibility of students to make firm decision that he/she will study at ATC for duration specified before any payments are deposited into ATC accounts.

It is the responsibility of students/sponsor to confirm the correctness of the payments before depositing the same into ATC accounts. If for any reasons there shall be over-payments, the same into ATC accounts. If for any reasons there shall be over-payments, the office of Registrar in collaboration with Bursar shall direct/consider re-allocation of the funds for other concerned student's uses without refund considerations.

Sponsors/parents who decide to channel students living costs and other expenses through ATC designated accounts shall have to pay a 5% of the total amount as processing charges. Under this condition, it is the responsibility of the sponsors/parent to inform the College of the decision to channel payments in writing and payments modality.

## **Tuition Fee Payment Schedule**

All tuition fees may be paid in full or in two installments as follows:

- i). Semester 1-60%*
- ii). Semester 2-40%*

There shall be NO EXCEPTION; all students regardless of sponsorship status ought to pay applicable fee as per the regulations.

Students with overdue accounts and not satisfying conditions of Section 2.2.1 shall not be eligible to the followings:

- i). Registration for any programme offered by the College*
- ii). Attend class (lectures, practical training etc.) or receive any College services.*
- iii). To sit for continuous assessment (CA) or end of semester examinations (SE) or any form of examinations offered by the College.*
- iv). Participate in any ATC graduation or other recognition ceremonies.*
- v). Receive any certificate, transcript or any other official student records.*

## **Accommodation at ATC Hostels**

Accommodation at ATC Hostels is a privilege. Eligible students as prescribed in “Joining Instructions” seeking accommodation in the College’s hostels are required to pay prescribed fees as detailed in the following sections:

Accommodation rates for College Hostels shall be communicated to new student through “Joining Instructions”.

Accommodation rates for continuing students shall be communicated through Student Management System (SMS) or any other means as directed by College Academic Committee (C-AC) meeting.

### **Membership to the ATC Students' Organization**

Every ATC registered student whose programme of study is twelve months shall be a member of 'ATC Students Organization' (SOATECO). Membership subscription fees for every student shall be indicated in 'Joining Instructions" for each programme offered at ATC.

### **Relief Fund**

Every ATC registered student is required to pay a contribution towards College relief fund as prescribed in the "Joining Instructions".

### **Medical Insurance**

Every ATC student is required to have medical/ health insurance cover offered by the National Health Insurance Fund (NHIF) scheme or as directed/approved by the Registrar with the consultation of College clinical officer. Evidence of payment of health insurance cover is required before registration.

## CHAPTER 4

# GENERAL EXAMINATION REGULATIONS

### 1.0 Introduction

Progression of students from one National Technical Award (NTA) level to the next level; the general fate of students and the conduct of examination are guided by approved College Examination Regulations. Students are required to sit for examinations according to the College Examination Regulations. These regulations shall apply to the accredited programmes leading to the awards of NTA levels 4, 5, 6, 7 and 8.

### 2.0 Interpretation

In these Regulations, unless the context otherwise requires:-

“College” means Arusha Technical College (Main campus and other campuses);

“Rector” means the head of the College;

“Deputy Rector Academic Research and Consultancy” means an academic administrator, appointed by the governing board to assist the Rector in overseeing academic affairs, curriculum development and other educational programs offered by the College;

“Deputy Rector Planning Finance and Administration” means an academic administrator, appointed by the governing board to assist the Rector in overseeing

budget, resource allocation, facilities management and the implementation of institutional policies related to planning and administration;

“Director of Academics” means an academic administrator, appointed by the Rector to enhance educational offerings, promote academic excellence, and align programs with institutional goals and standards;

“Director of Academic Supporting Services” means an academic administrator, appointed by the Rector to integrate academic and support services (libraries, student services, admission, assessment) to create a well-rounded and supportive learning environment;

“Quality Assurance Officer” means an academic administrator, appointed by the Rector, responsible for ensuring and maintaining the quality and standards of education and services provided by the College;

“Examination Officer” means a person employed by the College on such terms and conditions, as the College may consider necessary for the performance of examinations related functions;

“Head of Department” means an academic administrator, appointed by the Rector, responsible for managing departmental activities, maintaining the academic standards and contributing to strategic plans and objectives of a specific department;

“Module facilitator” means an academic staff responsible for guiding and supporting the learning process within a specific educational module or course;

“Examiner” means any qualified person appointed by the College authority as examination setter, moderator, invigilator and marker for the purpose of processing and administration of examination;

“Invigilator”

“Invigilator in-charge” means a College staff appointed by DR-ARC, whose job is to maintain the proper conduct of examination at an allocated room in accordance with the ATC examination regulations; means a College staff among the invigilators in an examination room, whose job is to oversee the proper conduct of examination at an allocated room in accordance with the ATC examination regulations and report any abnormal incident to the Invigilation Supervisor;

“Supervisor” means an academic staff appointed by DR-ARC, who oversees invigilators and candidates, maintaining the proper conduct of examinations in accordance with the ATC examination regulations;

“Student” means any person admitted for any course of study offered by the College leading to NTA awards;

“Continuing student” means a student who is continuing with studies after successfully completion of

at least one semester for the respective programme of study;

“Candidate” means any person registered for College examination;

“Examination” means class test, assignments, project work, semester examination, supplementary examination and any special examination, where applicable;

“Special Examination” means an examination administered to candidates who failed to do a specified number of modules during regular examinations by reason of illness or other special circumstances;

“Supplementary Examination” means an examination administered to candidates who failed to obtain a pass in the specified number of modules during regular examinations;

“Make-up test” means any test given to a student who failed to attain minimum pass mark in continuous assessment for a particular module;

“RE-DO” means to repeat class attendance, continuous assessment and semester examination for a particular module(s);

“Carry-over” means module(s) allowed to be retaken after failing in supplementary examinations of NTA level 7-1;

“Cumulative Grade Point Average (GPA)” means the summation of grade points of all modules multiplied by module credit divided by the total number of credit hours taken by a student from the beginning of his/her admission till the end of academic year;

“Module” means any independent package of learning related to an academic programme studied by a student for a fixed number of hours during a semester that can be credited towards the final award at any given level;

“Plagiarism” means action of candidate to appropriate the writings or results of other persons, whatever the medium (text, written or electronic, computer programs, data sets, visual images whether still or moving) and then dishonestly presents them as his/her own;

“Programme” means the totality of related modules offered towards the award of certificates;

“Semester” means an academic period of 17 weeks, in which 15 weeks are for training and continuous assessment, while, 2 weeks are for semester examinations;

“Industrial Practical Training” means a module carried at the related working places by NTA level 4, 5 and 7 after semester two/four of each academic year for the period of 10 weeks (NTA 4 and 5) and 8 weeks (NTA 7);

“Marker” means an academic staff appointed by the Director of Academics (DAC) to mark semester examinations;

“Chief Marker” means academic staff appointed by the DAC to oversee the marking activities of the semester examinations in a particular panel;

“Panel Leader” means academic staff appointed by the DAC to oversee the marking activities of the semester examinations in all marking panels;

“Verifier” means academic staff appointed by the chief marker to verify that the uploaded marks in the system are correct and corresponds to the awarded marks on the answer script;

“Examination Setter” means academic staff appointed by the DAC to set examinations for a particular module(s);

“Internal Moderator” means academic staff appointed by the DAC to moderate examinations for a particular semester;

“External Examiner”

means any qualified expert(s) appointed by the Rector to assist in pre and post moderation of examination(s) and provide advice on curriculum matters;

“College Project Coordinator”means an academic staff appointed by DR-ARC to link between the College and the departments regarding the students’ projects;

“Departmental Project coordinator” means an academic staff appointed by the Head of Department to link between the students, supervisors and their departments regarding the students’ projects;

“Examination Officer” means an officer who manage examination procedures at the College from submitting entries to communicating results, including the invigilation process, the examination room environment and student access requirements;

“Examination coordinator” means an academic staff appointed by the head of department, who links between the examiners, department and the directorate of academic supporting services;

“Examination Reliability”

“Examination Validity”

“Examination Usability”means that, an examination item (question) shall give similar correct and consistent results even though: different people administer it; different people score it; different forms of assessment are given or the same person does at two or more times.means the extent to which an examination item measures what it is supposed to measure or the appropriateness of the interpretation made from test

scores and other evaluation results, with regard to particular use.

means practical considerations to be considered, which include the following: purpose; ease of administration; time required for administration; ease interpretation; ease of scoring; time scoring and cost.

### **3.0 Statutory Examination Power, Citation, Primacy and Cognizance of Examination Regulations**

#### **3.1 Statutory Examination Power**

The College has formulated these examination regulations in accordance with the authority granted to it by the 'National Council for Technical Education (Grant of Autonomous Status to Arusha Technical College) Order, 2015' and the 'Autonomous Technical Institutions Regulations, 2015' under 'Provisions relating to the Board.' Under these, the College has been empowered to: i) formulate the policies of the institution. ii) Perform all necessary acts for the proper discharge of its functions under these regulations.

#### **3.2 Citation and Application**

These regulations shall be cited as Arusha Technical College Examination Regulations, 2024 and shall come into operation from July, 2024 upon approval by the Governing Board of Arusha Technical College. These regulations shall apply to the accredited programmes leading to the awards of NTA levels 4, 5, 6, 7 and

8. Moreover, the regulations also applies to internal examinations of the VET Programs.

### **3.3 Primacy of College Examination Regulations**

The College Examination Regulations take precedence over any other regulations including those of external or professional boards unless variation is specifically permitted by the ATC Governing Board.

### **3.4 Cognizance of Examination Regulations**

By registering with ATC, every student and examiner are deemed to be cognizant of and to have agreed to abide by the examination rules set out in these regulations.

These regulations are designed to ensure the integrity and fairness of the examination process. Strict adherence to these rules is mandatory to avoid disciplinary actions.

## **4.0 Administration of Continuous Assessment and Semester Examination**

### **4.1 Continuous Assessment Administration**

*a) In each semester, a student has to undertake Continuous Assessment (CA) (Test 1 and 2, assignments, quizzes etc.) examinations as stated in the module curriculum.*

*b) Test 1 and Test 2 shall be conducted in 5th and 10th week of the semester respectively.*

*c) In consultation with the module facilitator, a candidate who fails in the CA of any module, shall be*

allowed to do one make-up test to improve his/her performance.

- d)** Make-up test shall be done before the commencement of the SE and the highest score in the make-up tests shall not exceed the minimum pass.
- e)** Module facilitator shall set, print, pack, supervise/ invigilate, mark CA examination and enter marks in Student Management System (SMS) as per College Almanac.
- f)** Module facilitator shall ensure that all candidates registered and attended his/her module has signed the final score sheet and submit to the Head of Department (HoD) office at the end of 13th week.
- g)** Only Departmental Academic Committee (D-AC) shall have an authority to declare that any student is ineligible/eligible for the SE examinations, basing on the attendance and the CA results.
- h)** The CA examinations shall be administered by individual academic departments. The HoD shall do the following:
  - (i)** Conduct Departmental Academic Committee meeting latest on 14th week of each semester to deliberate and approve CA examination results.
  - (ii)** Handle all matters related to CA including appeals, irregularity cases and any other(s) as may be directed by the Departmental Academic Committee (D-AC) latest 14th week.
  - (iii)** Publish CA results latest on 13th week of each semester.
  - (iv)** Issue notification(s) to all candidates who are

*not eligible for the Semester Examination (SE) latest 14th week. No candidate with incomplete CA shall be allowed to do semester examination for a particular module.*

**(v)** *Submit to the Director of Academic Supporting Services (DAcSS) through the Director of Academics (DAc) the names of candidates who are eligible for the Semester Examination (SE) in 14th week, based on (CA) and notify the students who are not eligible for the SE.*

**i)** The roles of the Directorate of Academic Supporting Services through examination office in administration of CA shall be limited to the followings:

**(i)** Preparations of general examination time-table, sitting plans and venues in consultation with HoD's from all Academic Departments and estate office at the College.

**(ii)** Propose to the DAc the eligible names of supervisors and invigilators.

**(iii)** Coordinate distribution and collections of examination papers and answer scripts into and from examination rooms.

**(iv)** Handing-over irregularity cases and corresponding evidences to the HoD for deliberation/approval/directive and recommendation.

**j)** Roles of the DAc in the CA matters shall be to ensure that all the HoDs perform timely all the related activities, including handling of examination irregularity

cases.

**k)** Roles of the Quality Assurance officer (QA) in the CA and SE matters shall be to ensure the quality of tests and other assessments contributing to the CA

## **4.2 Semester Examination Administration**

**a)** In each semester, a student has to undertake semester examination as stated in the module curriculum.

**b)** Semester examination shall be conducted in the 16th and 17th weeks of each semester and for modules with practical component the practical examinations shall be conducted at the 15th week.

**c)** The DAc shall appoint among the module facilitators for setting, moderating (internal), supervising/invigilating, marking/remarketing, uploading and verifying SE scores into the SMS.

**d)** All examinations shall be set and moderated as per examination format, procedures and guidelines set by the College.

**e)** Module facilitator shall be required to print and pack his/her examination papers as per sitting plan before due date of conducting the examination.

**f)** Semester examination shall be administered by the Directorate of Academic Supporting Services. The Directorate of Academic Supporting Services shall do the followings:

- (i)** Prepare master-time table for the semester examination in consultation with DAc and issue the same latest 13th week.
- (ii)** Propose to the DAc the eligible names of SE setters, moderators, supervisors and invigilators.
- (iii)** Supervise distribution and collections of examination papers and answer scripts into and from examination rooms.
- (iv)** Propose to the DAc the eligible names of markers, chief marker and panel leader for the SE.
- (v)** Coordinate all matters related to SE, including appeals, irregularity cases and any other(s) as may be directed by the College Academic Research and Consultancy Committee (C-ARCC).

**g)The role of HoD in the SE shall be among others limited to the followings:**

- (i) Coordinate in consultation of the Directorate of Academic Supporting Services, setting of examinations, internal moderation, printing, packaging and marking of all examinations.
- (ii)** Submit to the Directorate of Academic Supporting Services in writing, the list of all candidates eligible (based on CA and class attendance) for SE latest in 14th week.
- (iii)** Submit to the directorate of academic supporting services in writing, the list of all candidates eligible (based on CA and class attendance) for special

examinations and RE-DO/Carry-over cases latest 14th week.

**(iv)** Submit a thorough report on semester examination results as approved by the Departmental Academic Committee to the C-EC within three weeks after the SE.

#### **4.2.1 Condition for Semester Examination**

*A candidate shall be allowed to sit for the SE iff;*  
*(a)he/she has completed registration by 100%;*  
*(b)a candidate passed the CA for the respective registered module(s);*  
*(c)a candidate attained a minimum of 80% class attendance, EXCEPT for Carry-over module(s).*

#### **4.3 Supplementary Examination Administration**

- (a) In each semester, a student has to undertake supplementary examination for the failed module(s).
- (b) The supplementary examination shall be conducted two weeks after the end of IPT for the duration of one to two weeks or as per ATC Almanac.
- (c) The DAc shall appoint among the module facilitators for supervising/invigilating, marking/remarking, uploading and verifying supplementary examination scores into the SMS.
- (d) Module facilitator shall be required to print and pack his/her examination papers as per sitting plan before due date of conducting the examination.
- (e) Supplementary examination shall be administered by the Directorate of Academic Supporting Services.

**(f)The Directorate of Academic Supporting Services shall do the followings:**

- (i) Prepare master-time table for the supplementary examination in consultation with DAc.*
- (ii)Propose to the DAc the eligible names of supplementary examination supervisors and invigilators.*
- (iii)Supervise distribution and collections of examination papers and answer scripts into and from examination rooms.*
- (iv)Propose to the DAc the eligible names of markers, chief marker and panel leader for the supplementary examination.*
- (v)Coordinate all matters related to supplementary examination, including appeals, irregularity cases and any other(s) as- may be directed by the College Academic Research and Consultancy Committee (C-ARCC).*

**(g)The role of HoD in the supplementary examination shall be among others limited to the followings:**

- (i)Coordinate in consultation of the Directorate of Academic Supporting Services printing, packaging and marking of supplementary examinations.*
- (ii)Submit to the directorate of academic supporting services in writing, the list of all candidates eligible, based on SE results, one week before the start of the supplementary examination.*
- (iii)Submit a thorough report on supplementary examination results as approved by the Departmental*

*Academic Committee to the College Examiners' Committee (C-EC) within two weeks after the supplementary examination.*

## **5.0 Examination Preparation**

The examination preparation shall include eight areas to be addressed during examination preparation

### **5.1. Examination Setting**

#### **5.1.1 Examination Setting Procedures**

*(a) The Director of Academics (DAc) in collaboration with the Director of Academic Supporting Services (DAcSS) shall nominate examination setters, semester wise from among its academic staff.*

*(b) For the special examination, the DAc in collaboration with the DAcSS and the HoD shall appoint among the academicians the appropriate examination setter.*

*(c) Setters shall be practicing professionals with good standing.*

*(d) The setters shall be notified in writing in sixth (6) week of the respective semester.*

*(e) The duration for examination setting shall be within three (3) weeks.*

*(f) The setter shall set two papers for the SE concurrently.*

#### **5.1.2 Examination Format**

*(a) The cover page for any examination shall be as attached in Appendix A.*

*(b) All examination setters shall use the similar cover page.*

*(c) Using different cover page format shall not be*

allowed, unless the format has been changed.

**(d)** All the examination papers shall follow the approved standard format and guideline

### **5.1.3 Roles of Examination Setters**

The examination setter shall;

**(a)** develop examination paper(s) as per assessment plan, in-line with the examination format.

**(b)** send the set paper(s) to the directorate of academic supporting services, with the authorised assessment plan(s).

**(c)** develop examination marking guide/scheme for each examination paper set.

**(d)** ensure inclusion of CBET in the assessment items development in the respective examination paper(s).

**(e)** work on the suggested corrections from the moderators (both internal and external).

**(f)** print and pack the examination papers as per sitting plan.

## **5.2 Examination Moderation**

### **5.2.1 Internal Examination Moderation**

The internal moderation of the examination shall follow the following procedures;

**(a)** The DAc in collaboration with the DAcSS and the HoDs shall appoint a panel of moderators.

**(b)** The moderators shall come from among Professionals from academic staff.

**(c)** All the examinations (tests and SE) shall be moderated internally.

**(d)** Internal moderation for the tests (1 and 2) shall be conducted in fourth (4) and ninth (9) weeks respectively, for the corresponding semester.

**(e)** Internal moderation for the SE shall be conducted in tenth (10) week of the respective semester.

**(f)** The duration for the internal moderation for the SE shall be one (1) week.

**(g)** The moderator shall work in collaboration with the setter to make necessary correction in the examination paper(s).

**(h) The special examination(s) must be internally moderated.**

**(i)** The examination moderators should check for the format, quality, validity, reliability and usability of the examination papers as highlighted in this guideline.

## **5.2.2 External Examination Moderation**

The external moderation of the examination shall follow the following procedures;

**(a)** The directorate of academic supporting services in collaboration with the HoDs shall appoint an external examiner.

**(b)** The external examiner shall be a Professionals in a relevant field from other institution or industry.

**(c)** External moderation shall be conducted from eleventh (11) week of the respective semester.

**(d)** The duration for the external moderation shall be two (2) week.

**(e)** The external moderator shall either be invited or supplied with the examination papers.

**(f)** The examination moderators should check for the format, validity, reliability and usability of the examination papers as highlighted in this guideline.

### 5.2.3 Roles of Examination Moderators

The examination moderators shall;

**(a)** ensure relevancy, validity, reliability, and applicability of the examination items in accordance to the standards, competencies and scope as per CBET.

**(b)** ensure the availability of all required documents (assessment plan, marking scheme, etc) and commensurate with the examination format.

**(c)** determine level of difficulty of the examination in relation to purpose, time and objectives of the examination as well as qualification level of candidates.

**(d)** ensure fairness and manageability of examinations given the candidates.

**(e)** fill the moderation form in duplicate and submit them to the HoD (internal moderator), College examination officer (external moderator).

**(f)** discuss with the examination setter on the suggested corrections.

### 5.3 Examination Paper(s) Typing and Printing

Typing and printing of the examination papers shall be as follows;

**(a)** All examination papers shall be printed in A4 sized paper with times new romans, 12pts font;

**(b)** The line spacing the examination papers shall be 1.5;

**(c)** The questions in the examination paper should be well arranged;

**(d)** The examination setter shall set, print and pack

his/her examination papers.

## **6.0. Examination Administering**

### **6.1. Examination Invigilation**

The invigilation of the examination papers shall be as follows;

- (a) There shall be a team of academicians appointed to invigilate examinations;*
- (b) The directorate of academics in collaboration with the DAcSS and the HoDs shall appoint invigilators for each examination session according to the examination calendar;*
- (c) The total appointed invigilators shall reflect the number of candidates, examination room capacity and available resources;*
- (d) The directorate of academic supporting services shall appoint an invigilator in-charge from among the appointed invigilators in each examination room;*
- (e) Invigilators shall be practicing professionals with good standing;*
- (f) Appointed invigilator shall receive an appointment letter and terms of references for examination invigilation;*
- (g) There shall be an awareness seminar before commencement of the SE.*

### **6.2. Roles of Invigilators**

The main role of the examination invigilators shall be to ensure that ATC examinations are conducted according to the Regulations (ATC Examinations and Staff regulations). The invigilators are expected to ensure a smooth running of ATC examinations in the examination rooms as per ATC Examinations room rules.

The roles of the invigilators shall be as follows;

### **6.2.1 Before the Examination**

- (a)** *Invigilators shall observe carefully the examination timetable.*
- (b)** *Invigilators shall personally collect from the Examination Office sealed examination envelopes containing question papers and any other materials at least thirty five (35) minutes before the examination*
- (c)** *Invigilators shall be present in the examination room at least thirty (30) minutes before the commencement of the examination.*
- (d)** *The invigilator shall use fifteen (15) minutes for check-in procedures of the candidates before they enter in the examination room.*
- (e)** *During the following fifteen (15) minutes the invigilator shall;*
  - (i)** *fill ATCEF-14 form.*
  - (ii)** *ensure the relevance of the examination paper with the timetable before opening the envelope.*
  - (iii)** *make an announcement that each candidate should be in possession of his/her student identity card and be displayed on the desk/table.*
  - (iv)** *make an announcement that unauthorized materials are not allowed in the examination room.*
  - (v)** *make an announcement that candidates shall satisfy themselves that they are in possession of the correct paper.*
  - (vi)** *make an announcement that candidates the candidates who need to go for a short call to do so before the examination starts.*

- (vii)allow the candidates to read the examination rubric at the top page of the examination paper.*
- (viii)allow the candidates to read the examination questions for five minutes before commencement of the examination.*
- (ix)allow the candidates to begin writing examination after five (5) minutes of reading the examination paper has elapsed.*

## **6.2.2 During the Examination**

- (a) Invigilators shall not admit candidates to the examination room after thirty (30) minutes have elapsed from the commencement of the examination and shall not permit candidates to leave the examination room until thirty (30) minutes have expired.*
- (b) The invigilator shall make sure that, candidates have signed the attendance list (ATCEF-17) within thirty (30) minutes after the commencement of the examinations.*
- (c) Invigilators shall ensure that only one answer-book is provided for each candidate at the beginning of the examination.*
- (d) Invigilator(s) shall report immediately to examination supervisor any candidate who contravenes the examination regulations and instructions.*
- (e) In case of alleged examination irregularity, the invigilator in-charge shall require the candidate to sign the examination irregularity report form (ATCEF-19) and to surrender any evidence materials.*
- (f) The invigilator in-charge shall sign and submit*

to the examination invigilation supervisor the duly filled examination irregularity report form (ATCEF-19) together with all evidences.

**(g)** Invigilator shall require the nearby candidates to sign ATCEF-19 form and give comment(s) on the irregularity incident.

**(h)** Invigilator shall allow candidates who committed irregularity case during examination to continue with the examination while his/her case is being pursued.

**(i)** The invigilator shall not in any case leave the examination room during session unless he/she has asked permission from the invigilation supervisor.

**(j)** The invigilator shall not involve him/herself in any other activity like reading newspaper/magazine, charting with phone etc. while invigilating.

### **6.2.3 At the end of Examination**

**(a)** Invigilators shall tell the candidates to stop writing and assemble their examination scripts.

**(b)** Invigilators shall not permit the candidates to leave their places before their scripts have been collected.

**(c)** Invigilator shall cross check whether all candidates have signed the examination attendance sheet (ATCEF-17).

**(d)** Invigilators shall record the number of candidates' scripts collected and/or received on invigilator's report form (ATCEF-18) and submit to examination supervisor in a prescribed room.

**(e)** Invigilator shall handle all answer scripts and other relating materials to the examination supervisors in a prescribed room and sign the examination submission form.

### **6.3. Roles of Invigilator in-charge**

The Invigilator in-charge shall;

- (a) be the leader of the invigilation team in the respective examination room.*
- (b) ensure examination candidate attempts his/her permitted examination.*
- (c) check correctness of candidate's name and registration number entered into the attendance list.*
- (d) monitor examination to be conducted in accordance to given instructions and time table.*
- (e) ensure examinations is conducted as per set regulations.*
- (f) ensure proper filling of all examination related documents.*
- (g) ensure all invigilating procedures adhered to by all invigilators in the respective examination room.*
- (h) sort out any pending matter(s) before examinations commence.*
- (i) ensure successful submission of all answer scripts of the respective examination room to the examination supervisors in the examination office.*
- (j) fill the examination irregularity form and report the scenario to the overall invigilation supervisor.*

### **6.4. Examination Supervision**

- (a) The DAc in collaboration with the DAcSS shall appoint an overall supervisor and other assistant examination supervisors among the academic staff to ensure a smooth running of the examinations invigilation.*
- (b) The institution shall have a safe custody or strong room for storage of examinations.*

#### **6.4.1 Roles of the Overall Supervisor**

The main function of the overall supervisor is to oversee that the examination is conducted in accordance with the rules and procedures stipulated in the ATC Examination Regulations. In pursuance of this, the overall supervisor shall;

- (a) report general management of the examinations, invigilation, conditions of examination rooms, seating of candidates and return of scripts to the ATC examination officer.*
- (b) oversee the proper running of the examinations.*
- (c) make sure that there are at least two invigilators for small rooms (up to 110 candidates) and at least invigilators four for larger rooms (more than 110 candidates).*
- (d) report in writing to the Directorate of Academic Supporting Services when invigilator(s) violated regulation stipulated in 6.2.2 (i and j).*
- (e) report to the Directorate of Academic Supporting Services exceptional circumstances considered likely to prejudice a candidate's performance.*
- (f) report on ATCEF-19 to the ATC examination officer all cases of irregularity or misconduct in the examination.*
- (g) handle to College examination officer all examination irregularity's evidences on the same date of the examination(s) and the examination officer shall acknowledge (in writing) upon receiving them.*
- (h) present and submit a fully written report on the examination incidents to the ATC examination officer.*
- (i) have the power to confiscate any unauthorized*

*materials brought in the examination room.*

#### **6.4.2 Roles of Other Supervisors**

- (a) collect and submit to the Directorate of Academic Supporting Services signed declaration forms (ATCEF 14, ATCEF 17, and ATCEF 18) that the regulations have been duly observed through the examinations.*
- (b) collect all answer scripts from invigilators (cross check if they correspond with the attendances); seal them (per directives) and handle to ATC examination officer on the same date of examination.*

#### **6.5. Examination Security**

The DAcSS shall liaise with security organs to offer security personnel for the examination process. The security officer shall;

- (a) monitor to ensure security of the examinations during storage, transport and conduct.*
- (b) advise on all security matters related to the whole examination process.*

#### **6.6 Supplementary Examinations**

- (a) The supplementary examination shall be set concurrently with the first sitting examination*
- (b) The supplementary examination paper shall have the same weight as that of the first sitting*
- (c) The same paper shall not be used for both first sitting and supplementary examinations*
- (d) The supplementary examination for semester one shall be conducted in sixth week after the end of SE for the duration of one week or as per ATC Almanac.*

**(e)** *The supplementary examination for semester two shall be conducted in one week after the end of IPT for the duration of one to two weeks or as per ATC Almanac.*

**(f)** *The HoD shall submit the names of the candidates eligible for the supplementary examination to the Directorate of Academic Supporting Services through DAc, for the examination invigilation plan at least three weeks before the commencement of the said examination.*

**(g)** *The HoD shall submit the names of academic staff available for the invigilation of the supplementary examination to the Director of Academics (DAc) at least three weeks before the commencement of the said examination.*

## **6.7 Roles of Examination Officer during Examinations Preparation**

**(a)** *To coordinate all activities done by invigilators and supervisors*

**(b)** *To liaise with the awarding boards for all queries and maintain a good relationship with them*

**(c)** *To keep up to date with the latest requirements and procedures of awarding board*

**(d)** *To prepare list of candidates for the appropriate examination as per the as per examination regulation*

**(e)** *To ensure compliance with the examination regulations*

**(f)** *To maintain the display of exam timetables on the examination noticeboards throughout the College sites ensuring the detail is accurate, giving dates, times and room numbers of all examinations two*

*weeks in advance of the examination sitting*

**(g)** *To ensure all candidates are informed of their examination timetables*

**(h)** *To prepare seating plans for all candidates*

**(i)** *Ensure correct notices are displayed inside and outside the examination rooms*

**(j)** *To receive and maintain secure storage of examination papers and any other relevant documents*

**(k)** *To arrange invigilation as required*

**(l)** *Ensure candidates are informed of correct exam procedures/rules at the start of each examination*

**(m)** *To make sure that the timetable for Tests/SE/ Supplementary examinations is released at least four weeks before the commencement of the said test/exams.*

## **6.8 Post Examination Roles of Examination Officer**

**(a)** *To collate and securely despatch examination papers and any other relevant documents to the respective departments for marking immediately upon receipt from the invigilators.*

**(b)** *Respond to queries from staff and/or learners regarding results, script remarks, certificates, etc.*

**(c)** *Advise learners and staff of examination outcomes*

**(d)** *To ensure that all examination achievements are accurately recorded on the College systems*

**(e)** *To be responsible for checking examination invoices against registrations, claims, etc. and maintaining data recording*

## 6.9 Examination Marking

Marking of the examination papers shall be as follows;

- (a) The DAc in collaboration with the HoDs shall appoint examination markers after completion of the SE periods.*
- (b) The number of markers shall correspond to the number of examinees, type of examination (MCQ vs essays) and available resources.*
- (c) Markers shall be practicing professionals with good standing.*
- (d) Worked scripts shall be centralized, marked according to the available examination system and application.*
- (e) The DAc shall appoint a chief marker from the panel of markers.*
- (f) The chief marker shall appoint script verifiers (checkers) from among the markers.*

## 6.10 Roles and Responsibilities in Examination Marking

### 6.10.1 Chief Markers

A chief marker shall;

- (a) conduct panel discussion for standardization of the answer guide/scheme.*
- (b) prepare the initials to be used by the markers, avoiding collision of such initials.*
- (c) arrange and conduct sample examination marking to ensure that markers mark in accordance with the agreed answer guide.*
- (d) observe and comment on the work of candidates and report any malpractice/irregularity observed.*
- (e) ensure that candidates answer sheets and mark*

sheets are well arranged, and packed.

**(f)** write a detailed examination report not only on the marking exercise but also performance of candidates.

**(g)** prepare final examination results ready for submission to the College Examiners Committee (C-EC).

## **6.10.2 Examination Markers Roles and Regulations**

### **6.10.2.1 Roles**

The examination marker shall;

**(a)** ensure that all scripts are marked according to the standardized marking scheme for the respective examination.

**(b)** use a pen which writes in Red ink for marking.

**(c)** mark and grade the candidates' script in a uniform and consistent way.

### **6.10.2.2 Regulations**

To ensure smooth running of the marking process, the markers shall abide with the following general regulations:

**(a)** Open the examination parcels carefully to avoid tearing and loss of paper or damages.

**(b)** Count the answer scripts to correlate with control sheets.

**(c)** Quick review of the answer scripts for correction to avoid errors such as incorrect filling of the candidates' examination numbers.

**(d)** Arrange the answer scripts in a chronological order or as per SMS arrangement against the candidate examination number.

**(e)** Report any irregularity on the part of supervisors

e.g. discrepancies between number of scripts indicated on the returning envelope and the actual number of scripts enclosed.

(f) All matters connected with the marking of scripts and their content, identity and personal particulars of candidates shall not be disclosed to unauthorized person (i.e. a person outside the marking panel).

(g) Cases of dishonest must be reported immediately to the Chairperson/Chief marker of the panel, who in turn must report the same to the C-EC.

(h) Markers should not communicate with candidate(s) in any matter related to examination.

(i) Marking should conform to an agreed answer guide/marking scheme.

(j) Each marker should be held personally responsible for the accuracy of his marking and for the addition of the marks and their transcription into the mark SMS or other relevant examination place.

(k) Markers should sign by initials a declaration regarding the checking of additions and transcriptions of marks on worked scripts and mark sheets/results from SMS.

## 6.11 Roles of Examination Scripts Verifier

The examination script verifier shall;

(a) check for correctness of all marked scripts and transfer of marks from inside the scripts to the top page of the scripts.

(b) check for correctness of marks entered in the SMS or other relevant examination place.

(c) verify that the Mark and score is correct

(d) use a pen, which writes in black ink.

(e) confirm that all scripts are marked and graded by the examiners

(f) recheck to ensure correct examinees examination numbers are recorded in the SMS or other relevant examination place.

## **7.0. General Examinations Regulations**

### **7.1 Description of Academic year**

There shall be an academic year with two semesters, which will consist of 17 weeks each and an Industrial Practical Training (IPT) period of 10 weeks for NTA level 4 to 5 and 8 weeks for NTA level 7. For NTA 6 and 8 there shall be only two semesters of 17 weeks each.

### **7.2 Registration for Courses**

**a)** All students shall register for programme/modules at the beginning of each semester of an academic year, through online registration system.

**b)** The deadline for programme/modules registration for new students shall be within three weeks from the first day of orientation week and for the continuing student shall be the Friday (or last working day) of the second week after the beginning of the semester, as described by the ATC Almanac.

**c)** Programme/modules registration for students who failed to register within the first three weeks of the semester shall only be allowed to register under exceptional circumstances after being approved by the Director of Academic Supporting Services in consultation with the DAc.

**d)** A student who has registered for elective module(s) but who wishes to withdraw from that module(s) must apply to the HoD for permission to do so not later

than first two weeks after the start of semester.

### **7.3 Eligibility for Examination**

**(a)** *No candidate shall be eligible for SE unless he/she*

*(i) has paid to the College all the required/prescribed fees two weeks before the commencement of the SE.*  
*(ii) has done registration into a programme of study or module.*

*(iii) has successfully completed prescribed CAs.*

*(iv) has not been barred by any lawful order.*

*(v) has undertaken and completed the module(s) by attendance of at least 80%.*

**(b)** *Students sitting for supplementary examinations, re-do or special examinations shall register for module(s) offered in respective semester within NTA level, and in accordance with applicable prescribed conditions.*

**(c)** *A student who will not meet the eligibility criteria in clause 7.3(a) and (b) above; may be allowed to re-do the module(s) or do special examination on acceptable grounds as determined by the Director of Academic Supporting Services in consultation with the DAc.*

### **7.4 Assessment of a Candidate**

Unless it is specifically stated in the module description, the assessment of a candidate shall be as follows:

**(a)** *The CA, which may include: assignments, practical/laboratory work and tests shall carry a weight as stipulated in the respective curriculum document.*

**(b)** *The semester examinations shall carry a weight as stipulated in the respective curriculum document.*

## 7.5 Dates and Duration of Examinations

**(a)** *Dates and duration of conducting CA and SE shall be as stated in section 4.1b and 4.2b respectively or as indicated in the College Almanac.*

**(b)** *The DR-ARC with the consultation of the DAc has the mandate to direct alternative dates and duration of conducting CA and SE as it may deem necessary.*

**(c)** *The theory test examinations shall be conducted for the duration of 1 hour for NTA levels 4 to 6 and 1½ hours for NTA levels 7 to 8, while, practical test examinations shall be conducted based on the respective module descriptor.*

**(d)** *Duration for semester theory examinations shall be two hours for NTA Levels 4 and 5, two and half hours for NTA Level 6 and three hours for NTA Level 7 – 8, as per National Council for Technical and Vocational Education and Training (NACTVET) guidelines.*

**(e)** *Timetable for SE shall be released latest two weeks before starting date of examination. The Director of Academic Supporting Services (DAcSS) in consultation with the DAc may consider proposed adjustments from stakeholders if deemed relevant before releasing the final timetable.*

## 7.6 Conditions for Passing a Module

The final assessment mark for each student in a module shall be determined on the scale of 0 to 100%. Grades will comply with the College Grading System (Table 8.1). Unless it is specifically stated in the module description, the assessment shall be as follows:

**(a)** *For NTA Level 4 and 5, the pass mark for each*

module shall be 50% for both CA and SE. That means, a candidate should acquire at least 30 marks out of 60 marks in the CA and 20 marks out of 40 marks in the semester examination.

(b) For NTA level 6, the pass mark for each module shall be 45% for both CA and SE. That means, a candidate should acquire at least 27 marks out of 60 marks in the CA and 18 marks out of 40 marks in the SE.

(c) For NTA levels 7 and 8, the pass mark for each module shall be 40% for both CA and SE. That means a candidate should acquire at least 24 marks out of 60 marks in the CA and 16 marks out of 40 marks in the SE.

(d) A candidate who fails in the CA shall be deemed to have failed the module and will be barred from sitting for the SE.

(e) A candidate who is barred shall be given an F grade for the respective module and shall be required to RE-DO the module when next offered.

(f) A candidate who failed the SE shall be deemed to have failed the module(s) and shall sit for supplementary examination when next offered.

(g) A candidate who failed supplementary examination shall be required to RE-DO the failed module(s) when next offered.

(h) A candidate who is required to RE-DO the module(s) shall have to attend classes and repeat both CA and SE of the failed module(s) when next offered.

(i) A candidate who is required to RE-DO or carry

*the module(s) shall register the failed module(s) in the SMS not later than two weeks from starting of academic semester.*

*(j) The RE-DO candidate shall not pair the failed module(s) with other concurrent modules in the semester, EXCEPT for NTA level 7-2.*

*(k) An NTA level 7-2 candidate who carried the failed NTA level 7-1 module(s) shall be allowed to pair them with other concurrent modules in the respective semester.*

#### **(I) The applicable conditions for RE-DO cases are as follows: -**

*i) The Government sponsored candidate shall pay the same module(s) prescribed fee plus all other College contributions, as the private candidate during the RE-DO examination.*

*ii) The module(s) prescribed fee is calculated as follows;*

*iii) Government sponsored RE-DO candidate(s) shall lose his/her Government sponsorship once failed the first RE-DO examination.*

*iv) The RE-DO candidates can be allowed to repeat the failed RE-DO module(s) provided the particular curriculum is valid.*

*v) Any candidate who does not comply with the conditions stipulated in this section shall not be considered as a student in the respective semester/ academic year.*

#### **7.7 Absence from Examination**

*(a) A candidate who absents oneself (unauthorized*

*absence) from any examination without compelling reasons shall RE-DO the module.*

**(b)***A candidate who goes out of the examination room, without authority or permission of the invigilator shall not be allowed to re-enter into the examination room.*

**(c)***A candidate allowed to be absent (authorized absence) from the SE shall be awarded an incomplete grade abbreviated 'I' and shall have to sit for special examination(s) when next offered.*

**(d)***A candidate who fails to submit assignment(s) given without compelling reasons shall be considered to have attempted such assignment(s) and shall be awarded a zero mark.*

**(e)***A candidate who fails to sit for a test(s) or submit an assignment(s) because of compelling reasons shall be required to complete the same before attempting the SE of the respective module.*

**(f)***A candidate who failed to sit for a test(s) or submit an assignment(s) with a compelling reason(s) shall be responsible for initiating a request for the missed test and/or assignment not more than a week after conduction of the respective assessment.*

**(g)***A candidate who being ill or otherwise incapacitated and decides to sit for CA or SE shall be responsible for the results.*

**(h)***Where a candidate is unable to sit for the examination(s) due to any valid reason, he/she shall write a letter to the Rector and provide evidence(s) before the examination commences.*

**(i)***If a candidate falls sick immediately before or*

***during the time of the scheduled examination and is medically unable to proceed with the examination, he/she shall do the following;***

***(i) Inform the invigilator***

***(ii) Fill the special difficult form (if he/she is capacitated)***

***(iii) If the candidate is incapacitated, the invigilator shall fill the special difficulty form on behalf of the candidate.***

***(iv) The candidate shall be advised/assisted to attend medical treatment***

***(v) The medical practitioner shall recommend on the condition of the candidate for further actions.***

***(vi) The fate of the candidate shall be decided by the C-EC based on the recommendations from the medical practitioner and the invigilation supervisors' report.***

## **7.8 Approval of Examination Results**

The approval of examination results shall be as follows:

***(a) The CA results shall be approved by the Departmental Academic Committee.***

***(b) The approval of provisional SE examination results shall be in the following stages;***

***(i) College Academic, Research and Consultancy Committee (C-ARCC) meeting, chaired by DR-ARC and the DAc shall be the secretary.***

***(ii) College Examiner Committee (C-EC) meeting.***

***(c) The final examination results shall be approved by the College Governing Board.***

## **7.8.1 College Examination Committee Formation**

- (a) The C-EC shall be chaired by the DAc*
- (b) The Examination officer shall be the secretary*
- (c) The HoDs are the members of the committee*
- (d) The DAcSS is the members of the committee*
- (e) Examination supervisor and the chairperson for examination irregularity committee shall be permanent invitee.*

## **7.8.2 Departmental Academic Committee Formation**

- (a) The HoD shall be the chairperson*
- (b) The departmental examination officer shall be the secretary*
- (c) Other staff of the respective department shall be the members of the committee*
- (d) The College examination officer shall be the permanent invitee*

## **7.9 Publication of Examination Results**

- (a) The results of candidates in every examination shall be published provisionally by the DAcSS soon after the C-ARCC approval.*
- (b) The C-ARCC's Chairperson may grant DAcSS the authority to provisionally publish the results or take any action with regards to results publications when necessary.*
- (c) The final results of candidates in every examination shall be published after the College Governing Board has approved them.*
- (d) The published results will indicate the registration number, grades obtained by the candidate in each*

module and the Grade Point Average (GPA).

**(e)** The answer booklets shall be maintained for a period of at least three years from the date of publication of final results and shall thereafter be disposed off in the manner of Government procedures for disposal of documents or as may be determined by the C-ARCC.

**(f)** It is the responsibility of the candidate to keep his/her examination records and maintain awareness of academic performance including examination results.

## **7.10 Conditions for Supplementing**

**(a)** A candidate who fails in one or more modules and having passed at least 60% of total modules shall be allowed to do supplementary examination for the failed modules provided the overall academic year Grade Point Average (GPA) is not less than 2.0.

**(b)** Supplementary examinations shall be conducted within such time after the date of declaration of the overall academic year results as the College Academic, Research and Consultancy Committee (C-ARCC) may determine using the College Almanac.

**(c)** A candidate, who sits for his/her semester/special examinations at the time of supplementary examinations as his/her first sitting, shall sit for his/her supplementary examinations when next offered.

**(d)** Where a candidate has passed by virtue of supplementary examinations, he/she shall be awarded a pass grade C, and not otherwise.

**(e)** If a student fails the RE-DO/carried over module(s), he/she shall be allowed to sit for supplementary examination in the module(s) in the subsequent

supplementary examination session.

## **7.11 Conditions for Special Examinations**

**(a)** No candidate shall be allowed to sit for special examination unless he/she has completed registration.

**(b)** Special examinations may be granted to students who, by reason of illness or other special circumstances (funeral, delivery cases and as shall be determined by the C-EC) have been unable to sit or complete examinations.

**(c)** The candidate sitting for special examination(s) shall write a letter with evidence to the Rector.

**(d)** The evidence of such illness or circumstances shall be approved or disapproved by the C-EC.

**(e)** A candidate who appears for special examinations shall be considered as first sitting.

**(f)** Special examinations shall be conducted one week before the supplementary examinations or any date as may be determined by the C-ARCC.

**(g)** Request for special examinations shall follow the followings procedures:

**(i)** Those facing socio-economic challenges shall address their requests to the Rector through the Dean of Students, outlining their reasons.

**(ii)** The Dean shall review the situation and propose appropriate measures to the Head of respective department.

**(iii)** The requests with medical concerns shall be channeled through the medical officer in-charge of the ATC dispensary/health center for a medical report, which shall then be forwarded to the Head of

respective Department for further actions.

**(iv)** The Head of Department shall organize a meeting of the Departmental Academic committee to discuss the reports received from the Dean of Students and/or Health Officer.

**(v)** The decisions made for each applicant shall be forwarded to the College Examiner Committee (C-EC) meeting, which shall provide written permission/denial through HoDs for special examinations to each individual request.

**(vi)** Special examination permissions or denials will be granted before the commencement of examinations and at no other time.

**(vii)** In every instance, meeting the conditions outlined in Clause 4.2.1 and 7.11(a) of the examination regulations shall be prerequisites for eligibility for a special examination.

**(viii)** Not providing written documentation for absence from an examination shall be deemed a breach of Clause 7.7(a) of the examination regulations, which carries the penalty of redoing the module when next offered.

**(ix)** Any requests for special examinations presented contrary to section 7.11 will be deemed invalid.

## **7.12 Conditions for Carry over Module**

**(a)** NTA level 7 student(s) shall be allowed to repeat the failed first year modules while doing their second year (Semesters III and IV).

**(b)** The maximum number of modules to be carried over shall be three (3).

**(c)** The candidate failed more than three (3) modules

*shall RE-DO the failed modules*

**(d)** *The award for carry over module(s) shall be the actual grade(s) obtained by a candidate.*

**(e)** *For a carryover student, the 80% of class attendance shall not be considered for the carried modules, provided the relevant curriculum exist.*

**(f)** *If the relevant curriculum does not exist, the student shall request in writing to the DAc for the way forward.*

**(g)** *The carryover candidate shall be responsible for initiating a request to a module facilitator through the HoD for the test(s) or assignment(s) at the beginning of respective semester by filling a special form.*

### **7.13 Conditions for RE-DO**

**(a)** *A student with less than 80% class attendance for any module(s), EXCEPT for carryovers.*

**(b)** *A candidate who failed to acquire minimum pass mark in the CA*

**(c)** *A candidate who fails in one or more modules and having passed at least 40% of total modules shall be allowed to RE-DO for the failed modules provided the overall semester GPA is not less than 2.0.*

**(d)** *A candidate who failed the supplementary examination(s) for NTA levels 4, 5, 6 and 8*

**(e)** *The NTA level 7 candidate who failed more than three (3) modules from supplementary examination*

**(f)** *Absence from any examination without compelling reasons communicated before commencement of the examination.*

**(g)** *A candidate who fails completely to attend IPT/*

LPT.

(h) Failure to report the incidence of not being supervised during the IPT.

(i) The student who left the IPT place before the end of the prescribed period.

(j) Any candidate approved made plagiarism of more than 40% for NTA level 6 students and 30% for NTA level 8 on final year project or research.

## 7.14 Conditions for Discontinuation

(a) A candidate who fails to pass at least 60% of total modules at the end of the academic year and or gets a GPA less than 2.0.

(b) Any candidate who violated examination room rule, cf 7.22(n)

(c) Any candidate caught cheating in any examination.

(d) A candidate who committed examination irregularity cf 7.19, EXCEPT for cf 7.19 (h, i and m), in which the candidate shall RE-DO.

(e) Entering in the examination room with any unauthorized material.

## 7.15 Conditions for Readmission

(a) A candidate who has been discontinued on academic grounds apart from examination irregularities may be readmitted in the next academic year.

(b) A candidate who has been discontinued due to examination irregularities may be re-admitted after elapse of one academic year.

(c) A candidate who wish to be re-admitted (cf 7.15b) must strictly show his/her intensions through writing

*a letter to the Rector at least two months before beginning of a new academic year.*

**(d)** *A candidate who has been readmitted (cf 7.15 a or b) shall be of a private sponsorship.*

**(e)** *A candidate who has been readmitted (cf 7.15a or b) shall not be allowed to change programme of study unless his/her re-admission is for NTA level 4 or 7-1 and this shall depend on NACTVET/TCU approval.*

**(f)** *There shall be no re-admission for student(s) discontinued on non-academic matters.*

## **7.16 Repeating an Academic Year (NTA Level)**

There shall be no repetition of an academic year or NTA Level for whatever reason.

## **7.17 Academic Appeals**

**(a)** *Appeals shall be made by individual student and not otherwise.*

**(b)** *All the appeals concerning CA shall be directed to the HoD and shall be settled by the Departmental Academic Committee one week before the commencement of SE.*

**(c)** *As soon as the C-ARCC releases the SE results, any candidate who has valid ground for appeal shall lodge his/her appeal with the DR-ARC within seven (7) working days, counted from the day of release of provisional results.*

**(d)** *There shall be no extension for appeal time regardless of any reason given by a candidate.*

**(e)** *Appeals shall be on valid grounds, in written form ATCEF-10, and accompanied by relevant documented substantive evidence.*

**(f)** Each appellant shall pay a non-refundable prescribed fee for each module he/she is appealing in order for his/her appeal to be processed.

**(g)** Upon receiving such an appeal, the DR-ARC may seek advice from the DAc as it may deem appropriate and make a recommendation, which shall be tabled at the next meeting of the C-ARCC.

**(h)** The Rector may, if in his/her opinion there is a *prima facie* case, appoint an Appeals Sub-Committee to hear the appeal and recommend, that shall be tabled at the next meeting of the C-ARCC.

**(i)** Appeal cases shall be re-marked with at least three (3) appropriate experts and the final marks shall be the average of the three.

**(j)** Any candidate aggrieved by the decision of the C-ARCC may appeal to the Chairperson of the Governing Board.

**(k)** The decision of the Governing Board shall be final.

**(l)** The decision of the Appeal submitted to the DR-ARC shall be communicated to the concerned individual candidate through the DAc.

**(m)** The decision of the Appeal to the Chairperson of the Governing Board shall be communicated to the concerned individual candidate through the Rector.

## **7.18 Postponement of Studies**

**(a)** A student may be allowed to postpone studies/RE-DO for reasons of proven continued illness supported by a medical doctors' certificate, or for any other reason(s), which in the opinion of the C-ARCC is strong enough to prevent one from pursuing studies effectively.

**(b)** The period of postponement of studies shall be one academic year but on expiry of postponement of studies the student may request extension of postponement for one more academic year for reasons in (7.18a) above.

**(c)** Upon resuming studies, the student shall have to pay the College fees prescribed for the year in which he/she resume studies.

## **7.19 Examination Irregularities**

For avoidance of doubt, examination irregularities shall include, but are not limited to the following:

**(a)** Any act of verbal communication and/or gesturing, having and/or using any un-authorized material / electronic storage gadgets inside the examination room or in the premises surrounding the examination room (The premises surrounding the examination room include around the examination room, toilets and areas within 20 meters).

**(b)** Written or drawn examination related materials on his or her body/shoes/clothes.

**(c)** Exchanging answer scripts.

**(d)** Copying from another candidate's work.

**(e)** Doing or attempting to do an examination on behalf of another candidate.

**(f)** Consenting someone to do an examination on your own behalf.

**(g)** Submitting/attempting to submit answer sheet(s) which were not written in the examination room.

**(h)** Submitting a plagiarized project report, IPT logbook and/or forged Industrial Supervisor report

**(i)** Failure to appear for IPT/project presentation

*without compelling reasons*

*(j) Causing disturbance in/near any examination room.*

*(k) Going out of the examination room without permission.*

*(l) Involving oneself in leakage of examinations.*

*(m) Plagiarism and any other act in the course of the examinations which contravenes the provisions of these regulations.*

*(n) Altering information in the marked scripts.*

*(o) Refuse of the witness (student) to sign ATC EF19.*

## **7.20 College Examination Irregularities Committee**

### **7.20.1 Establishment**

There shall be a College Examination Irregularities Committee (CEIC) that will be responsible for receiving and handling examination irregularities submitted by the DAcSS. Members and Chairperson of the Committee shall be appointed by the DR-ARC with the consultation of the DAcSS.

### **7.20.2 CEIC Members and Administration**

*(a) The CEIC shall have at least three members who shall not be part of either C-EC or C-ARCC.*

*(b) The Chairperson shall be a senior staff and the composition of the committee shall consider gender balance.*

*(c) The tenure of CEIC members shall be one academic year and may be renewed once.*

### **7.20.3 CEIC Meetings**

Incase examination irregularity arise, the CEIC shall conduct the meeting within the first week after the completion of semester examination.

### **7.20.4 CEIC Responsibilities**

- (a) The CEIC shall receive the operation guidelines from the DR-ARC*
- (b) All cases of examination irregularities shall be handled by the CEIC upon receiving reports from the Invigilator(s) through the DR-ARC*
- (c) Chairperson shall convene the CEIC meeting after receiving irregularity cases from the DR-ARC to deliberate on the irregularities.*
- (d) The CEIC shall have the powers to summon students and invigilators or any other ATC staff as it shall deem necessary.*
- (e) The CEIC shall submit the report to the DR-ARC and present the findings and recommendations to the C-EC.*
- (f) During the period, the case is under investigation, the candidate suspected to have committed irregularity shall be allowed to attempt any other ongoing examination(s).*

### **7.21 Plagiarism**

- (a) A candidate shall be deemed to have committed an act of plagiarism if a supervisor, examiner, member of the various committees responsible for checking and certifying compliance to approved publication standards or any other person observes the following:*

- i. The candidate has submitted or presented the work of another person as his or her own.*
- ii. The candidate has submitted the same, or substantially the same work more than once at the same or another institution.*
- iii. The candidate has omitted due acknowledgement of the work of another person.*
- iv. There is collusion i.e. when two or more candidates collaborate to produce the same work submitted by each, without prior formal permission for such collaboration.*
- v. The implementation of idea(s) presented by others, without permission from the owner of such idea.*

**(b)** *The alleged plagiarism shall be first reported to the HoD by the departmental project coordinator, who shall then report to the DR-ARC*

**(c)** *The DR-ARC shall refer the reported plagiarism case to the C-ARCC for further investigation/ deliberation.*

**(d)** *Depending on the extent or seriousness of the confirmed plagiarism, the C-ARCC shall recommend the following to the College Governing Board;*

- i. Rejection of the Research/Project proposal, report or part thereof and therefore, the candidate being required to rewrite/RE-DO or re-take the research/ project work at his/her own cost.*
- ii. Deprivation of a degree, diploma award or any other academic credentials already awarded by the College.*

## 7.22 Examination Room Rules

- (a)** *A candidate shall have examination permit before entering the examination room.*
- (b)** *Each candidate must display his/her student identity card and examination number on the top of the desk/table throughout the examination period.*
- (c)** *A candidate without student identity card and examination permit shall immediately report to the directorate of academic supporting services to get proof/evidence before commencement of the examination.*
- (d)** *A candidate without examination permit; shall not be allowed to continue with such examination.*
- (e)** *Candidates must acquaint themselves with the sitting arrangement for their respective examination in advance.*
- (f)** *Candidates shall arrive 30 minutes before the commencement of the examination for check-in procedures.*
- (g)** *No candidate shall be allowed to enter the examination room without following check-in procedures.*
- (h)** *Candidates shall be responsible for consulting the examination time table for any changes.*
- (i)** *No candidate shall be permitted to enter the examination room after the elapse of 30 minutes from the commencement of the examination and no candidate shall be permitted to leave the examination room until 30 minutes have expired.*
- (j)** *Once a candidate has submitted his/her answer script and has left the examination room, he/she shall*

not be allowed to re-enter the examination room.

**(k)** Examination papers, answer scripts and other related materials issued by Invigilators are the College properties.

**(l)** No any candidate shall be allowed to leave examination room with his/her examination paper, answer script and/or any other related materials such as standard tables etc.

**(m)** No candidate shall be allowed to leave the examination room 15 minutes before the end of the examination duration.

**(n)** During examination candidates shall not be allowed to make any form of verbal or non-verbal communication with other candidates.

**(o)** Candidates shall not be allowed to write anything on the question paper

**(p)** Candidates are permitted to do rough work on the last pages of the answer script and shall cross through at the end of the examination.

**(q)** Candidates shall not be allowed to make any kind of disturbance in the examination room.

**(r)** Eating, drinking and smoking shall not be allowed in the examination room.

**(s)** Candidates shall obey all examination instructions given by the Supervisor/Invigilator.

**(t)** Invigilators shall have power to change the sitting arrangement in the examination room.

**(u)** Invigilators shall have power to require inspection of a candidate during examination and collect an unauthorized material brought into the examination room.

**(v)** *Invigilators shall have power to require expel from the examination room any candidate who creates disturbance, fighting or assault in the examination room to the invigilation Supervisor.*

**(w)** *Candidates must not begin writing before they are permitted by the Invigilator.*

**(x)** *For identification purpose; a candidate shall write only his/her examination number on the spaces provided in the examination answer book and/or answer sheet.*

**(y)** *In case candidates are allowed to come with specified items into the examination room, no borrowing from one another shall be allowed during the examinations.*

**(z)** *All candidates shall sign the examinations attendance sheet before leaving examination room.*

**(aa)** *Permission to leave the examination room shall be granted in exceptional circumstances, as invigilators are expected to remind candidates to go for short calls before they enter in the examination room.*

**(bb)** *The maximum time for permitted candidate to leave the examination room for a short call shall be 5 minutes.*

**(cc)** *Invigilator(s) shall not permit the candidates to leave the examination room before their scripts have been collected.*

**(dd)** *For the case of the examination room with more than one doors, only one door shall be used for exit*

## 7.23 Un-Authorized Materials in the Examination Room

### 7.23.1 Prohibited Items

*Candidates are strictly prohibited from bringing the following un-authorized materials into the examination room:*

- (a) Mobile phones*
- (b) Smart phones*
- (c) Smart watches*
- (d) Tablets*
- (e) Laptops*
- (f) Handbags*
- (g) Any other electronic gadgets capable of storing, retrieving, or transmitting information*
- (h) Any paper or medium, aside from those provided by the invigilator, where information or writings can be stored.*
- (i) Materials other than those specified in this section may be determined by the Invigilator in consultation with his/her Supervisor.*

### 7.23.2 Consequences of Violation

If a candidate is found in possession of any un-authorized materials in the examination room, the following actions shall be taken:

- (a) The incident will be regarded as an irregularity in the examination process and will be subject to further processing in accordance with section 7.24.*
- (b) The un-authorized materials shall be confiscated and returned only after all appeals process have been concluded.*

*(c) The penalty of having any un-authorized materials is discontinuation from the study.*

### **7.23.3 Responsibilities of Candidates**

Candidates must ensure they do not bring any prohibited items into the examination room. It is recommended to leave mobile phones and other electronic gadgets at home or store them in a designated area outside the examination room.

### **7.23.4 Exceptions**

In cases where the use of a specific electronic device (excluding mobile phones) is permitted, prior written authorization from DAcSS is required. The authorization must be presented to the examination invigilator before the start of the examination and not otherwise for verification.

### **7.23.5 Duties of Examination Invigilators**

Examination invigilators shall be responsible for:

- (a) Announcing the prohibition of un-authorized materials before the start of each examination.*
- (b) Conducting thorough checks to ensure compliance with this regulation.*
- (c) Reporting any violations immediately to the examination board for appropriate action.*

## **7.24 Procedures for Handling Examination Irregularities**

### **7.24.1 General Actions**

*These general actions shall apply for both CA and SE.*

- (a) An invigilator(s) finding a candidate cheating shall inform him/her of the irregularity, provide him/her a*

form to sign and submit a written report (ATCEF -19) to examination's invigilation Supervisor.

**(b)** Refusal by a candidate/witness to sign an examination irregularity form ATCEF -19; shall mean admission of guilty of an examination irregularity.

**(c)** In all cases of examination irregularities, the candidate shall be allowed to continue with the examination while his/her case is being pursued.

**(d)** A candidate who has been caught cheating shall be given a notification from Examination Officer concerning the incident within 48 hours.

**(e)** The letter shall state the maximum waiting duration for the decision on the incident.

**(f)** Any candidate who refuse to sign as witness in the form ATC EF19 shall be considered as accomplice and may be discontinued if found guilty.

**(g)** ATC Examination Officer shall inform the DAcSS to call an emergency C-EC meeting to discuss the cheating cases not later than two weeks after completion of semester examination.

**(h)** The DAcSS shall call emergency C-EC meeting to discuss the cheating cases not later than three weeks after completion of semester examination.

**(i)** The C-EC shall deliberate on the issues, facts and recommendations from the CEIC and make recommendations to the C-ARCC for provisional approval

**(j)** The candidate shall be informed of the C-ARCC decision within 48 hours after the meeting subject to final approval by the College Governing Board.

**(k)** Any candidate who has been found guilty

*of an examination irregularity shall receive a disqualification grade abbreviated 'Q' and shall be discontinued from the program of study forthwith and may be readmitted as per clause 7.15(c) and (e).*

#### **7.24.2 Continuous Assessment (CA) Actions**

The following actions shall apply in handling irregularity cases concerning the CA;

*(a) All CA examination irregularities shall be handled by the respective Departmental Academic Committee after receiving evidence of irregularities from the Directorate of Academic Supporting Services.*

*(b) The HoD shall conduct a meeting which shall involve departmental academic committee members and one representative from the directorate of academic supporting services to discuss the reported irregularities.*

*(c) Representative from the directorate of academic supporting services shall not have voting power rather as an observer.*

*(d) The decision of the meeting shall be communicated in writing to the DAcSS within one week.*

#### **7.25 Custodian of Examination Irregularity Evidences**

*All evidences concerning examination irregularities shall be kept by the ATC Examination Officer.*

#### **7.26 Industrial Practical Training (IPT)**

*(a) Industrial practical training is a full module similar to other modules in any programme at the College.*

**(b)** Each student shall submit arrival note to the College Industrial Liaison Officer (ILO) through online system or any medium as may deem necessary by ILO.

**(c)** Deadline for submission of arrival note shall not be more than four weeks after commencement of IPT.

**(d)** A student who fails to submit arrival note on the prescribed time in clause 7.26 (c) will be considered to have failed the module and therefore shall have to RE-DO the same in the next academic year at his or her own cost.

**(e)** Supervision of students in their IPT places shall be conducted between the sixth (6th) and eighth (8th) weeks of the IPT period or as per the College almanac.

**(f)** On arrival at the industry, the College IPT supervisor shall contact the IPT training supervisor at the respective firm.

**(g)** The College IPT supervisor shall:

- (i)** discuss with the Industrial IPT supervisor about the student's training programme and performance.
- (ii)** check and counter-sign the students' IPT logbook.
- (iii)** discuss with each student on the IPT training and give guidance as appropriate.
- (iv)** fill in the students' assessment form.
- (v)** submit the College Supervisor's Report (form-B) to the ILO, not later than one week after the IPT supervision period.
- (vi)** submit the College Supervisor's Report (Form-A) and the industrial supervisor's report to the HoD, not later than one week after the IPT supervision period.

**(h)** A student who by any reason is not supervised at prescribed time must report immediately to ILO or designated officer who shall direct him/her the way forward before leaving IPT place. Failure to report the incidence shall lead to RE-DO status.

**(i)** The student who left the IPT place before the end of the prescribed period shall RE-DO the IPT at his/her own cost.

**(j)** The IPT logbook must be submitted to the respective HoD not later than two weeks after the elapse of the IPT period.

**(k)** IPT presentation for NTA level 4, 5 and 7 shall be held not later than Friday of the second week of a first semester of the new academic year.

**(l)** A student who failed to appear for IPT presentation without compelling reasons shall be considered to have failed the module and shall repeat the module at his/her own cost

**(m)** A student who submit a plagiarized IPT logbook shall repeat the module at his/her own cost

**(n)** A student who forged Industrial Supervisors' report shall be discontinued from studies

**(o)** HoD through approved mechanisms shall ensure that the submitted IPT logbooks are checked against potential plagiarism.

**(p)** All offenses under clauses 7.26 (k, l and m) shall be deliberated and approved/rejected by the D-AC not later than seven (7) days from the last date of presentation/submission.

**(q)** The HoD shall give notification to the student (c/f 7.26(o)) and copies to ILO and DAcSS within 48 hours.

**(r)** The DAcSS, if deem it necessary, shall convene C-EC meetings for deliberation/directives on the matter not more than fourteen (14) days after receiving notification from the HoD

## **7.27 Assessment of the IPT**

**a.** The CA for the IPT shall include;

**(i)** College and Industrial supervisors' evaluation forms and shall contribute a total of 20 marks (10% each)

**(ii)** Daily and Weekly report, filled by the student and signed by both College and Industrial supervisors shall contribute a total of 20 marks (10% each)

**(iii)** Technical and general reports, filled by the student and signed by both College and Industrial supervisors shall contribute a total of 30 marks (15% each)

**b.** The SE for the module shall be the IPT report presentation, which shall contribute 30 marks.

## 7.28 Students' Project

**(a)** The final year project shall be evaluated using the ATC project guidelines.

**(b)** Any suitable project chosen from suggestions made by the student, industry or members of staff from any department should get approval of the respective Departmental Academic Committee.

**(c)** At least two members of academic staff (at least one member be expert in that area) must participate fully in the pre-approval process of project title before final approval by the D-AC.

**(d)** The HoD through approved mechanisms shall ensure that the submitted project titles and/or reports are checked for any potential plagiarism.

**(e)** A student who fails to appear for final project

*presentation without compelling reasons shall be considered to have failed the project and shall repeat at his/her own cost.*

**(f)***A report not bearing supervisor's signatures shall not be accepted for evaluation*

**(g)***A student who submitted a plagiarized project report shall be considered to have failed the project and shall repeat at his/her own cost.*

**(h)***All offenses under clauses 7.28 (f) and 7.28 (g) shall be deliberated and approved/rejected by the D-AC not later than seven (7) days from the last date of presentation/submission.*

**(i)***The HoD shall give notification to student and copy to the DAcSS within 48 hours.*

**(j)***The DAcSS, if deem it necessary, shall convene C-EC meeting for deliberation/directives on the matter not more than fourteen (14) days after receiving notification from the HoD.*

**(k)***All project reports shall be kept in a data base in electronic means as may be determined by DR-ARC.*

## 8 Grading System

The College grading system is provided in Table 8.1.

Table 8.1: College Grading System and Score Range

$$GPA = \frac{\sum(Grade\ points \times Credits)}{\sum Credits}$$

## 8.1 Score points for the different Grades

Table 8.2 shows Grade points that are to be used during award classification.

Table 8.2: Grade Points for NTA Level 4-8

NTA Level 4 – 5	NTA level 6-8
A – 4	A – 5
B – 3	B+ – 4
C – 2	B – 3
D – 1	C – 2
F – 0	D – 1
	F – 0

Academic Audit Unit for NTA Levels 4-8 Programmes Academic Audit Unit for programmes leading to the awards of NTA levels 4-8 shall be one academic year. However, this timeframe may be subject to changes based on directives from regulators (NACTVET/TCU), potentially transitioning to a semester-wise or any other format.

## Progression and Awards

A candidate who attained the pass mark in all modules in an academic year shall:

In the case of years other than the final year, be eligible to proceed to the following year of study (or subsequent level).

In the case of NTA Level 8, be eligible for the award of

Bachelor's degree; NTA level 7-Second year, be eligible for the award of Higher Diploma, NTA Level 6, be eligible for the award of Ordinary Diploma; NTA Level 5 be eligible for the award of Technician Certificate and NTA Level 4, be eligible for the award of Basic Technician Certificate.

Higher Diploma, Technician Certificate and Basic Technician Certificate shall be awarded to any student at the corresponding level on request.

Candidate is only eligible for the award if he/she has passed the CA.

has a satisfactory attendance of at least 80% of the course period.

has passed the IPT (level 4, 5 and 7), final project (level 6 and 8) and performed satisfactorily the SE.

Any certificate shall be awarded after payment of the prescribed certificate fees.

The HoD shall submit the names of eligible graduands in four (4) weeks after the publication of the SE results.

### **Computation of the Cumulative Grade Point Average (GPA)**

The computation of the cumulative Grade Point Average (GPA) shall be based on the following formula:

$$\text{GPA} = (\sum \text{Grade points} \times \text{Credits}) / (\sum \text{Credits})$$

#### **Classifications of Awards**

The classes of awards with reference to GPA are as

shown in Table 8.3.

Table 8.3: Classes of Awards

NTA Level 4 – 5		NTA level 6 -8	
Class of award	Cumulative GPA	Class of award	Cumulative GPA
First Class	3.5 – 4.0	First Class	4.4 – 5.0
Second Class	3.0 – 3.4	Upper Second Class	3.5 – 4.3
Pass	2.0 – 2.9	Lower Second Class	2.7 – 3.4
		Pass	2.0 – 2.6

## 8.6 Academic Transcripts, Certificate and Provisional Statement of Results

### 8.6.1 Academic Transcripts and Certificate

All candidates shall receive academic transcript and certificates after having satisfied conditions in clause 8.4 (a) & (b). The academic transcript and certificate shall be issued only after all examination results have been approved by the College Governing Board. The issuing of academic transcript and certificate shall be as follows:

**(a)** Academic certificate shall be issued after graduation ceremony.

**(b)** Academic transcripts shall be issued immediately upon approval of examination results by the College Governing Board.

## **8.6.2 Provisional Statement of Results**

Provisional statement of results shall be issued immediately after approval of examination results by the C-ARCC

## **9.0 Examination Appeals**

### **9.1 Grounds for Appeal**

An appeal of an examination result shall be considered on grounds of:

- (a) Perceived substantive irregularity in the examination process.*
- (b) Any verifiable defect or inequity in the delivery of the prescribed curriculum in accordance with criteria approved and ratified by the Governing Board or other Validating Authority.*
- (c) Perceived errors during marking and entry of marks.*

### **9.2 Presentation of Evidence**

Documentation, where relevant, in support of an appeal should be provided.

### **9.3 Procedures for Appeal**

- (a) A student who wishes to appeal against an examination result must fill the appropriate form (Available from the office of the Directorate of Academic Supporting Services).*
- (b) The appellant should state out the grounds for the appeal in full to the Rector within 14 days after publication of examination results.*
- (c) Requests received after the deadline (cf 9.3b) will not be considered.*

**(d)**Appeal document shall be accompanied by a non-refundable fee of **TZS 10,000/=** for each module appealed and **TZS. 50,000/=** for each examination irregularity (discontinued) appeal.

**(e)**Upon receipt of a written appeal, the Rector shall inform the relevant Head(s) of Department that an appeal has been lodged.

**(f)**An appeal may not necessarily be successful.

**(g)**The conferring of an academic award, where relevant, may be deferred, depending the final outcome of the appeal.

#### 10VET Examination

**(a)**The internal VET examination shall be handled using this examination regulation.

**(b)**There shall be two terms per each academic year.

**(c)**There shall be one internal examination at the end of each term, which shall be on May and November, respectively.

**(d)**The examination room rules and irregularities shall apply.

**(e)**The DAcSS in collaboration with the HoD-CoED shall appoint the examination setters and internal moderators.

**(f)**There shall be national examination after the two terms of each academic year, which shall follow the NACTVET regulations and standards.

#### 11 Review and Approval of Examination Regulations

These regulations shall be reviewed from time to time by the C-ARCC and approved by the College Governing Board.

## 12 Revocation

**(a)** The College Examination Regulations of August 2020 are hereby revoked.

**(b)** Notwithstanding the revocation of the College Examination Regulations, of August 2020, anything that was done under the said regulations shall remain valid.



*Students in examination session*

## CHAPTER 5

### STRUCTURE OF ACADEMIC PROGRAMME

#### 5.1 Overall Structure

*Each programme has modules that spread over two semesters. Each academic year has two semesters. The first semester consists of 17 weeks and the second semester consists of 17 weeks for classroom activities and 10 weeks for Industrial practical training. Therefore the whole programmer has a total of 44 weeks of study for the fulltime attendance mode.*

#### 5.2 Curriculum Overview

##### 5.2.1 Fundamental Modules

*They provide a range of basic skills, knowledge and principle appropriate for a graduate in all the fields of engineering as well as for the underpinning and effective study of the main theme of the programmer. They also provide a viable foundation for further studies and lifelong learning.*

##### 5.2.2 Core Module

*Modules associated with the core studies provide the development of the main theme of the programmer. They broadly represent the main areas of activity in the respective disciplines, and the in-depth treatment of them will enable graduate to rapidly become effective technicians or engineers in the industries associated with the discipline. These modules are taught with fundamental ones so as to enable students gain an appreciation of the nature and complexities of real engineering systems. In order to achieve an integration of*

*these modules there will be considerable use of mode of integration of laboratory, workshops, fields, lectures and assignment work. In addition, case studies will be used in the module*

### **5.2.3 Elective Module**

*Elective modules provide an opportunity for in depth study in specific subjects to level not possible in the core modules and thereby present a greater intellectual challenge. Also they give students the ability to work within a multidisciplinary team/task.*

### **5.3 Mode of Training**

*The two major parts of training, the theoretical and practical parts carry almost the same weight. The former part is conducted in the college class rooms while the latter is carried out in the well-equipped college workshops and in industries as industrial training. At the end of each academic year, students attend industrial training for ten (10) weeks. The main purpose of the industrial practical training is to give the students a chance to apply what she/he has learnt at the college in industry and to make him/her appreciate the real working environment which he/she will experience after completing his/her studies.*

### **5.4 Examinations**

- a) *Examinations include continuous assessment (tests, assignments, seminars presentations, practical or any other form of assessment specified in the study guide issued at the beginning of Semester) and end of Semester Examinations including practical where appropriate.*
- b) *There shall be a written and, where the course*

*demands, a practical examination during each end of semester for a course taught.*

*c) Timing of examinations shall be between 07.00 am and 10.00 pm any day of the week including weekends. Approved public holidays and other days when the College is closed are excluded.*

## CHAPTER 6

### PROFILES OF ACADEMIC DEPARTMENTS

#### 6.1 Automotive Engineering Department

##### **WELCOME STATEMENT**

Start your journey into the Department of Automotive Engineering. Here you will find tabled information on programs offered with modules details, our workshops in pictures and brief information about departmental academic staff. Then, take the ride of your life toward an exciting career contained into automotive industry. Look around and learn about your exciting new career and the awesome learning process!

##### **Mission Statement:**

The mission of the ATC Automotive Program is to conduct an academic and applied learning training program which will provide qualified employees for entry level positions in all categories of the Auto Repair and Maintenance industry.

##### **Automotive Department in Brief**

Automotive Engineering department has modern automotive workshop equipped with new tools and equipment relevant to the modern vehicles, the workshop has Automotive Electronics Lab, Simulation Lab and Argo Lab for Training purpose.

The department offers Ordinary Diploma in

1. Automotive Engineering
2. Automotive Electronics Engineering and
3. Heavy Duty Engineering
4. The department also offers Bachelor Degree in Automotive Electronics under the National Technical Award (NTA) framework covering levels 4-8. These awards are competence based and designed to testify that the holders possess the requisite skills and knowledge necessary to flexibly apply competences in the automotive service, maintenance, repairs and other relevant occupational sectors

## **SHORT COURSES PROGRAMS**

The department has introduced Short courses programs based on fast changes of Automotive Technology on the market worldwide. The courses focus on upgrading technical know-how in the modern Vehicles. Automotive Short Courses are as listed in the Table below:

	SHORTCOURSE NAME	DURATION	COSTS
1	Driving course Basic	4 weeks	293,000/
2	Public Service Vehicles (PSV) Course	2 Weeks	2weeks
3		Defensive Driving	2weeks
4		VIP Drivers	4weeks

5		Heavy Goods Vehicles (HGV) Course	4 weeks
6		Driver Instructor Course	10 Weeks
7		Automotive Electrical and electronics systems	
8		Electude E-Learning on-line training.	2 weeks (20
	200,000/=		
9		Maintenance and repair of compact type alternator	4 weeks
	400,000/=		
10	Maintenance and repair of conventional type starter motor	4 weeks	
	400,000/=		
11	Maintenance and repair of reduction type starter motor	4 weeks	
	400,000/=		

12	Maintenance and repair of conventional type alternator	4 weeks	
	400,000/=		
13	Maintenance and repair of lighting system	4 weeks	
	400,000/=		
14	Maintenance and repair of automotive air condition	4 weeks	
	600,000/=		
15	Maintenance and repair of sound system and power accessories (Radio)	4 weeks	
	600,000/=		
16	Maintenance and repair of petrol engine	4 weeks	
	600,000/=		
17	Maintenance and repair of diesel engine	4 weeks	
	600,000/=		

18	Maintenance and repair of petrol electronic fuel injection (EFI)	4 weeks	
	600,000/=		
19	Maintenance and repair of diesel electronic fuel injection (EFI)	4 weeks	
	600,000/=		
20	Maintenance and repair of manual gear box	6 weeks	
	600,000/=		
21	Maintenance and repair of automatic gear box	6 weeks	
	600,000/=		
22	Engine management systems.	6 weeks	
	600,000/=		
23	Maintenance of vehicles and systems.	4 weeks	

	600,000/=		
24	Vehicle Inspection and safety.	4 weeks	
	400,000/=		
25	Vehicle safety inspection and driver examination	4 weeks	
	600,000/=		
26	Vehicle diagnosis and Troubleshooting.	4 weeks	
	400,000/=		

## B. AUTOMOTIVE MORDEN WORKSHOP

The Arusha Technical College Automotive modern workshop is to demonstrate the qualifications, competence and capacity to provide vehicle maintenance and repair services as well provision of consultancy services to client on issues of vehicle maintenance, repair, service, safety inspection and preventive maintenance

The Automotive department has established Automotive Advisory Committee which shall put together potential stakeholders from the Automotive industry working with the ATC and provide them a platform to advise the department on how to fill prevailing gaps between what is delivered by the programs and the emerging technologies in the industry and which are relevant to the markets where the graduates we are preparing are going to work. The Automotive department supported by the College

Management and external partners is in the process of establishing e-learning for automotive technology modules on the condition that the students will be ready to pay some agreed fees and shall remain optional to students. This is an opportunity to for us to teach and learn the latest developments in automotive technology by using interactive animations and simulations to enable students learn faster, retain more and come up and meet latest technologies. The department is also in a progress to initiate ATC Automotive Alumni Association where the department shall be able to tell where our graduates are and learn what they are doing and that information shall be used to improve the various areas within the department.

Academic year 2013\_2014 carry the first level 06 batch from newly established programme Auto Electric and Electronics Engineering and for the first time the curriculum for level 06 is coming to implementation. The improved curriculum as per NACTEs Validation team recommendations is coming with slight changes in module coding system and naming of modules as compared to what was presented earlier. The department is wishing all the best to our students and let them remember to keep up the departmental motto that "Deeds and Not Words" in all of the activities they are going to undertake.

6.1.1 Courses Offered by Automotive Engineering Department:

## **BASIC TECHNICIAN CERTIFICATE (NTA LEVEL 4) FOR AUTOMOTIVE ENGINEERING**

### **SEMESTER I MODULES**

Fundamental Modules

<b>Code No.</b>	<b>Module Title</b>	<b>Credits Value</b>
GST 04101	Algebra and Trigonometry	05
GST 04102	Mechanics and Nuclear Physics	06
GST 04103	English Language Basics	04
Sub Total Credits	15	

Core Modules

<b>Code No.</b>	<b>Module Title</b>	<b>Credits Value</b>
MET 04101	Basics of Engineering Drawing	05
MET 04102	Mechanical Engineering Materials	09
AET 04101	Basics of Automotive Technology	12

Code No.	Module Title	Credits Value
MET 04105	Basics of Manufacturing Engineering	13
AET 04102	Fundamentals of Electrical and	
Electronics Engineering	08	
Sub Total Credits	47	
Total Credits	62	

## BASIC TECHNICIAN CERTIFICATE (NTA LEVEL 4)

### SEMESTER II

#### Fundamental Modules

Code No.	Module Title							Credits
GST	Series and Boolean Algebra							05
GST	Gender and HIV							04
GST	Microcomputer Application							06
Sub Total Credits								15

## Core Modules

	Module Title	L	T	P	AS	Total	
MET	Pictorial, Orthographic and Auxiliary Projections	1	2			3	05
MET	Mechanical Engineering Science	3	1			4	06
AET	Automotive Systems Operation and Maintenance	3		5		8	12
MET	Machine Tools/ Processes and Maintenance	3		5		8	12
AET	Industrial Practical Training		1	6		7	10
	Sub Total Credits				45		
	Total Credits				60		

## TECHNICIAN CERTIFICATE (NTA LEVEL 5) SEMESTER I Fundamental Modules

Code No.	Module Title	L	T	P	AS	Total	
GST	Differentiation and Integration	2	1			3	03

GST	Thermal Energy, Waves and Organic Compounds	2	1		1	4	06
GST	Introduction to Programming Using C language	2	1		1	4	06
	Sub Total Credits		15				

**TECHNICIAN CERTIFICATE (NTA LEVEL 5)**  
**SEMESTER II**  
**Fundamental Modules**

<b>Code</b>	<b>Module Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>AS</b>	<b>Total</b>
GST	Matrices, Complex Numbers and Vectors	2	1		3	03
GST	English Language Skills	2			1	3
GST	Basics of Entrepreneurship	2			1	3
GST	Introduction to Networking	2			1	3
	Sub Total				15	

**Core Modules**

<b>Code</b>	<b>Module Title</b>	<b>L</b>	<b>T</b>	<b>P</b>		<b>To-tal</b>	
MET 05206	Detail and Assembly Drawing	2		2	4	06	
AET 05206	Basics of Automotive Diagnosis	3		5	8	12	
MET 05207	Foundry and Metal Forming	3		4	7	10	
MET 05208	Fluid Mechanics	1			1	2	03
MET 05209	Measurements, Instrumentation and Control Technology	2	1		1	4	06
AET 05207	Industrial Practical training		2	5		7	10
				32			
<b>TOTAL</b>							

Keynote:

L .....Lecture

T .....Tutorial

P .....Practical

AS .....Assignment

**ORDINARY DIPLOMA IN AUTOMOTIVE ENGINEERING (NTA LEVEL 06)**  
**SEMESTER I**

**Fundamental Modules**

<b>Code</b>	<b>Module Title</b>						
		L	T	P	AS	Total	
GST	Coordinate Geometry and Differential Equations.	-	-	-	-	04	04
GST	Correspondence, Interpersonal and Report Writing Skills	-	-	-	-	04	04
	Sub Total hrs/ week	03	02		-	07	08
	Sub Total						

**Core Modules**

<b>Code</b>	<b>Module Title</b>						
		L	T	P	AS	Total	
MET	Details and assembly Drawing						
01							
03							
-							

-	04						
06							
MET	Machine Elements and Design	03	01	-	-	04	06
MET	Environmental Engineering	02	-	-	-	02	03
MET	Power Production	03	01	-	-	04	06
AET	Auto Electrical and Electronic Systems	04	01	-	-	05	14
	Project Design						04
	Subtotal hrs/week	18	09		03	38	
	Sub-total			38			
	TOTAL						61

Keynote:

L Lecture

T Tutorial

P Practical

AS Assignment

## **ORDINARY DIPLOMA (NTA LEVEL 06) – AUTO-MOTOTIVE ENGINEERING – SEMESTER II**

### **Fundamental Modules**

<b>Code</b>	<b>Module Title</b>	<b>S</b>					
		L	T	P	AS	TOTAL	
GST	Linear Programming, Statistics and Probability			-	-	04	03

GST	Enterprise Management	1	1	-	04	06
	Sub Total hrs/week			00	-	09
	Sub Total	08				

### Core Modules

	Module Title	L	T	P		To-tal
	Computer Aided Drafting					
AET	Auto Workshop Management	03	-		08	12
AET	Automotive Diagnostics	-	06	-	09	14
AET	Project Manufacturing	-	02	04	-	06
AET	Auto Electric Control systems					14
AET	Industrial Practical Training					10
	Subtotal hrs/week	08	10		27	41

Total 60

Keynote:

L ..... Lecture

T ..... Tutorial

P ..... Practical

## AS...Assignment

**ORDINARY DIPLOMA (NTA LEVEL 6) IN AUTO  
ELECTRIC AND ELECTRONICS ENGINEERING  
SEMESTER I**
**Fundamenta Modules**

Code	Module Name	CREDIT
GST	Coordinate Geometry and Differential Equations	4
GST	Correspondence, Interpersonal and Report Writing	4
Sub Total Credits		08

## Core Modules

Code	Module Name	Credits
MET06101	Detail and Assembly Drawing	06
AET 06210	Automotive Diagnostics	14
AET 06113	Battery Charging and starting systems service	08
AET 06114	Basic Electrical Test Procedures	07

AET 06115	Ignition and Engine Control Systems service	07
AET06116	Electrical Faults and Test Equipment	05
AET06117	Electrical and Electronic Principles	07
AET 06118	Project Design	04
	SUB TOTAL CREDITS	58
	TOTAL CREDITS SEMESTER I	66

## SEMESTER II MODULES

### Fundamental Modules

Code	Module Name	Credits
GST 06201	Linear Programming, Statistics and	
Probability	03	
GST 06202	Enterprise Management	06
	Total Credits	09

### Core Modules

Code	Module Name	Credits
MET 0621	Computer Aided Drafting	06

AET 06219	Electrical and Electronics Accessories Service	10
AET 06220	Maintanence and Repair of Auto Eletronic fuel injection	08
AET 06221	Auto Electric and Electronic Pollution Control	04
AET06222	Auto Electric and Electronic Workshop Management	08
AET 06223	Project Manufacturing	04
AET 06224	Industrial Practical Training	10
	SUB TOTAL CREDITS	50
	TOTAL CREDITS SEMESTER II	59

**BASIC TECHNICIAN CERTIFICATE (NTA LEVEL 4)  
FOR HEAVY DUTY EQUIPMENT ENGINEERING  
SEMESTER I MODULES  
Fundamental Modules**

code	Module Title	L	T	P	Total	Credit

Value						
	Algebra and Trigonometry	2	1		3	5
	Mechanics and Nuclear Physics.	2	1	1	4	6
	English Language Basics.	2	1		3	5
	SUB TOTAL CREDITS				10	16

## Core Modules

Code	Module Title	L	T	P		Total	Credit
Value							
MET	Basics of Engineering Drawing	1	2			3	05
MET	Mechanical Engineering						
Materials	4	1	1		6	09	
HET	Mechanical Engineering						
Materials	2			3	5	08	
MET	Basics of Manufacturing Engineering.	3		5		8	12
AET	Basics of Manufacturing Engineering.	4	1			5	08

HET	Fundamental of Engines and traction				5	08	
	SUB TOTAL CREDITS				32	50	
	TOTAL CREDITS SEMESTER 1				42	66	

**BASIC TECHNICIAN CERTIFICATE (NTA LEVEL 4)  
FOR HEAVY DUTY EQUIPMENT ENGINEERING  
SEMESTER II MODULES**

**Fundamental Modules**

Code	Module Title	L	T	P	AS	To-tal	Credit
Value							
	Series and Boolean Algebra	2	1			3	5
	Gender and HIV	3				3	4
	Microcomputer Application	2		2		4	6
	SUB TOTAL CREDITS					10	15

**Core Modules**

Code	Module Title	L	T	P		To-tal	Credit
Value							
MET	Pictorial, Orthographic and Auxiliary Projections	1	2			3	05

## Core Modules

Code	Module Title	L	T	P	AS	To-tal	
Value							
MET	Section, Development and Interpenetration	2			2	4	06
MET	Strength of Materials	1	1	1	1	3	05
MET	Welding and Metal Fabrication	2		5		7	09
MET	Basics of Machine Elements and Design	2	1	5	1	4	06
MET	Engineering Thermodynamics	2			1	3	05
HET	Maintenance of Hydraulic and Pneumatic Systems	3		5		8	12
	SUB TOTAL CREDITS						43
	TOTAL CREDITS SEMESTER						
I						60	

**BASIC TECHNICIAN CERTIFICATE (NTA LEVEL 5)  
FOR HEAVY DUTY EQUIPMENT ENGINEERING  
SEMESTER II MODULES**  
**Fundamental Modules**

Code	Module Title	L	T	P	To- tal	Credit value
GST04201	Matrices, Complex numbers and					
Vectors	2	1		3	5	
GST04202	Basics of En- trepreneur- ship	2		1	3	5
GST04203	Introduction to Network- ing	2		1	3	5
	SUB TOTAL CREDITS					20

**Core Modules**

Code	Module Title	L	T	P	To- tal	
Value						
MET	Detail and Assembly Drawing	2		2	4	06
HET	Maintain Power Trans- mission systems	3		5	8	12
MET	Foundry and Metal Forming	3		4	7	09
MET	Fluid Mechanics	1		1	2	03

**BASIC TECHNICIAN CERTIFICATE (NTA LEVEL 6) FOR  
HEAVY DUTY EQUIPMENT ENGINEERING**  
**SEMESTER I MODULES**  
**Fundamental Modules**

Code	Module Title	L	T	P	AS	To-tal	
Value							
	Coordinate Ge-ometry and						
Diffential Equa-tions	2				4	06	
	Correspondence and Report writing	1	02			3	04
	SUB TOTAL CREDITS		02			7	10

**Core Modules**

Code	Module Title	L	T	P	AS	To-tal	
Value							
MET	Fundamental of CAD	1	3			4	06
AET	Automotive Engineer-ing Science	3	3		2	8	13
MET	Machine Elements and Design	3	1			4	06
MET	Power Production	3	1			4	06

HET	Basic Hydraulic and Pneumatic					
De-sign	3	1		4	06	
HET	Hydraulic and Pneumatic System					
Controls	2	3	5	08		
MET	Environmental Engineering	2		2	03	
HEET	Project- Design	1	2	3	04	
	SUB TOTAL CREDITS	19	3	4	34	52
	TOTAL CREDITS SEMESTER I				41	62

**BASIC TECHNICIAN CERTIFICATE (NTA LEVEL 6) FOR  
HEAVY DUTY EQUIPMENT ENGINEERING  
SEMESTER II MODULES**

**Fundamental Modules**

Code	Module Title	L	T	P		To-tal
	Linear Programming, statistics and Probability	2			4	06
	Enterprise Management	2			4	06
	SUB TOTAL CREDITS			00	8	12

**Core Modules**

Code	Module Title	L	T	P	AS	To-tal	
Value							
MET	3D Modeling using Solid Works software	1	3			4	06
HET	Heavy Equipment Workshop management	3	1		2	4	06
HET	Heavy Equipment Electrical main-tanence	3		4		7	10
HET	Engine Management and control system diagnosis	3		4		7	10
HET	Project Work		3			3	04
HET	Industrial Practical Training		1	6		7	10
	SUB TOTAL CREDITS				4	32	46
	TOTAL CREDITS SEMESTER I					40	58

## HIGHER DIPLOMA IN AUTOMOTIVE ELECTRONICS ENGINEERING

(NTA LEVEL 7)

Semester I Modules

	Module Code	Module Title	Class	Credits
1.	GSU 07111	Advance Calculus.	Funda-mental	6

2.	GSU 07113	Technical Communication Skills.	Fundamental	6
3	GSU 07114	Ethics and Enterprises Management	Fundamental	6
3.	AEU 07111	Internal Combustion Engines.	Core	12
4.	AEU 07112	Automotive Brake Systems.	Core	12
5.	AEU 07113	Material Engineering and Technology	Core	9
6.	ETU 07111	Analogue Electronics	Core	9
		Total Credits		60

Semester II Modules

	Module Code	Module Title	Class	Credits
1.	GSU 07211	Numerical Methods	Fundamental	6
2.	AEU 07211	Statistical Digital Signal processing	Core	6
3.	CSU 07211	Computer Programming	Fundamental	6

4.	AEU 07212	Automotive Suspension System.	Core	9
5.	AEU 07213	Automotive Electrical and Electronics Power Systems.	Core	9
6.	AEU 07214	Engineering Thermodynamics	Core	9
7.	AEU 07215	Automotive Sensors and Actuators.	Core	9
8.	AEU 07216	Industrial Practical Training (IPT) 1	Core	10
		Total Credits		64

### Semester III Modules.

	Module Code	Module Title	Class	Credits
1.	GSU 07311	Advanced Statistics	Fundamental	6
2.	AEU 07311	Automotive Drive Train Systems.	Core	9
3.	ETU 07311	Microcontroller programming Using		
	Core	9		

4.	AEU 07312	Automotive Heating, Ventilation and Air Conditioning.	Core	9
5.	AEU 07313	Engineering Measurements and Instrumentation.	Core	9
6.	AEU 07314	Automotive Power Electronics and Motor Drives.	Core	9
7.	AEU 07315	Automotive Maintenance Management.	Core	9
	Total Credits		60	

#### Semester IV Modules

	Module Code	Module Title	Class	Credits
1.	GSU 07411	Computing Using Mathematical		
	Fundamental	6		
2.	AEU 07411	Research Methodology	Fundamental	9
3.	AEU 07412	Fluid Power and Control	Core	12

4.	AEU 07413	Control Systems Engineering	Core	12
6	AEU 07414	Automotive Electronic Auxiliary Systems.	Core	12
7	AEU 07415	Industrial Practical Training (IPT) II	Core	10
Total Credits				61

**BACHELOR DEGREE IN AUTOMOTIVE ELECTRONICS  
ENGINEERING  
(NTA LEVEL 8)**

**Semester I Modules**

	Module code	Module title			
1	AEU 08111	Electronic Engine Management	Core	9	
2	AEU 08112	Hybrid and Electric Vehicles	Core	9	
3	AEU 08113	Vehicle Comfort and Safety	Core	9	
4	AEU 08114	Automotive Communication and Information Systems	Core	9	
5	AEU 08115	Automotive Electromagnetic Interface and Compatibility	Core	9	
6	AEU 08116	Road Traffic Accident Investigation	Core	6	

7	AEU 08117	Project proposal.			9
			60		

## Semester II Modules

	Module code	Module title	Class	Cred-its	
1	AEU 08215	Project Management and Procurement	Funda-mental	6	
2	AEU 08216	Engineering Ethics and Professional Conduct	Funda-mental	6	
3	AEU 08211	Environmental and	Safety Engi-neering	Core	6
4	AEU 08212	Automotive Netwo	rking and Proto-colls	Core	9
5	AEU 08213	Alternative Energy Technology	and Fuel	Core	9
6	AEU 08214	Automotive			
	Diagnostics and Testing	core	12		
7	AEU 08217	Project Work		Core	12

Total		60			
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## **7.1.2 Members of the Teaching Staff**

### **AUTOMOTIVE ENGINEERING DEPARTMENT**

#### **STAFF**

#### **HEAD OF DEPARTMENT**

#### **Eng.D. S. Mtunguja**

M.Tech. (Automotive Electronics) VIT University-India; Adv. Diploma (Automotive Eng.) National Institute of Transport (NIT); Diploma (Technical Education) Klerruu-Iringa; FTC (Automotive Engineering) Technical College Arusha (TCA); TVET (TOT Program) Queensland Australia; Professional (Driving Instructor) National Institute of Transport.

#### **DEPUTY HEAD OF DEPARTMENT**

#### **Dr. Robert Moshi**

PhD (Energy) Nelson Mandela University; MSc. (Production Engineering) UDSM; Advanced Diploma (Mechanical Engineering) DIT; Diploma (Technical Education) Klerruu-Iringa; FTC (Automotive Engineering) TCA; Cert. (EFI and Automatic Transmission) Nakawa, Uganda; Cert. (Instructional Skills) Camosun College Victoria, BC, Canada.

## **Eng.S.A.Maginga; DEPARTMENT RESEARCH AND PROJECT COORDINATOR**

M.Tech. (Automotive Electronics) VIT University; B. Eng. (Automobile Eng.) NIT; Diploma (Technical Education (DTE)) Klerruu Teachers' College; FTC (Mechanical Engineering) TCA.

### **Eng.C. A. Mkumba**

MSc. (Engineering Maintenance Management) DIT); B.Eng. (Automobile) NIT; Diploma (Technical Education) Klerruu; FTC (Automotive) TCA; Cert. (EFI, Engine management, Automatic transmission, Air condition and CBET Curriculum and Instructional material development) NITT-India; TOT (Design of small hydropower work) IIT ROORKEEIndia; Driver Instructor (ATC).

### **Eng. Julian K. Sowani**

Advanced Diploma (Mechanical Engineering) DIT; Full Technician Certificate (Mechanical) DIT; Certificate (Vocational Education) MVTTC-Morogoro; Driving Instructor certificate (ATC).

### **Eng. E. S. Bovia**

B. Eng. (Automobile Engineering) NIT; Diploma (Automobile Eng.) NIT; FTC (Mechanical Engineering) DIT.

### **Eng.Bisher A.**

## **DEPARTMENT CURRICULUM COORDINATOR**

B.Eng. (Automobile) NIT, Advanced Secondary Education (PCM)-Shaban Robert Sec.

**Eng.G. M. Mollel- DEPARTMENT EXAMINATION COORDINATOR**

B.Eng. (Automobile Eng.); Diploma (Automobile Eng.) NIT; Advanced Secondary Education (PCM) Same Secondary.

**Jolvin Sylvester Jovin**

Diploma in Automobile Engineering –NIT, Driving Instructor –ATC, Certificate in Mineral blastingMRI, Certificate in First Aid –RED CROSS Tanzania

**Ally Nuhu Kigundula**

Certificate in Auto body Repair level II VETA DSM, Driving Instructor certificate ATC

**Eliya Msangazi**

Driving Instructor certificate (ATC); Certificate (Vocational Education - CBET) VETA –Tanga.

**Lagwen G. Dahaye**

Certificate (vocational CBET-III) VETA Oljoro, Arusha.

**Benjamini Wanjara Jonas**

Certificate in Auto Electric level II ATC, Driving Instructor ATC

**KIMWERI SAMRI**

Certificate in Motor Mechanics Level III ATC, Driver Instructor certificate- ATC, Certificate in Tour guide –Tropical Centre- Arusha

## 6.2 Civil Engineering Department

This Department offers a three-year programmer leading to Ordinary Diploma in Civil Engineering. In order to keep abreast with global technological changes, the current system ensures that learners possess the necessary required competences that can be applied in relevant workplaces. Apart from the training activities in the department, the experienced staff also offer consultancy in the buildings and civil works whenever needed. Their experiences and services have been of great benefits to the community.

The Department has introduced a new undergraduate programmer of Civil and Irrigation Engineering in the academic year 2010/2011. Also the department has introduced Ordinary Diploma Programmers in Civil and Irrigation Engineering started in the Academic year 2011/2012 and in 2023/2024 the department has also introduced two program which are Bachelor degree in Civil Engineering and Ordinary Diploma in Architecture. The programmer is a multi-sector programmer, which is designed to train graduates who will serve both irrigation (agricultural) sector and construction industry. The Department has adequate resources to run its programmers, which include well-equipped laboratories/ workshops and classrooms, 23 teaching staff and 4 technical support staff. For ensuring effective acquisition of the learning outcomes and for smooth running of the training as stipulated in the curricula, the department collaborates with other experts from the relevant sources.



Civil engineering student in a practical session in Water Quality Laboratory

## I. CIVIL ENGINEERING PROGRAM

### a) BASIC TECHNICIAN CERTIFICATE IN CIVIL ENGINEERING (NTA LEVEL 4)

#### SEMESTER I

#### Fundamental Modules

Code	Module Title	Credit
GST 04111	Algebra and Trigonometry	6
ITT 04117	Basic Computer Application	6
	Total Credits	12

## Core Modules

<b>Code</b>	<b>Module Title</b>	<b>Cred-its</b>
CET 04111	Building Construction and Maintenance	9
CET 04112	Soil Mechanics	10
CET 04113	Basic Engineering Drawing	9
CET 04114	Construction Technology	
(Masonry, Carpentry)	9	
CET 04115	Aluminum and finishing work (Aluminum, painting, Tiles Terrazzo)	10
	<b>Total Credits</b>	<b>47</b>

## SEMESTER II

## Fundamental Modules

<b>Code</b>	<b>Model Title</b>	<b>Cred-its</b>
GST 04211	Linier Algebra, statistics and complex number	6
GST 04213	Business Communication Skills	6
GST 04214	Entrepreneurship for Technician	6
	<b>Total Credits</b>	<b>18</b>

## Core Modules

Code	Module Title	Credits
CET 04211	Basic Structural Mechanics	9
CET 04212	Installation and Maintenance of Services	
(Plumbing, Welding, Electrical Installation)	9	
CET 04213	Basic Engineering Material	9
CET 04214	Basic Engineering Surveying	6
CET 04215	Industrial practical training	10
	Total Credits	43

**b) TECHNICIAN CERTIFICATE IN CIVIL ENGINEERING (NTA LEVEL 5)**

**SEMESTER I**

**FUNDAMENTAL MODULES**

Code	Module	Credits
GST 05111	Differentiation and Integration	6
GST 05112	Principles of thermodynamics, Waves and polymer.	6
	Total Credits	12

CORE MODULES		
Code	Module	Credits

CET 05111	Engineering Surveying	9
CET 05112	Engineering Drawing	9
CET 05113	Civil Engineering Materials	10
CET 05114	Road design	6
CET 05115	Water Supply and Sanitation	9
	Total Credits	43

## SEMESTER II FUNDAMENTAL MODULES

Code	Module Title	Cred-its
GST 05211	Differential Equations and Coordinate Geometry	6
GST 05212	Introduction to Networking	5
	Total Credits	11

## CORE MODULES

Code	Module title	Cred-its
CET 05211	Structural Mechanics	9
CET 05212	Quantity Surveying	6
CET 05213	Workshop and Construction Practice	10
CET 05214	Construction Management	9

CET 05215	Road Construction and Maintenance	6
CET 05216	Building Plumbing and Finishing Materials	6
	Total Credits	46

**c) ORDINARY DIPLOMA IN CIVL ENGINEERING  
(NTA LEVE 6)**  
**SEMESTER I**

<b>Code</b>	<b>Module title</b>	
CED 06114	Building Construction	9
CED 06115	Reinforced Cement Concrete Design	10
CED 06116	Soil Mechanics and Foundations	9
CED 06117	Structural Timber Design	6
CED 06118	Architectural Design and Drawing	9
CED 06119	Project I (Introduction to Research Methodology and Project Proposal Writing)	10
CED 06120	Civil Engineering Design Software	9
	Total Credits	62

SEMESTER II

**Code Module Credits**

CED 06211	Hydraulics and Fluid Mechanics	9	
CED 06212	Construction Management and Procurement Practice	9	
CED 06213	Public Health Engineering	6	
CED 06214	Structural Steel Design		9
CED 06215	Building Materials and Maintenance	9	
CED 06216	Project II (Project Implementation and Report Writing)	10	
CED 06217	Social and Environmental Management	6	
	Total Credits	58	

**d) HIGHER DIPLOMA IN CIVIL ENGINEERING  
(NTA LEVEL 7)  
SEMESTER I**

Fundamental Modules			
Code	Module Code	Credits	
GSU 07111	Advanced calculus	6	
GSU 07113	Technical communication skills	6	
GSU 07114	Entrepreneurship	6	
	Total Credit.	18	

**Core Modules**

<b>Code</b>	<b>Module Code</b>	<b>Cred-its</b>
CEU 07111	Engineering surveying	9
CEU 07112	Building planning and Drawing	6
CEU 07113	Civil Engineering Material	9
CEU 07114	Construction Technology	6
CEU 07115	Basics of Soil Mechanics	6
	Total Credit.	36

**SEMESTER II****Fundamental Modules**

<b>Code</b>	<b>Module Title</b>	<b>Cred-its</b>
GSU 07211	Numerical Methods	6
	Total Credit	6

**Core Modules**

<b>Code</b>	<b>Module Title</b>	<b>Cred-its</b>
CEU 07211	Concrete Technology	9
CEU 07212	Elementary Structural Analysis	6

CEU 07213	Fluid Mechanics	6
CEU 07214	Engineering Geology	9
CEU 07215	Soil Mechanics	9
CEU 07216	Traffic Engineering	9
CEU 07217	Industrial Practical Training	12
	Total Credit	60

### SEMESTER III

#### Fundamental Modules

Code	Module Title	Cred-its
GSU 07311	Advanced statistics	6

### CORE MODULES

Code	Module Title	
CEU 07311	Geotechnical Engineering	9
CEU 07312	Structural Analysis	9
CEU 07313	Reinforced Concrete Design I	9

CEU 07314	Open Channel Hydraulics	9
CEU 07315	Engineering Hydrology	6
CEU 07316	River and Reservoir Operation	9
	Total Credit.	51

## SEMESTER IV

## CORE MODULES

Code	Module Title	
CEU 07411	Quantity Surveying	6
CEU 07412	Reinforced Concrete Design II	9
CEU 07413	GIS and Remote Sensing	9
CEU 07414	Construction Management	9
CEU 07415	Pavement Design and Construction	9
CEU 07416	Route and Geometric Design	9
CEU 07417	Industrial Practical Training	12
	Total Credit	63

**e) BACHELOR DEGREE IN CIVIL ENGINEERING  
(NTA LEVEL 8)**

**SEMESTER II**  
**Fundamental Modules**

Code	Module Title	Credits
GST 05211	Differential Equation and Coordinate Geometry	6
GST 05212	Introduction to Networking	5
	<b>Total Credit</b>	<b>11</b>

**Core Modules**

Code	Module Title	
CIT 05211	Structural Mechanics	9
CIT 05212	Quantity Surveying	6
CIT 05213	Workshop and Construction Practice	8
CIT 05214	Construction Management	9
CIT 05215	Road Construction and Maintenance	6
CIT 05216	Basic Hi-Tech Farming	6
CIT 05217	Industrial Practical Training	10
	<b>Total Credit</b>	<b>54</b>

**c) ORDINARY DIPLOMA IN CIVL & IRRIGATION**

# ENGINEERING (NTA LEVEL 6)

## SEMESTER I

### Core Modules

Code	Module Title	Credits
CID 06110	Civil & Irrigation Engineering Design Software	9
CID 06111	Construction of irrigation projects	6
CID 06112	Open and closed Channel Hydraulics	9
CID 06127	Reinforced Cement Concrete Design	6
CID 06132	Soil Mechanics and Foundations	6
CID 06113	Crop Water Requirement and Irrigation Schedule	6
CID 06114	Design of small-scale irrigation schemes	9
CID 06129	Project I (Introduction to Research Methodology and Project Proposal Writing)	5
	Total Credit	56

## SEMESTER II

### Core Modules

Code	Module Title	Credits

CID 06210	Climate Smart Agriculture & Land suitability for irrigation	6
CID 06211	Basics of GIS and Remote sensing	9
CID 06212	Construction Management and Procurement Practice	9
CID 06213	Irrigation Water Supply	6
CID 06214	Operation and Maintenance of Irrigation Systems	9
CID 06215	Performance Evaluation of irrigation systems	9
CID 06222	Social and environment management	6
CID 06237	Project (Project Implementation and Report Writing)	10
	Total Credit	64

**d) HIGHER DIPLOMA IN CIVIL AND IRRIGATION ENGINEERING (NTA LEVEL 7)**

**SEMESTER I**

**Fundamental Modules**

Code	Module Code	Credits
GSU 07111	Advanced calculus	6
GSU 07113	Technical communication skills	6

GSU 07114	Entrepreneurship	6
	Total Credit.	18

## Core Modules

Code Module Code      Credits

CIU 07111	Engineering surveying	9
CIU 07112	Building planning and Drawing	6
CIU 07113	Civil Engineering Material	9
CIU 07114	Construction Technology	6
CIU 07115	Basics of Soil Mechanics	6
CIU 07116	Soil science	6
	Total Credit.	42

## SEMESTER II

## Fundamental Modules

Code	Module Title	Cred-its
GSU 07211	Numerical Methods	6
	Total Credit	6

## Core Modules

Code	Module Title	Credits
C1U 07211	Concrete Technology	9
C1U 07212	Elementary Structural Analysis	6
C1U 07213	Fluid Mechanics	6
C1U 07214	Irrigation principles and Practices	9
C1U 07215	Soil Mechanics	6
C1U 07216	Design of Diversion and Impounding Structures	9
IPT07-1	Industrial Practical Training	12
	Total Credit	57

### SEMESTER III

#### Fundamental Modules

Code	Module Title	Credits
GSU 07311	Advanced statistics	6

### CORE MODULES

Code	Module Title	Credits
CIU 07311	Geotechnical Engineering	9

CIU 07312	Structural Analysis	9
CIU 07313	Reinforced Concrete Design I	9
CIU 07314	Open Channel Hydraulics	6
CIU 07315	Engineering Hydrology and Meteorology	6
CIU 07316	River and Reservoir Operation	9
CIU 07317	Design of Pressurized Irrigation Systems	9
	Total Credit.	57

**SEMESTER IV**  
**CORE MODULES**

Code	Module Title	Credits
CIU 07411	Quantity Surveying	6
CIU 07412	Reinforced Concrete Design II	9
CIU 07413	GIS and Remote Sensing	9
CIU 07414	Construction Management	9
CIU 07415	Irrigation System Performance Evaluation	9
IPT07-2	Industrial Practical Training	12
	Total Credit	54

## e) BACHELOR DEGREE IN CIVIL AND IRRIGATION ENGINEERING (NTA LEVEL 8)

### SEMESTER I

#### Core Modules

C

Code	Module Title	Credits
	Social and Environmental Management	9
	Design of steel structures	9
	Groundwater Engineering	9
	Engineering Economics and Project Appraisal	9
	Project Planning and Methodology	9
	Water supply engineering	9
	Public Health Engineering	6
	Geostatistics	6
	Total Credit	66

### SEMESTER II

#### Core Modules

Code	Module Title	
CIU 08211	Irrigation Water Management	6
CIU 08212	Contract Management	9
CIU 08213	Structural Timber Design	6

CIU 08214	Wastewater management	6
CIU 08215	Engineering Ethics	6
CIU 08216	Project Data Analysis and Realization	9
CIU 08217	Maintenance of Civil and Irrigation infrastructure	6
CIU 08218	Bridge Design and Construction	6
	Total Credit	54

### III. ARCHTECTURE PROGRAM

#### a) BASIC TECHNICIAN CERTIFICATE IN ARCHTECTURE (NTA LEVE 4)

#### SEMESTER I

#### Fundamental Modules

Code	Module Title	Credit
GST 04111	Algebra and Trigonometry	6
ITT 04117	Basic Computer Application	6
	Total Credit	12

#### Core Modules

Code	Module Title	
CAT 04101	Introduction to Architectural Draughting	10

CAT 04102	Building Maintenance	9
CAT 04103	Vernacular Building Materials	6
CAT 04104	Introduction to Building services	6
CAT 04105	Construction Technology (Masonry, Carpentry)	9
	Total Credit	40

## SEMESTER II

### Fundamental Modules

Code	Model Title	Credits
GST 04211	Business communication skills	6
GST 04212	Linear Algebra, Complex Number and statistics	6
GST 04213	Entrepreneurship for Technicians	6
	Total Credit	18

### Core Modules

Code	Module Title	Cred-its
CAT 04201	Intermediate Architectural Draughting	10
CAT 04202	Building Construction	9

CAT 04203	Basics of Structural Design	9
CAT 04204	History of Architecture	6
CAT 04205	Basic Engineering Surveying	6
CAT 04206	Industrial Practical Training	10
	Total Credit	50

**b) TECHNICIAN CERTIFICATE IN ARCHTECTURE  
(NTA LEVE 5)  
SEMESTER I  
CORE MODULES**

Code	Module	
CAT 05101	Basic Architectural Design	6
CAT 05102	Modern Building Technology	6
CAT 05103	Engineering Surveying	9
CAT 05104	AutoCAD	9
CAT 05105	Modern Building Materials	9
CAT 05106	Specialized Building Services	6

CAT 05107	Construction Management	9
	Total Credits	54

## SEMESTER II

### FUNDAMENTAL MODULES

Code	Module Title	Cred-its
GST 05217	Differential Equations and Coordinate Geometry	6
	Total Credits	6

### CORE MODULES

Code	Module title	Cred-its
CAT 05202	Advanced structural design	4
CAT 05203	Building Plumbing and Finishing Materials	6
CAT 05204	Theory of Architecture	6
CAT 05205	Quantity Surveying	6
CAT 05206	Workshop and Construction Practice	10
CAT 05207	ARCHI CAD / SKETCHUP	9
CAT 05201	Architectural Design	9

CAT 05209	IPT II	10
	Total Credits	60

**c) ORDINARY DIPLOMA IN ARCHTECTURE (NTA  
LEVEL 6)**

**SEMESTER I**

Code	Module title	
CAT 06101	Specialized structural Design	9
CAT 06102	Specialized Building Technology	10
CAT 06103	Social and environmental management	9
CAT 06104	Project I (Introduction to Research Methodology and Project Proposal Writing)	10
CAT 06105	Civil Engineering Design Software	9
CAT 06106	Measurement & Estimation	9
CAT 06107	Climatic Design	9
	Total Credits	65

**SEMESTER II**

Code	Module	Cred- its

CAT 06201	Project Architectural Design	10
CAT 06202	Professional Practice	6
CAT 06203	Construction Management and Procurement Practice	9
CAT 06204	Urban &Housing Development	9
CAT 06205	Advanced Building Technology	9
CAT 06206	Architectural Conservation	6
CAT 06207	Building Information Modelling	6
	Total Credits	55

## 7.2.2 Members of the Teaching Staff

### Head of Department

**Y. G. Anderson**

BSc. (Agronomy) Sokoine University of Agriculture.

### Other Staff

**Dr. U. E. Msovu**

PhD (Water Resources Engineering) University of Dar es Salaam (UDSM); MSc. (Water Resources Management and Technology) Birmingham University, UK; BSc. (Environmental Engineering) UDSM. Registered Graduate Engineer (GE No ..... ) ERB.

**Dr. Yusuph B. Mhando**

PhD (Construction Engineering and Management) Makerere University; MSc, PGD (Construction Economics and Management) Ardhi University; Advance Diploma in Engineering (Buildings and Civil) DIT; Full Technician Certificate (FTC) in Engineering (Buildings and Civil) DIT; Diploma (Technical Education) Klerruu; Certificate (Instructional Skills) Camosun-CANADA; RTT (NACT-VET); Registered Professional Engineer (P. Eng. No 7610) ERB.

**S. Bungara**

MSc. (Structural Eng.) UDSM; BSc. (Civil and Structural Engineering) UDSM; Diploma (Ed.) Klerruu Teachers' College. Reregistered Professional Engineer (P.Eng. No 5179) ERB

**A. A. Ngoma**

MSc. (Architecture) ARU, BSc. (Architecture) MUST.

**H. K. Hymale**

MSc. (Hydrology & Water Resources Engineering) Nelson Mandela Institute of Technology; B. Eng. (Civil) DIT; FTC (Civil Eng.) DTC.

**D. A. Michael**

MSc (Water Resources Engineering) UDSM; BSc. (Civil and Water Resources Engineering (Hons)) UDSM; FTC (Electrical Engineering) ATC. Reregistered Professional Engineer (P. Eng. No 6908) ERB.

**F. M. Magania**

B.Eng. (Civil & Irrigation) ATC; Dipl. (Irrigation Eng.) Igurusi, Mbeya; Registered Professional Engineer (P. Eng. No.5671) ERB.

**K. C. Lusato**

BSc. (Building Economics (Hons)) UDSM.

**S. Issa**

BEng. (Civil and Irrigation (Hons)) ATC; Dip. (Transportation Engineering) ATC.

**C. N. Selestine**

BEng. (Civil and Irrigation (Hons)) ATC; Dip. (Civil Engineering) ATC.

**E. W. Msuya**

BEng. (Civil Eng.) MIST; Dip. (Civil Engineering) ATC; Technical Teaching (Grade A) Mtwara Tech Teachers College. Registered Graduate Engineer (G Eng. No 5079) ERB.

**S. Selestine**

BEng. (Transportation) DIT; Dip. (Civil Engineering) ATC. Reregistered Professional Engineer (P. Eng. 5128) ERB.

**N. R. Chacha**

BSc. (Building Economics) Ardhi University.

**E. J. Manase**

BSc. (Geomatics) ARU; Diploma (Education) Monduli TTC; Training (GIS) ARU.

**R. J. Idelya**

BSc. (Architecture) ARU.

**J. E. Magige**

BSc (Civil Engineering) UDSM.

**M. F. Athumani.**

B-Eng. (Civil & Irrigation) – ATC, Ordinary Diploma in (Civil & Irrigation)- ATC.

**P.E. Ng'hwani.**

BSc (Geomatics) ARU. Full Registered Surveyor.

**M. D. Timoth**

Diploma (Lab. Science and Technology) ATC; Certificate (Irrigation Farming System Mgt.) SUA; Certificate (Instruction Skills Workshop) CAMOSUN College; Certificate (First Aid Course) St. John Ambulance Assc. TZ.

**J. R. Mruma**

Diploma (Water Quality Lab Tech.) Water Development and Mgt. Inst, DSM.

**L. B. Mjengi**

Ordinary Diploma in Civil Engineering (NTA L VI) ATC, Trade Test I Masonry and Bricklaying.

**R. Kundaeli**

Basic Technician Certificate in Civil engineering (NTA

Level IV) ATC, Masonry and Brick laying Grade I VETA DSM, Fitter and Tuner Grade III.

### **A. A. Mazengo**

Trade Test I Carpentry, VETA DSM.

## **6.3 TRANSPORTATION ENGINEERING DEPARTMENT**

### **SHORT INTRODUCTION**

Transportation Engineering Department was established in 1991 under the agreement of technical cooperation between the governments of United Republic of Tanzania and Federal Republic of Germany. The aim of establishing the department is to train technician in tl  
a  
p  
tl



Student in a practical session in soil and Bitumen laboratory

The Transportation Engineering encompasses a wide range of knowledge covering the civil engineering works associated with planning, design, construction and management of transportation facilities. The graduate is expected to supervise construction work such as buildings, roads, bridges, track laying, docks and harbors. Also the graduate is expected to carry out tests on soils and road and building materials to determine their suitability for roads, buildings and other civil engineering works. The graduate should be able to undertake survey for buildings, harbours, dams and road works, airport, bridges and railway projects. The programme aims on providing skills and knowledge that are vital to employers' and other stakeholders, to entice self-realization and skills that enable graduates to be self-employed.

Besides the training the department provides consultancy on testing construction materials to the community around the region. The Department has adequate resources to run its programmes, which include well-equipped laboratories/workshops and classrooms, teaching staff, technical staff and supporting staff members. In academic year 2020/21 the department has launched a Bachelor's degree in Civil and Highway Engineering.

Courses offered by Transportation Engineering Department

S/N	PROGRAM OFFERED	DURATION	
1	Basic Technician Certificate in Civil and Highway Engineering (NTA level 4)	01 year	
2	Technician Certificate in Civil and Highway Engineering (NTA Level 5)	2	
3	Ordinary Diploma in Civil and Highway Engineering	(NTA Level 6)	3
4	Higher Diploma in Civil and Highway Engineering (NTA Level 7)	2	
5	Bachelor Degree in Civil and Highway Engineering (NTA Level 8)	3	

## PROGRAMME MODULES

### NTA LEVEL 4

### SEMESTER I

#### Fundamental Modules

Code	Module title					
( Hours per week )	Credits					
		Lecture	Tutorials	Practical	Assignment	

GST 04111	Algebra and Trigo- nometry	2	1	-	1	6
ITT 04117	Basic Computer Applica- tion	2	1	-	1	6
	<b>TOTAL</b>	<b>04</b>	<b>02</b>	<b>-</b>	<b>02</b>	<b>12</b>
Total hours per week = 10						

Table2: Core Modules

Code	Module title					
( Hours per week )	Credits					
		Lec- ture	Tutori- als	Practi- cal	As- sign- ment	
CHT 04111	Building Construc- tion and Mainte- nance	2	-	4	-	9

CHT 04112	Soil Mechanics	1	-	4	1	9
CHT 04113	Basic Engineering Drawing	1	1	4	-	9
CHT 04114	Construction Technology (Masonry, Carpentry, Painting)	2	-	3	1	9
CHT 04115	Basic Labour Based Road Engineering	2		4	2	12
	<b>TOTAL</b>	8	1	19	4	48
Total hours per week = 28						

## SEMESTER II MODULES

### Table 3: Fundamental Module

Code	Module title					

( Hours per week )	Credits					
		Lec- ture	Tutori- als	Practi- cal	As- sign- ment	
GST 04211	Linear Algebra, statistics and com- plex num- ber	2	1	-	1	6
GST 04213	Business Commu- nication skills	2	1	-	1	6
GST 04214	Entrepre- neurship for Tech- nician	2	1	-	1	6
	TOTAL	06	03	0	3	18

Total hours per week = 10

**Table 4: Core Modules**

Code	Module title					
(Hours per week)	Credits					

		Lec- ture	Tuto- rials	Prac- tical	As- sign- ment	
CHT 04211	Basic Structural Mechanics	2	2	-	2	9
CHT 04212	Installation and maintenance of Services					
CHT 04213	Basic Civil Engineering Materials	2	-	4	-	9
CHT 04214	Basic Engineering Surveying	1	-	3	-	6
CHT 04215	Industrial practical training	10				
	<b>TOTAL</b>	6	2	12	2	43

Total hours per week = 26: Total Number of Credits for  
**NTA level four (4) = 121**

## **NTA LEVEL 5** **- SEMESTER 1 MODULES**

Code	Module title					

( Hours per week )	Credits					
		Lec- ture	Tutori- als	Practi- cal	As- sign- ment	
GST 05111	Differenti- ation and Integra- tion	2	1	-	1	6
GST 05112	Thermal Energy, Waves and Or- ganic Com- pounds	2	-	-	2	6
	Subtotal	4	1	0	3	12

Table 5:Fundamental Modules

Total hours per week = 11

Table 6:Core Modules

Code	Module title	Scheme of Study				
(Hours per week)	Credits					
		Lecture	Tutori- als	Practi- cal	Assign- ment	

CHT 05120	Engineering Surveying	1	-	4	1	9
CHT 05121	Engineering Drawing	1	-	5	-	9
CHT 05122	Civil Engineering Materials	1	-	4	-	10
CHT 05123	Road design	2	-	-	2	6
	Water Supply and Sanitation	2	-	3	1	9
	Subtotal	7	0	16	4	43

Total hours per week = 28: Total Number of Credits for NTA level four (4) = 120

## SEMESTER II MODULES

Table 7: Fundamental Modules

Code	Module title	Scheme of Study				
( Hours per week )	Credits					
		Lecture	Tutorials	Practical	As-	
GST 05211	Differential Equations and Coordinate Geometry	2	1	-	1	6

GST 05214	Fundamental of Computer Networking	1	-	2	1	6
	Subtotal	03	01	02	02	12

Total hours per week = 15

Table 8: CORE MODULES

Code	Module title	Scheme of Study				
(Hours per week)	Credits					
		Lecture	Tuto- rials	Practi- cal	As- sign- ment	
CHT 05225	Structural Me- chanics					
CHT 05226	Quantity Sur- veying	2	-	-	2	6
CHT 05227	Workshop & Construction Practice	1	-	4	2	10
CHT 05228	Construction Management	2	-	2	2	9
CHT 05229	Road Con- struction and Maintenance	2	-	-	2	6
CHT 05230	Water-ways Engineering	2	1	-	1	6
	Industrial Practical train- ing	-	-	-	-	10

	Subtotal	11	3	6	11	56
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Total hours per week = 28

## NTA LEVEL 6

### Semester 1 Modules

Table 9: Core Modules

Code	Module title						
( Hours per week )	Credits						
		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
CHD 06121							
	Route de-sign	2	2	4	2	10	10
CHD 06127							
	Reinforced Concrete Design.	2	2	-	2	6	6
CHD 06122							
	Pavement Materials	2	2	5	1	10	10
CHD 06123							

	Traffic and Transportation Engineering	2	2	5	1	10	10
CHD 06124							
	Basic Bridge Construction and Maintenance	3	4	-	2	9	9
CHD 06132							
	Soil Mechanics and foundations	2	-	2	1	5	5
CHD 06133							
	Structural Timber Design	2	2	-	1	5	5
CHD 06129							
	Project Outline Methodology	4	4	4	-	10	10
CHD 06145							

	Civil Engineering design software						
	2	2	6	-	10	10	
	Subtotal	21	20	24	10	75	75

Total credits in Semester I = 75

## Semester II Modules

Table 10: Core Modules

Code	Module title						
(Hours per week)	Credits						
		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
CHD 06222							
	Social and Environmental Management	2	2	-	2	6	6
CHD 06223							
	Construction Management and Procurement Practice	4	4	-	1	9	9

CHD 06236							
	Pavement Engineering	2	4	4	-	10	10
CHD 06230							
	Structural Steel Design	2	2	-	2	6	6
CHD 06235							
	Hydraulics	1	-	5	-	6	6
CHD 06237							
	Project Data analysis and Report	2	2	6	-	10	10
	Subtotal	13	14	15	5	47	47

Total credits in semester II= 47

Table 11: Elective Modules

Code	Module title						
(Hours per week)	Credits						
		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
CHD 06237							

	Railway Engineering	2	1		-	3	3
CHD 06241	Airport Engineering	2	1		-	3	

3

Total Credits in elective Module = 03

Total Number of Credits for NTA level Six (6) = 125.

NTA LEVEL 7-1

SEMESTER I Modules

Table 12: Fundamental Modules

Code	Module title						
(Hours per week)	Credits						
		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
	Advanced calculus	2	1	-	1	4	6
	Technical Communication Skills	2	1	-	1	4	6
	Entrepreneurship	2	1	-	1	4	6
	Subtotal	6	3	-	3	12	18

Table 13: Core Modules

Code Module title Scheme of Study  
(Hours per week) Credits

		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
	Land Survey-ing	2	-	4	-	6	9
	Buildings Planning and Drawing	1	1	-	2	4	6
	Civil Engi-neering Mate-rials	2	-	4	-	6	9
	Building Con-struction	2	-	4	-	6	9
CHU 07115	Strength of Materials	2	2		2	6	9
	Subtotal	9	3	12	4	28	42
Total credits in Se-mester I=60							

## SEMESTER II Modules

Table 14: Fundamental Modules

Code	Module title						
(Hours per week)	Credits						
		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
GSU 07211	Numerical Methods	2	1	-	1	4	6

	Subtotal	2	1	-	1	4	6
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Total hours per week=07

Table 15: Core Modules  
Code Module title Scheme of Study  
(Hours per week) Credits

		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
CHU 07211	Land Survey	2	1	2	1	6	9
CHU 07212	Soil Mechan-ics	2		4	-	6	9
CHU 07213	Concrete Technology	2		4	-	6	9
CHU 07214	Elementary Structural Analysis	2		2	-	04	8
CHU 07215	Fluid Me-chanics	2	-	2	-	4	8
CHU 07216	Computer Aided Draw-ing Planning and Design-ing	2	-	2	2	4	6
	Industrial Practical Training						10
	Subtotal	12	1	16	3	30	59

Total credits in semester II=59

NTA LEVE 7-2  
SEMESTER III MODULES

Table 16: Fundamental Modules

Code	Module title						
(Hours per week)	Credits						
		Lec-ture	Tutori-als	Prac-tical	As-sign-ment	Total	
GSU 07311	Advanced Statistics	2	1	-	1	4	6
	Subtotal	2	1	-	1	4	6

Table 17: Core Modules

Code Module title Scheme of Study

(Hours per week) Credits

		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
CHU 07311	Highway Geometric Design	2	2	-	2	6	9
CHU 07312	Engineering Geology	1	1	-	2	4	6
CHU 07313	Measurement and estimation of civil works	1	1		2	4	6
CHU 07314	Structural Analysis	2	1	1	2	06	9
	Construction Management	2	1	-	1	4	6
	Reinforced Concrete Design I	2	2		2	6	9

	Open Channel Hydraulics	2	1		1	4	6
CHU 07318	Construction Technology	2	1	1	1	5	6
	Subtotal	11	6	11	12	32	48

Total credits in Semester I=54

#### SEMESTER IV Modules

Table 18: Fundamental Modules

Code	Module title						
(Hours per week)	Credits						
		Lec-ture	Tutori-als	Practi-cal	As-sign-ment	Total	
GSU 07423	Research Methodology	1	1	-		2	3
	Subtotal	1	1	-		2	3

Table 19: Core Modules

Code Module title Scheme of Study

(Hours per week) Credits

		Lec-ture	Tuto-rials	Practi-cal	As-sign-ment	Total	
	Water Supply Engineering	1	1	-	2	4	6
	Traffic Engineering	2	1	1	1	5	8
	Geotechnical Engineering	2	2		2	6	9

	Quantity Survey	2	1		1	4	6
	Reinforced Concrete Design II	2	2		2	6	9
	Engineering Hydrology	1	1		2	4	6
	Geographical Information System, GIS, for Land Resources	1	1		2	4	6
	Industrial Practical Training						10
	Subtotal	11	9	1	12	33	60

Total credits in semester II=60

### NTA LEVEL 8

### SEMESTER I MODULES

Table 20: Core Modules

	Module title						
	Credits						
			Tutor- ials	Prac- tical	As- sign- ment	Total	
	Social and Environmental Management	2	2	1	1	6	9

	Engineering Economics and Project Appraisal	2	2	2	2	8	12
	Transportation Engineering	1	1	1	1	4	6
	Structural Steel design	1	1	1	1	4	6
	Bridge Design and Construction	1	2	2	1	6	9
	Foundation Engineering	2	2	2	2	8	12
	Highway Engineering materials	1	1	4	2	8	12
	Project outline and Methodology	2	1		1	4	6
	Subtotal	12	12	13	11	48	72

SEMESTER II Modules  
Table 21: Core Modules

	Module title						
	Credits						
		Lec-ture	Tuto-rials	Prac-tical	As-sign-ment	To-tal	
	Design Software Practices	1	1	3	3	8	12
	Structural Timber design	1	1	1	1	4	6
	Pavement Design and Construction	1	1	1	1	4	6
	Bridge and Pavement Maintenance	1	1	1	1	4	6
	Engineering Ethics	1	0.5	0.5	-	2	3
	Project Data Analysis and Report	2	-	3	2	7	11
	Subtotal	7	4.5	6.5	8	29	44

Total credits in semester II=61

Table 22: Elective Modules

Code	Module title						
	Credits						
		Lec-ture	Tuto-rials	Prac-tical	As-sign-ment	Total	
	Design of water supply system	1	1	-	1	3	5
	Public Health Management	1	1	-	1	3	5
	Subtotal	2	2	0	2	6	10

Total hours per week=02

## TEACHING STAFF MEMBERS

### Head of Department

### Eng. Thomas I. Chuwa

Masters (Infrastructure and Geotechnical Engineering) University of Abou Bekir Belkaid Tlemcen, Algeria; Bachelor (Structure and Environmental Engineering) University of Abou Bekir Belkaid Tlemcen, Algeria; Registered Professional Engineer, P. Eng. (ERB).

## **Deputy Head of Department**

### **Eng. George P. Kitange**

BEng. (Civil Eng.) SAUT; Diploma (Transportation Engineering) ATC, Registered Professional Engineer, P. Eng. (ERB).

Head of Soils Aggregates and Bitumen Laboratory:

### **Eng. J. M. Mangara**

MEng. (Civil Engineering – Geotechnical Engineering) Kyushu University, Japan; B.Eng. (Civil) St Joseph College of Engineering and Technology; FTC (Civil Eng.) Arusha Technical College.

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### **Eng. Amani Abinel Mzolah**

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### **Eng. Siliacus Salvatory Kayungi**

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Juma Said

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**Eng. Mwigine J. Kamlenga**

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**Eng. Frank Lucas Mjebe**

BEng. (Civil Eng.) MUST; Diploma (Mining Eng.) DIT.

**Eng. Joseph Michael Kadinde**

BEng. (Civil Eng.) MUST.

**Reginald. J. Migunzu**

FTC (Civil Engineering) MTC; Advanced Industrial Training (FRG).

**Bahati S. Sulle**

B.Eng in Civil Engineering( St. Joseph University), FTC (Highway Engineering) ATC; Registered Technician (ERB).

## 6.4 ELECTRICAL ENGINEERING DEPARTMENT

### I. Department history

The Electrical Engineering Department was established in 1978 with electrical engineering being the sole discipline enrolling Students for a three year full technician certificate (FTC) course. This program existed up to May 2004. As from July 2005 to date the department started implementing market driven, modular, and competence based education and training (CBET) system replacing former knowledge based FTC system. CBET, which is a three year course focusing mainly on learning outcomes that demonstrate competencies in knowledge and practical skills that are career or task oriented, leads graduates to National Technical Awards (NTAs) namely NTA Level 4 (Basic Technician Certificate), NTA Level 5 (Technician Certificate) and NTA level 6 (Ordinary Diploma) for first, second and third year respectively. A student is promoted from one level to another after successful attainment of the requisite GPA and Grades.

In 2007 the department introduced another discipline, namely Electronics and Telecommunication engineering; Electronics and Telecommunications engineering is modern engineering discipline that deals with designing, fabricating, producing, testing and supervising the manufacturing process of complex electronic products and systems.

In the academic year 2012/2013 the department introduced a third discipline on Electrical and Biomedical Engineering. The objective of this program is to train highly qualified technician in this field, who will be capable



***Electrical Engineering Students in Practical Session.*** of diagnosing, calibrating and repairing the sophisticated biomedical and electrical equipment in hospitals, medical clinics and any health facility. Currently due to this lack of highly qualified technicians in biomedical engineering the percentage of defective equipment (which are repairable) in most national hospitals and various health facilities scattered all over the country is gradually reducing. In academic year 2016/2017 the department introduced a Bachelor degree in Electrical and Biomedical Engineering. The Programme of Bachelor degree in Electrical and

## **2. DEPARTMENT TOUR**

The Department of Electrical Engineering offers one of the strongest research and instructional programs in Tanzania and the region at large. Our key strength is our array of cross-disciplinary and team-driven projects. The integration of Electrical Engineering forms the core, with

strong interactions that extend into Biomedical, Electrical and Hydro power, Electronics and Telecommunication engineering programs.

Each year, top students from across the country are attracted to the Electrical engineering department programs and Arusha Technical College by the excellence of the teaching staff, facilities and hands on skills; the breadth of educational opportunities in Electrical, Biomedical, and Telecommunication Engineering , and location wide; the proximity to the vibrant Arusha with its touristic environment. The department's close ties to the industry, coupled with its commitment to engineering research and education, ensure that students get a rigorous, relevant, and broad education.

Academic staffs at our department are committed to research, informed and creative teaching, and the creative desire to excel. Unlike many institutions of similar stature, regular staff teaches the vast majority of our courses, and the most exceptional teachers are often also the most exceptional researchers.

Training goals at Electrical engineering Department has three parts:

- i. Educating future leaders in academia, government, industry, and entrepreneurial pursuit, through a rigorous curriculum of theory and application that develops the ability to solve problems, individually and in teams.
- ii. Creating knowledge of fundamental principles and innovative technologies, through research within the core areas of respective engineering field and in collaboration with other disciplines that is distinguished by its impact on academia, industry and society.



***Electrical engineering students in the class session of motor rewinding***

**Basic Technician Certificate in Electrical Engineering  
NTA level 4  
Modules Semester I**

Code	Module Title	Credits
GST 04101	Algebra and Trigonometry	5
GST 04102	Mechanics and Nuclear Physics	6
GST 04103	English Language Basics	4

EET 04101	Basic Electricity	9
EET 04101	Analogue Electronics	12
EET 04102	Domestic installation and Mechanical Skills	12
EET 04103	Printed Circuit Board and Draughting Techniques	6
EET 04104	Electrical Measurements I	6
	Total Credits	60

### Basic Technician Certificate in Electrical Engineering

NTA level 4

Modules - Semester II

Code	Module Title	Credits
GST 04201	Series and Boolean Algebra	5
GST 04202	Gender and HIV	4
GST 04203	Microcomputer Application	6
EET 04201	Electrical Material	5
ETT 04201	Digital Combination circuit	11
EET 04202	Workshop Technology and Practice.	12
EET 04204	Electrical Measurements II	6
ITP 04	Industrial Training	10
	Total Credits	60

### Technician Certificate in Electrical Engineering

NTA LEVEL 5

Modules Semester I

Code	Module Title	Credits
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GST 05101	Differentiation and Integration	3
GST 05102	Thermal Energy, Waves and Organic Compounds	6
GST 05103	Introduction to Programming Using C	6
EET 05101	DC Machines	6
ETT 05101	Analogue Electronics Devices and Circuit	7
EET 05102	Computer Aided Design Tools	6
	Workshop Practice	9
EET 05103	Electromagnetism	4
EET 05104	Control Engineering	6
Total Credits		53

### Technician Certificate in Electrical Engineering

NTA LEVEL 5

Modules Semester II

Code	Module Title	Credits
GST 05201	Matrices, Complex and Vectors	3
GST05202	English Language Skills	4
GST 05203	Basics of Entrepreneurship	4
GST 05204	Introduction to Networking	4
EET 05201	AC Machine I	6
ETT 05201	Digital sequential Circuits	9
ETT 05202	Power Electronics	6
EET 05202	Industrial Installation and Transformer rewinding	9
EET 05203	Electrical Power Utilization	6

EET 05204	Power Plants	6
ITP 05	Industrial Training	10
Total Credits		67

### Ordinary Diploma in Electrical Engineering

NTA LEVEL 6

Modules Semester I

Code	Module Title	Credits
GST 06101	Coordinate Geometry and Differential Equations	4
GST 06103	Correspondence, Interpersonal Skills and Report Writing	4
ETT 06101	Analogue Electronics Design	9
ETT 06102	Microcontrollers	8
EET 06101	Induction Motors	8
EED 06102	Automation	8
EET 06103	Motor Rewinding	6
EET 06104	Power Protection	5
EET 06105	Project I	9

Total Credits 61

### Ordinary Diploma in Electrical Engineering

NTA LEVEL 6

Modules Semester II

Code	Module Title	Credits
GST 06201	Linear Programming, Statistics and Probability	3
GST 06204	Enterprise Management	6

EET 06201	Synchronous and Special Machines	6
EET 06202	Electric Drives	6
EET 06203	Refrigeration and Air Conditioning	9
EET 06204	Electrical Maintenance and Management	6
EET 06205	Electrical Power Transmission& Distribution	8
EET 06206	Renewable energy	6
EET 06207	Project II	9

Total Credits 59

Basic Technician Certificate in Electronics and Telecommunications

NTA LEVEL 4

Modules Semester I

Code	Module Title	Credits
GST 04101	Algebra and Trigonometry	5
GST 04102	Mechanics and Nuclear Physics	6
GST 04103	English Language Basics	4
EET 04101	Basic Electricity	9
ETT 04101	Analogue Electronics	12
EET 04102	Domestic Installation and Mechanical Skills	12
EET 04103	Printed Circuit Board and Draughting Techniques	6
EET 04104	Electrical Measurements I	6

Total Credits 60

Basic Technician Certificate in Electronics and  
Telecommunications  
NTA LEVEL 4  
Modules Semester II

Code	Module Title	Credits
GST 04201	Series and Boolean Algebra	5
GST 04202	Gender and HIV	4
GST 04203	Microcomputer Application	5
EET 04201	Electrical Material	6
ETT 04201	Digital Combinational Circuits	12
ETT 04202	Telecommunication Principles	12
EET 04204	Electrical Measurements II	6
ITP 04	Industrial Training	10

Total Credits 60

Technician Certificate in Electronics and  
Telecommunications  
NTA LEVEL 5  
Modules Semester I

Code	Module Title	Credits
GST 05101	Differentiation and Integration	3
GST 05102	Thermal Energy, Waves and Organic Compounds	6
GST 05103	Introduction to Programming Using C	6
ETT 05101	Analogue Electronics Devices and Circuit	7
ETT 05102	Computer Aided Design Tools	6
ETT 05103	Television Technology	9

ETT 05104	Antennas and Transmission Lines	9
EET 05103	Electromagnetism	4
EET 05104	Control Engineering	6

Total Credits 56

Technician Certificate in Electronics and Telecommunications

NTA LEVEL 5

Modules Semester II

Code	Module Title	Credits
GST 05201	Matrices, Complex and Vectors	3
GST05202	English Language Skills	4
GST 05203	Basics of Entrepreneurship	4
GST 05204	Introduction to Networking	4
ETT 05201	Digital sequential Circuits	9
ETT 05202	Power Electronics	6
ETT 05203	Data Communication	8
ETT 05204	Instrumentation	8
ETT 05205	Radio Transmission Systems	8
ITP 05	Industrial Training	10

Total Credits 64

Ordinary Diploma in Electronics and Telecommunications

NTA LEVEL 6

Modules Semester I

Code	Module Title	Credits
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GST 06101	Coordinate Geometry and Differential Equations	4
GST 06103	Correspondence, Interpersonal Skills and Report Writing	4
ETT 06101	Analogue Electronics Design	10
ETT 06102	Applied Microcontrollers	8
ETT 06103	Television and Video Engineering	12
ETT 06104	Radar and Navigation System	10
EET 06103	Automation	8
ETT 06105	Project I	9

Total Credits 65

Ordinary Diploma in Electronics and Telecommunications

NTA LEVEL 6

Modules Semester II

Code	Module Title	
GST 06201	Linear Programming, Statistics and Probability	3
GST 06204	Enterprise Management	6
ETT 06201	Telephony and Switching	8
ETT 06202	Microwave Technology	8
ETT 06203	Communication Systems	9
ETT 06204	Satellite Communication	9
IPT 06	Industrial Practical Training	9

Total Credits 55

Basic Technician Certificate in Electrical and Biomedical Engineering

## NTA LEVEL 4

M o d u l e s Semester I		
Code	Module Title	Credits
GST 04101	Algebra and Trigonometry	5
GST 04102	Mechanics and Nuclear Physics	6
GST 04103	English Language Basics	4
EET 04101	Basic Electricity	9
ETT 04101	Analogue Electronics	12
EET 04102	Basic of Workshop Technology and Practices	12
ETT 04103	Printed Circuit Board and Draughting Techniques	6
EET 04103	Electrical Measurements	9
Total Credits		63

Basic Technician Certificate in Electrical and Biomedical Engineering

## NTA LEVEL 4

## Modules Semester II

Code	Module Title	Credits
GST 04201	Series and Boolean Algebra	5
GST 04202	Gender and HIV	4
GST 04203	Microcomputer Application	6
EET 04201	Electrical Material	5
ETT 04201	Digital Combination Circuits	12
EET 04202	Fundamentals of Electrical Installation	12

EBT 04201	Biomedical Equipment Installation	9
EBT 04202	Biomedical Equipment Technology	6
ITP 04	Industrial Training	10

Total Credits 69

Technician Certificate in Electrical and Biomedical Engineering

NTA LEVEL 5

Modules Semester I

Code	Module Title	Credits
GST 05101	Differentiation and Integration	5
GST 05102	Thermal Energy, Waves and Organic Compounds	6
GST 05103	Introduction to Programming Using C	6
EET 05101	DC Machines	5
EBT 05101	Health Care Facility Systems	10
ETT 05102	Computer Aided Design Tools	9
ETT 05103	Analogue Electronics Devices and Circuits	6
EET 05103	Electromagnetism	6
EET 05104	Control Engineering	6
EBT 05102	Occupational Safety and Health	5

Total Credits 58

Technician Certificate in Electrical and Biomedical Engineering  
 NTA LEVEL 5  
 Modules Semester II

Code	Module Title	Credits
GST 05201	Matrices, Complex and Vectors	5
GST05202	English Language Skills	4
GST 05203	Basics of Entrepreneurship	4
GST 05204	Introduction to Computer Networking	4
EBT 05201	Biomedical Sensors and Transducers	9
ETT 05201	Digital Sequential Circuit	9
ETT 05201	Power Electronics	9
EET 05202	Industrial Installation and Transformer Rewinding	6
EET 05204	Power Utilization	9
ITP 05	Industrial Practical Training	10
Total Credits		69

Ordinary Diploma in Electrical and Biomedical Engineering  
 NTA LEVEL 6  
 Modules Semester I

Code	Module Title	Credits
GST 06101	Coordinate Geometry and Differential Equations	4

GST 06102	Correspondence, Interpersonal Skills and Report Writing	4
ETT 06101	Analogue Electronics Design	9
ETT 06102	Applied Microcontroller	8
EBT 06101	Diagnostic Medical Equipment Theory	8
EET 06102	Human Physiology & Diagnostic Measurement	10
EET 06102	Automation	8
EET 06103	Motor Rewinding	8
EET 06104	Electrical Power Protection	5
EET 06106	Project I	9

Total Credits 73

Ordinary Diploma in Electrical and Biomedical Engineering  
NTA LEVEL 6  
Modules Semester II

Code	Module Title	Credits
GST 06201	Linear Programming and Probability	3
GST 06202	Enterprise Management	6
EBT 06202	Hospital Equipment Repair and Maintenance	9
EBT 06204	Medical Imaging Equipment Theory	7
EBT 06203	Hospital Electrical and Mechanical systems	6
EET 06203	Refrigeration and Air Conditioning	9
EET 06207	Project II	9

EBT 06201	Therapeutic Medical Equipment	9
Total Credits	58	

Basic Technician Certificate in Electrical and Hydropower Engineering  
 NTA LEVEL 4  
 Modules Semester I

Code	Module Title	Credits
GST 04111	Algebra and Trigonometry	6
GST 04112	Fundamentals of Mechanics	6
ITT 04117	Basic Computer Application	6
EHT 04111	Electrical Installation	9
EHT 04112	Workshop Technology	9
EHT 04113	Basic Electricity	9
EHT 04114	Basic Electronics	9
EHT 04115	Basics of Hydropower Engineering	9
Total Credits	63	

Basic Technician Certificate in Electrical and Hydropower Engineering  
 NTA LEVEL 4  
 Modules Semester II

Code	Module Title	Credits
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GST 04211	Linear Algebra, Complex number and Statistics	6
GST 04213	Business Communication Skills	6
GST 04214	Entrepreneurship for Technician	6
EHT 04211	Electrical Measuring Instruments	9
EHT 04212	Basic electromechanical machine control	8
EHT 04213	Soil Mechanics	6
EHT 04214	Engineering Materials	6
EHT 04215	Industrial Practical Training	10

Total Credits 57

Technician Certificate in Electrical and Hydropower Engineering

NTA LEVEL 5

Modules Semester I

Code	Module Title	Credits
GST 05111	Differentiation and Integration	6
GST 05113	Introduction to Programming Language using C	6
EHT 05111	DC Machines	6
EHT 05112	Power Electronics	9
EHT 05113	Welding and Metal Fabrication	9
EHT 05114	Electrical Machines Installation	9
EHT 05115	Power Plant Engineering	9
EHT 05116	Hydropower Structure and Maintenance.	6

Total Credits 60

Technician Certificate in Electrical and Hydropower Engineering  
 NTA LEVEL 5  
 Modules Semester II

Code	Module Title	Credits
GST 05211	Differential Equations and Integral Transforms	6
CST 05218	Introduction to Networking	6
EHT 05212	Power Transformer	6
EHT 05213	Control Systems and Measurement	6
EHT 05214	Machine Shop Applications	9
EHT 05215	Hydrology and Reservoir Operation	6
EHT 05216	Electrical Power Utilization	6
EHT 05217	Computer Aided Design	9
EHT 05218	Industrial Practical Training	10

Total Credits 64

Ordinary Diploma in Electrical and Hydropower Engineering  
 NTA LEVEL 6  
 Modules Semester I

Code	Module Title	Credits
EHT 06111	Research Methodologies	6
EHT 06112	Hydropower Plant Automation	9
EHT 06113	Basic Design of Retaining Water Structures.	9

EHT 06114	Induction Motors	9
EHT 06115	Electrical Machines Rewinding	12
EHT 06116	Hydropower Plant Management	9
EHT 06117	Engineering Project Design	6

Total Credit for core module 60

Ordinary Diploma in Electrical and Hydropower Engineering  
NTA LEVEL 6  
Modules Semester II

Code	Module Title	Credits
EHT 06211	Hydropower Plant Monitoring and Control	9
EHT 06212	Electrical Power Protection	9
EHT 06213	Synchronous and Special Machines	9
EHT 06214	Refrigeration and Air conditioning	9
EHT 06215	Hydropower Environmental Management and Climate Change	9
EHT 06216	Electrical Power Transmission and Distribution	9
EHT 06217	Engineering Project Implementation	6

Total Credits 60

Basic Technician Certificate in Electrical and Solar Engineering

## NTA LEVEL 4

### Modules Semester I

Code	Module Title	Credits
GST 04101	Algebra and Trigonometry	5
GST 04102	Mechanics and Nuclear Physics	4
GST 04103	Basics of English Language	4
EET 04101	Basic electrical engineering	9
ETT 04101	Analogue Electronics	6
EET 04102	Basics of Workshop Technology and Practices	12
ETT 04102	Printed Circuit Board and Draughting Techniques	12
EST 04101	Solar Electrical Measurements	6
RET 04101	Energy and Climate Change	6
Total Credits		64

## Basic Technician Certificate in Electrical and Solar Engineering

### NTA LEVEL 4

### Modules Semester II

Code	Module Title	Credits
GST04201	Series and Boolean Algebra	4
GST04202	Gender and HIV	5
GST04203	Microcomputer Application	5
EST 04201	Basic Mechanics and Solar thermal energy	6
EET04201	Electrical Material	6
EST 04202	Fundamentals of Electrical Installation	12

ETT04201	Digital Combinational Circuits	9
ETT 04202	Basic Troubleshooting Practice	9
IPT04	Industrial Practical Training	10

Total Credits 66

Technician Certificate in Electrical and Solar Engineering

NTA LEVEL 5

Modules Semester I

Code	Module Title	Credits
GST05101	Differentiation and Integration	6
GST05102	Thermal Energy, Waves and Organic Compounds	6
GST05103	Programming Language using C	6
EET05101	DC Machines	10
ETT 05101	Analogue Electronics Devices and Circuit	09
EST 05101	Solar Power Plant Engineering	12

Total Credits 49

Technician Certificate in Electrical and Solar Engineering

NTA LEVEL 5

Modules Semester II

Code	Module Title	Credits
GST05201	Matrices, Complex Numbers and Vectors	5
GST05202	Communication Skills	6
GST 05203	Entrepreneurship for technicians	6
GST 05204	Basics of Computer Networking	6

ETT 05201	Digital Sequential Circuit	09
ETT 05202	Power Electronics	9
EET 05202	Electrical Motor Installation and Transformer Rewinding	12
EET 05203	Electrical Power Utilization	8
IPT 05	Industrial practical Training	10

Total Credits 71

Ordinary Diploma in Electrical and Solar Engineering

NTA LEVEL 6

Modules Semester I

Code	Module Title	Credits
GST 06101	Coordinate Geometry and Differential Equations	4
GST 06103	Correspondence, Interpersonal Skills and Report Writing	4
EST 06101	Solar Power Systems Installation	9
ETT 06101	Analogue Electronics Design	8
ETT 06102	Applied Microcontroller	8
EET 06101	Induction Motors	6
EET 06102	Automation	8
EET 06104	Electrical Power Protection	6
EET 06106	Project I	10

Total Credits 61

Ordinary Diploma in Electrical and Solar Engineering

NTA LEVEL 6

## Modules Semester II

Code	Module Title	Credits
GST 06201	Linear Programming and Probability	4
GST 06202	Enterprise Management	6
EST 06201	Solar Power Plant Maintenance	6
EST 06202	Energy Efficiency and Economics	6
EET 06201	Synchronous and Special machines	8
EET 06204	Electrical Maintenance and Management	8
EET 06205	Electrical Power Transmission and Distribution	8
EET 06207	Project II	10
Total Credits		59

Basic Technician Certificate in Electrical and Wind Engineering

NTA LEVEL 4

## Modules Semester I

Code	Module Title	Credits
GST 04101	Algebra and Trigonometry	5
GST 04102	Mechanics and Nuclear Physics	6
GST 04103	English Language Basics	5
EET 04101	Basic Electricity	9
ETT 04101	Analogue Electronics	9
EET 04102	Domestic Installation and Mechanical Skills	9

ETT 04102	Printed Circuit Board Techniques and Practice	6
EET 04103	Electrical Measurements	6
RET 04101	Energy and Climate Change	6

Total Credits 61

Basic Technician Certificate in Electrical and Wind Engineering

NTA LEVEL 4

Modules Semester II

Code	Module Title	Credits
GST 04201	Series and Boolean Algebra	5
GST 04202	Basic Entrepreneurship	5
GST 04203	Microcomputer Application	6
EET 04201	Engineering Material	6
ETT 04201	Digital Combinational Circuits	6
EET 04202	Electrical Draughting and Earthing Test	9
ETT 04202	Basic Logic circuit and Troubleshooting practice	9
EWT 04201	Wind Turbine Technology and Applications	9
IPT 04	Industrial Practical Training	10

Total Credits 65

Technician Certificate in Electrical and Wind Engineering  
NTA LEVEL 5

## Modules Semester I

Code	Module Title	Credits
GST 05101	Differentiation and Integration	5
GST 05102	Thermal Energy, Waves and Organic Compounds	6
GST 05103	Introduction to Programming Using C	6
EET 05101	DC Machines	6
ETT 05101	Analogue Electronics Devices and Circuit	6
ETT 05102	Electronics Circuit software and Power supply	8
MET 05108	Fundamental of Turning, Milling and Welding Technology	9
EWT 05101	Wind energy resources	6
EWT 05102	Wind Energy System	6
RET 05101	Renewable Energy Technology	6

Total Credits 64

Technician Certificate in Electrical and Wind Engineering  
NTA LEVEL 5

## Modules Semester II

Code	Module Title	Credits
GST 05201	Differential Equations and Complex Numbers	5
GST 05202	English Language Skills	4
GST 05203	Basics of Entrepreneurship	4

GST 05204	Introduction to Computer Networking	4
EWT 05201	Wind Turbine Design and Control	8
ETT 05201	Digital Sequential Circuit	6
ETT 05202	Power Electronics	6
ETT 05203	Digital Sequential Lab	6
EET 05202	Industrial Installation and Transformer Rewinding	8
EET 05203	Electrical Power Utilization	5
IPT 05	Industrial Practical Training	10

Total Credits 66

Ordinary Diploma in Electrical and Wind Engineering  
 NTA LEVEL 6  
 Modules Semester I

Code	Module Title	Credits
GST 06101	Coordinate Geometry and Differential Equations	4
GST 06103	Workplace Communication	4
ETT 06101	Analogue Electronics Design	9
ETT 06102	Applied Microcontroller	8
EET 06101	Induction Motors	8
EET 06102	Automation	6
EWT 06103	Wind Energy siting and Installation	8
EET 06104	Electrical Power Protection	6

EWT 06103	Wind Energy Project I	10

Total Credits 61

Ordinary Diploma in Electrical and Wind Engineering  
NTA LEVEL 6  
Modules Semester II

Code	Module Title	Credits
GST 06201	Linear Programming and Probability	6
GST 06202	Enterprise Management	6
EET 06201	Synchronous and Special machines	8
EET 06205	Electrical Power Transmission and Distribution	6
EWT 06201	Wind Energy Systems Maintenance and Management	6
EWT 06202	Energy Efficiency and Economics	6
EWT 06203	Renewable Energy Hybrid System design	8
EWT 06204	Meteorological Analysis and Forecasting	8
EWT 06205	Wind Energy Project II	6

Total Credits 60

Basic Technician Certificate in Instrumentation  
Engineering  
NTA LEVEL 4

## Modules Semester I

Code	Module Title	Credits
GST 04111	Algebra and Trigonometry	6
GST 04112	Fundamentals of Mechanics	6
ITT 04117	Basic Computer Applications	6
IET 04111	Occupational Health and Safety	9
IET 04112	Technical Drawing	6
IET 04113	Electrical Installation	12
IET 04114	Electrical Circuit Troubleshooting	6
IET 04115	Electrical Measurements	9

Total Credits 60

Basic Technician Certificate in Instrumentation Engineering

NTA LEVEL 4

## Modules Semester II

Code	Module Title	Credits
GST 04211	Linear Algebra, Complex number and Statistics	6
GST 04213	Business Communication Skills	6
GST 04214	Entrepreneurship for Technician	6
IET 04211	Printed Circuit Board and Droughting Techniques	12
IET 04213	Electrical Power Utilization	9
IET 04214	Fundamentals of Electronic Circuit Constructions	12

IET 04215	Industrial Practical Training	10
Total Credits	61	

Technician Certificate in Instrumentation Engineering

NTA LEVEL 5

Modules Semester I

Code	Module Title	Credits
GST 05111	Differentiation and Integration	6
IET 05111	Basics of Pneumatics and Hydraulics Systems	6
IET 05112	Measurements and Instrumentation Technology	9
IET 05113	Electrical Machines Installation and Maintenance	9
IET 05114	Analogue Electronics	12
IET 05115	DC Machines	9
IET 05116	Sensors and Signal Conditioning	9

Total Credits 60

Technician Certificate in Instrumentation Engineering

NTA LEVEL 5

Modules Semester II

Code	Module Title	Credits
GST 05211	Differential Equations and Laplace Transforms	6
IET 05211	AC Machines	9
IET 05212	Digital Principles and Applications	9
IET 05213	Basics of Mechatronics Engineering	9

IET 05214	Computer Aided Drawing	9
IET 05215	Data Structure	6
IET 05216	Research Methodology	6
IET 05217	Industrial Practical Training	10

Total Credits 64

Ordinary Diploma in Instrumentation Engineering

NTA LEVEL 6

Modules Semester I

Code	Module Title	Credits
IET 06111	Project Management	9
IET 06112	Applied Microcontroller	12
IET 06113	Industrial Automation Systems	12
IET 06114	Control Systems Engineering	12
IET 06115	Engineering Project Design	15

Total Credits 60

Ordinary Diploma in Instrumentation Engineering

NTA LEVEL 6

Modules Semester II

Code	Module Title	Credits
IET 06211	Industrial Process Control and Monitoring	12
IET 06212	Signal Processing and Applications	9
IET 06213	Instruments Maintenance and Repair	12
IET 06214	Telemetry Systems Installation and Maintenance	12

IET 06215	Engineering Implementation	Project	15
Total Credits	60		

Bachelor of Engineering in Electrical and Biomedical Engineering  
 NTA LEVEL 7  
 Modules Semester I

Code	Module Title	Credits
GSU07111	Advanced Calculus	6
GSU07113	Technical Communication Skills	6
GSU07114	Entrepreneurship	6
MEU07111	Statics and Dynamics Mechanics	6
EAU07111	Analogue Electronics	9
EBU07111	Medical Equipment Technology and Installation	9
EAU07113	Sensor and Control	9
EEU07114	Electromagnetics	6
EEU07115	Electrical Circuit Analysis	6

Total Credits 63

Bachelor of Engineering in Electrical and Biomedical Engineering  
 NTA LEVEL 7  
 Modules Semester II

Code	Module Title	Credits
GSU07211	Numerical Methods	6
MEU07211	Hydraulics and Pneumatics Systems	9

EEU07211	Control Engineering	9
EBU07211	Medical Repair Lab	9
EBU07212	Human Anatomy and Physiology	9
EEU07213	Electrical Machines	9
EBU07215	Biomedical Practical Training	10

Total Credits 61

Bachelor of Engineering in Electrical and Biomedical Engineering

NTA LEVEL 7

Modules Semester III

Code	Module Title	Credits
GSU07311	Advanced Statistics	6
EEU07313	Artificial Intelligence	9
EBU07311	Medical Physics and Imaging Technology	9
EAU07311	Switchgear and Power Protection	6
EAU07312	Signal Analysis and Synthesis	9
EEU07314	Power Electronics	9
EAU07315	Microcontroller Programming in C++	12

Total Credits 60

Bachelor of Engineering in Electrical and Biomedical Engineering

## NTA LEVEL 7

### Modules Semester IV

Code	Module Title	Credits
GSU07412	Research Methodology	6
EAU07411	Programmable Logic Control Systems	9
EBU07412	Medical Imaging Equipment	9
EAU07413	Statistical Digital Signal Processing	9
EAU07412	Microcontroller Project	9
EBU07411	Laboratory Medical Equipment Technology	9
EEU07414	Biomedical Practical Training	10

Total Credits 61

Bachelor of Engineering in Electrical and Biomedical Engineering

## NTA LEVEL 8

### Modules Semester I

Code	Module Title	Credits
EBU08111	Hospital Information Technology and Medical Informatics	9
EBU08112	Embedded Systems and IoT	9
EAU08112	Microelectronics	9
EAU08113	Computer Aided Manufacturing and Fabrication	6
EBU08113	Senior Project I	12

EAU08114	Project Management and Procurement	6
EAU08115	Engineering Ethics and Professional Conducts	6

Total Credits 57

Bachelor of Engineering in Electrical and Biomedical Engineering

NTA LEVEL 8

Modules Semester II

Code	Module Title	Credits
EBU08211	Healthcare Management and Technology	9
EAU 08211	Special Electrical Machines and Drives	9
EBU 08212	Biomechanics	12
EAU 08213	Robotics	9
EBU 08213	Senior Project II	12
E A U 082125	Electrical Safety and Maintenance	6

Total Credits 57

Bachelor of Engineering in Electrical and Biomedical Engineering

NTA LEVEL 8

Elective Modules Semester II		
Code	Module Title	Credits

EAU 08111	High Voltage Engineering	6
EEU 08212	Nano Technology	6
EAU 08214	Industrial Process Control	6

Bachelor of Engineering in Electrical and Automation Engineering

NTA LEVEL 7

Modules Semester I

Code	Module Title	Credits
GSU 07111	Advanced Calculus	6
GSU 07113	Technical Communication Skills	6
GSU 07114	Entrepreneurship	6
MEU 07111	Statics and Dynamics Mechanics	6
EAU 07113	Analogue Electronics	9
EAU 07112	Power Plants Engineering	6
EAU 07113	Sensor and Controllers	9
EAU 07114	Electromagnetics	6
EAU 07115	Electrical Circuit Analysis	6

Total Credits 60

Bachelor of Engineering in Electrical and Automation Engineering

NTA LEVEL 7

Modules Semester II

Code	Module Title	Credits
GSU 07211	Numerical Methods and Complex Analysis	6

MEU 07211	Hydraulics and Pneumatics Systems	9
EAU 07211	Control Engineering	9
EAU 07212	Electrical Power Transmission and Distribution Networks	9
EAU 07213	Finite State Machines	9
EAU 07214	Electrical Machines	9
EAU 07215	Industrial Practical Training	10

Total Credits 61

Bachelor of Engineering in Electrical and Automation Engineering

NTA LEVEL 7

Modules Semester III

Code	Module Title	Credits
GSU 07311	Advanced Statistics	6
EAU 07311	Switchgear and Power Protection	9
EAU 07312	Signal Analysis and Synthesis	9
EAU 07313	Artificial Intelligence	9
EAU 07314	Power Electronics	9
EAU 07316	Microcontroller Programming in C++	12
EAU 07316	Industrial Internet of Things	6

Total Credits 60

Bachelor of Engineering in Electrical and Automation Engineering

## NTA LEVEL 7

## Modules Semester IV

C

Code	Module Title	Credits
GSU 07412	Research Methodology	6
MEU 07411	Automation of Manufacturing	6
EEU 07411	Power Systems Stability and Fault Analysis	12
EAU 07411	Programmable Logic Control Systems	9
EAU 07412	Microcontroller Project	9
EAU 07413	Statistical Digital Signal Processing	9
EAU 07414	Industrial Practical Training	10

Total Credits 61

Bachelor of Engineering in Electrical and Automation Engineering

## NTA LEVEL 8

## Modules Semester I

Code	Module Title	Credits
EAU 08111	High Voltage Engineering	6
EBU 08112	Microelectronics	9
EAU 08113	Computer Aided Manufacturing and Fabrication	9
EAU 08114	Project Management	9
EAU 08115	Engineering Ethics and Professional Conduct	6
EAU 08116	Senior Project I	12

EBU 08112	Embedded Systems	9
Total Credits	60	

Bachelor of Engineering in Electrical and Automation Engineering  
 NTA LEVEL 8  
 Modules Semester II

Code	Module Title	Credits
EAU 08211	Special Electric Machines and Drives	9
EAU 08212	Nanotechnology	6
EAU 08213	Robotics	9
EAU 08214	Industrial Process Control	9
EAU 08215	Electrical Safety and Maintenance	6
EAU 08216	Senior Project II	12
	Total Credits	51

Bachelor of Engineering in Electrical and Automation Engineering  
 NTA LEVEL 8  
 Elective Modules

Code	Module Title	Credits
EAU 08217	Database Management	6
EAU 08218	Digital Image Processing	9
EAU 08219	Process Automation	9

Bachelor of Engineering in Renewable Energy Engineering  
 NTA LEVEL 7-1

## Modules Semester I

Code	Module Title	Credits
REU 07101	Fundamentals of Renewable Energy Technologies	9
REU 07102	Energy Conversion Technologies	9
MEU 07101	Static and Dynamic Mechanics	6
EEU 07101	Power Plants Engineering	8
REU 07103	Fundamentals of Computer Aided Drafting	9
REU 07104	Applied Chemistry for Energy Engineering	8
GSU 07103	Basics of Calculus	6
GSU 07104	Communication Skills for Engineers	6

Total Credits 61

## Bachelor of Engineering in Renewable Energy Engineering

NTA LEVEL 7-1

## Modules Semester II

Code	Module Title	Credits
REU 07201	Renewable Energy Materials	9
REU 07202	Fundamentals of Renewable Energy Storage	9
MEU 07206	Engineering Thermodynamics	9
EEU 07202	Electrical Power Transmission and Distribution Networks	9
REU 07204	Fundamentals of 3D Modelling	9
CSU 07201	Computer Programming	6
GSU 07201	Advanced Calculus	6

REU 07406	Industrial Practical Training	10
Total Credits	67	

Bachelor of Engineering in Renewable Energy Engineering  
 NTA LEVEL 7-2  
 Modules Semester III

Code	Module Title	Credits
REU 07301	Solar Energy System	10
REU 07302	Manufacturing Technology	9
EEU 07301	AC Machines	9
EEU 07302	Switchgears and Power Protection	9
EEU 07305	Power Electronics	9
GSU 07301	Differential Equations and Complex Variables	6
GSU 07302	Industrial Management and Laws	6

Total Credits 58

Bachelor of Engineering in Renewable Energy Engineering  
 NTA LEVEL 7-2  
 Modules Semester IV

Code	Module Title	Credits
REU 07401	Modelling and Simulation	9
REU 07402	Bioenergy Technology	9
REU 07403	Hydro Power Technology	10
REU 07404	Research Methodology	9
REU 07405	Sustainable Environmental Management	9
GSU 07403	Probability and Statistical Analysis	6

REU 07406	Industrial Practical Training	10
Total Credits	62	

## Bachelor of Engineering in Renewable Energy Engineering

NTA LEVEL 8

### Modules Semester I

Code	Module Title	Credits
GSU 08103	Numerical Optimization Methods	6
MEU 08101	Industrial Safety and Maintenance	9
REU 08101	Wind Energy Technology	9
REU 08102	Power System Automation	9
REU 08103	Ocean Energy Technology	9
REU 08104	Project Feasibility Assessment	9
REU 08105	Renewable Energy Project I	10

Total Credits 61

## Bachelor of Engineering in Renewable Energy Engineering

NTA LEVEL 8

### Modules Semester II

Code	Module Title	Credits
GSU 08201	Entrepreneurship for Engineers	8
GSU 08202	Engineering Project Management and Procurement	8
GSU 08203	Engineering Ethics and Professional Conducts	8
REU 08201	Geothermal Energy Technology	9
REU 08202	Hybrid Power Systems	9
REU 08203	Renewable Energy Project II	10

	Elective Modules (Only one Module)	
REU 08204	Power System Analysis	9
REU 08205	Energy Economics and Financing	9

Total Credits 61

## Members of the Teaching Staff

### Head of Department

#### **Dr.Nicodemus Msafiri Mbwambo.**

Ph.D (Computer Science) Clemson University, USA; MSc. (Computer Science) Clemson University, USA; BEng. (Electronics and Telecommunication) DIT; FTC (Electronics and Telecommunication) DIT.

#### **Ally Ngulugulu**

M.Eng (Biomedical Engineering) UESTC, China, MSc. (Biomedical Engineering) China; BEng. (Electronics and Communications) STJUIT; Diploma (Education) Monduli TTC.

#### **Rose S. L.**

MSc. (Electronics and Electrical Engineering) Loughborough University, UK; BEng (Electrical and Electronics Engineering) STJUIT; Diploma (Electronics and Telecommunication Engineering) ATC.

## **Laboratory Manager Biomedical Engineering**

### **M. B. Mbelwa**

BEng. (Electrical and Biomedical Engineering) ATC;  
Diploma (Electrical Engineering) ATC.

## **Electronics Laboratory Manager**

### **Roland L.H.**

BEng. (Electronics and Communication Engineering)  
SJUIT.

### **Solar Training Center Manager**

### **E. Kassi**

MSc. (Telecommunication Engineering) UDSM; BSc  
(Telecommunications Engineering) UDSM; FTC (Electrical  
Engineering) ATC.

## **Electrical Workshop Manager**

### **Mengi .M**

Diploma (Electrical Engineering) ATC; Trade Test Grade  
I (Electrical Installation) KRVTSC VETA, KIGOMA;  
Certificate (Teaching Methodology) Morogoro Vocational  
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Other Staff

### **Dr. G. G. Moshi**

PhD (Electrical Engineering) Politecnico di Milano, Italy;  
MSc (Electrical Engineering and  
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(Electrical Power Engineering) UDSM.

**John N.**

MSc (Sustainable Energy Science and Engineering) NM-AIST; Bachelor Eng. (Electrical) DIT; FTC (Electrical) DIT.

**L.B. Lupenza**

M.Eng (Instrumentation Engineering) Anna University, India; B. Eng. (Electrical and Electronics Engineering) SJUIT-DSM.

**F. Nkota**

BSc (Electrical Power Engineering (Hons)) UDSM

**I. Iddi**

MSc (Telecommunication Engineering) UDOM, Dodoma; BSc (Electro-mechanical Engineering (Hons)) UDSM.

**A. Msuya**

MSc. (Power Systems and High Voltage Engineering) UDSM; PGD (Electrical Power system Engineering) UDSM; Adv. Diploma (Electrical Engineering) DIT; FTC (Electrical Engineering) DIT.

**D. Mang'ehe**

MBA (Information Technology Management) IAA; BSc (Computer Science) IAA; Diploma (Electronics and Telecommunication Engineering) DIT.

**Isack N.**

BEng (Electronics and Telecommunication Engineering) DIT; Diploma (Electronics and Telecommunication Engineering) ATC.

**Mzava O.\***

MSc. (Electrical and Computer Engineering) Abdullah Gul University, Turkey; BSc. (Electrical and Electronics Engineering) Selcuk University, Turkey.

**Dr. B. H. Mbuya**

PhD (Sustainable Energy Science and Engineering) NM-AIST; MSc (Electronics Communications and Computer Engineering) Nottingham University; B.Eng. (Electronics Engineering (Communication)) East London University.

**Mwakatage, S. E.**

MSc (Renewable Energy) Oldenburg University, German; BSc (Agricultural Engineering) SUA.

**C. R. Msaky**

BEng. (Electrical & Electronics Engineering) MUST, Mbeya; FTC (Electrical Engineering) ATC; Certificate (Teaching Methodology) Morogoro Vocational Teachers Training Centre.

**Majuto M.\***

BEng (Electrical and Electronics) MUST, Mbeya.

**Lilian A. L.**

BEng. (Electrical Engineering) DIT; FTC (Electrical Engineering) ATC, Arusha.

**Crecent Boniface Sembuli**

MEng. (Electronics and Telecommunication) Jadavpur University, India; BEng. (Electronics and Communication) SJUIT-DSM.

**Wilson, D.**

Msc. (Embedded and Mobile System) NM-AIST-Arusha  
B.Eng. (Electronics and Communication Engineering) SJUIT-DSM.

**Mayala D. T.**

BEng. (Electrical Engineering) DIT; Diploma (Electrical Engineering) DIT.

**W. Mwayinga**

BEng. (Electrical) MIST; FTC (Electrical Engineering) MTC

**Dr. Melkior U. F.**

PhD in Electrical Power (Czech Technical University in Prague, Czech Republic); MSc (Electrical Power Systems and High Voltage Engineering) UDSM; Post Graduate Dip. (Electrical power System) UDSM; Advanced Diploma (Electrical Engineering) DIT; Full Technician Certificate (Electrical Engineering) ATC.

**Malisa F. P.**

B.Eng. (Electrical and Biomedical) ATC; Diploma (Electrical and Biomedical Engineering) ATC.

**Marco M.**

Master in Wireless and Mobile Computing (WiMC) NM-AIST-Arusha

BEng. (Electronics and Communication Engineering) STJ.

**Mawa D. D.**

B.Eng. (Electrical and Biomedical) ATC; Diploma (Electronics and Telecommunication Engineering) DIT.

**Stewart D. S.**

B.Eng. (Electrical and Biomedical) ATC; Diploma (Electrical and Biomedical Engineering) ATC.

**Nyanguri. M. A**

Diploma (Electrical Engineering) ATC, NVA III (Electrical Installation)Veta Singida, NVA II(Electrical Installation) Veta Kagera.

\*On study leave.

## 6.5 MECHANICAL ENGINEERING DEPARTMENT

### 6.5.1 Why choose Mechanical Engineering Programs at ATC?

The Mechanical Engineering department has the best and modern equipment's, tools and machines for teaching and learning in today's advanced technology development and industrial automation. When joining the departmental programs, you will be able to gain professional knowledge and skills with tailored and top-level training covering a large range of positions and skills related to the modern mechanical engineering industries. ATC Mechanical Engineering Programs endows its students with strong engineering expertise allowing them to take up positions in Tanzanian industrialization processes including among others: Modern Manufacturing and Fabrication processes, Equipment Testing, Machineries Installations, Manufacturing of machines parts and Equipment's, Operations and maintenances of manufacturing machines, Refrigeration and Air Condition Systems Maintenance and Repairs, quality control, and Safe working practices in machining and fabrication workshops.

### 6.5.2 Shape Your Professional skills with Top-Level Teaching and Training Equipment's

Two main mechanical workshops are available: Foundry & Forging and all modern Welding Technologies as your source for welding tips and tricks and also Machine shop in a variety of machine environments and also Mechatronics and Materials Laboratory.

### 6.5.3 ATC Mechanical Engineering Training Programmers

Mechanical Engineering Department offers three training

programs in Ordinary level: Diploma in Mechanical Engineering (ME), Diploma in Mechanical and Bioenergy (MBE) and Diploma in Pipes Works, Water, Oil and Gas Engineering (PWOGE) and new diploma program in Geology and Gemstone Processing Engineering (GGE). At bachelor level, the department has two degree program: Bachelor degree in Mechanical Engineering (MEU) and Bachelor degree in Mechatronics and Materials Engineering (MMU). All these programs are accredited by the National Council for Technical and Vocational Education and Training (NACTVET) and Tanzania Commission for University (TCU) respectively.

Programs at Mechanical Engineering Department are dedicated to training student's at all technical levels; studies, personal development, enriching cultural and community life.

Studies are semester-based and give all students the opportunity to study on CBET curricula with emphasis given to hands on learning. Academic staffs have different education levels ranging from NVA, Diploma, Degree, Master's to Ph.D.

**6.5.3.1 Bachelor Degree in Mechanical Engineering (MEU)**  
This is a three years diploma entry and four years form six entry degree programme leads to a Bachelor degree in Mechanical Engineering. A Mechanical Engineer can work independently or provide engineering support and services in design development, test and manufacture of mechanical devices including equipment's, tools, engines and machines.

**6.5.3.2 Bachelor Degree in Mechatronics and Material Engineering (MMU)**

This is a three years diploma entry and four years form 6 entry program leading to a Bachelor degree in Mechatronics and Materials Engineering. This qualification is intended for persons, who will be able to utilize the knowledge and transform it into practices of skills, be able to work independently in engineering and research of smart and advanced materials, design and manage advanced automated manufacturing systems with control mechanism.

#### 6.5.3.3 Ordinary Diploma in Mechanical Engineering (ME)

This is a three-year program leading to ordinary Diploma in Mechanical Engineering.

This qualification is intended for persons, who shall be able to utilize the knowledge and skills and be able to work under little to no supervision in designing, manufacturing and operating mechanical systems.

The program is conducted with the following objectives:

a. Hands-on teaching and learning, experimentation and innovative thinking

#### 6.5.3.4 Ordinary Diploma in Pipe Works, Water, Oil and Gas Engineering (PWOGE)

This is a three years program leading to Ordinary Diploma in Pipe works, Oil and Gas Engineering. The Pipe works, Oil Gas Engineering Technician may work independently or provide technical support and services in the design, development, Lays out, assembles, installs, and maintains pipe systems, pipe supports, that carry water, steam, heating, Chemicals, fuel oil, fuel gas used in heating, cooling, lubricating and other processes.

The Pipe works, Oil Gas Engineering Technician they are employed in Power Plants, Construction Industries, Manufacturing Plant, Water utilities, Processing Plant (Oil, Gas, Chemical e.tc), consulting firms, and in governments and a wide range of manufacturing, processing and transportation industries

#### 6.5.3.5 Ordinary Diploma in Mechanical and Bio energy Engineering (MBE)

This is a three year's program leading to Ordinary Diploma in Mechanical Engineering and Bioenergy Engineering.

This qualification is intended for persons, who shall be able to utilize the knowledge and skills and be able to work under little to no supervision in bioenergy systems and also in general mechanical systems

#### 6.5.3.6 Ordinary Diploma in Geology and Gemstone Processing Engineering (GGE)

This is a three years program leading to Ordinary Diploma in Geology and Gemstone Processing Engineering.

This qualification is intended for persons, who shall be able to utilize the knowledge and skills and be able to work under little to no supervision in Geology, Lapidary and also in Gemstone and Mineral processing skills.

#### 6.5.4 Summary

ATC Mechanical Engineering Department provides ten weeks in each academic year of industrial practical training/experience through industry collaborations during the 1st and 2nd year students.

ATC Mechanical Engineering programs are key hub and network in the mechanical engineering field allowing the student and technicians to carry out research, design, production or industrialization projects through:

- a. An Inductive training with hands-on students' projects

NTA Level 6 and Level 8 students participate in different kinds of projects: industrial & innovation projects which capture various knowledge, skills and competency learned during the course.

- b. While already addressing the skills needed to work in the field of mechanical engineering; communication ICT, and entrepreneurship skills are paid particular attention.

The Mechanical Engineering Department programs offer industry-recognized training and is recommended by the Mechanical Engineering Department alumni network.

#### **6.5.5 How to Enroll to ATC Mechanical Engineering Department**

The admission to the programmers conducted by the department is undertaken in accordance to College Admission Guidelines or Visit ATC Admission's office.

For more information College website: <http://www.atc.ac.tz>

#### **6.5.6 Short Courses:**

The department offers short courses in the following specialties:

- a. Industrial Automation with PLC, Electro-Pneumatics, Electro-Hydraulics, Sensors and Actuators, Motor Control and SCADA Technologies
- b. 3D Printing Technology
- c. Materials Testing
- d. Welding and Metal Fabrication Engineering
- e. Foundry, Forging and Fitter mechanics
- f. Mechanical Drafting & Design using AutoCAD and

SOLIDWORK application software

g. Air Conditioning, Heating, Refrigeration, Boiler Maintenance and Servicing

The department also offers courses in VET programmers in NVA Level I, II and III in the following fields:

- a. Welding and Metal Fabrication
- b. Plumbing
- c. Fitter and Turner/Fitter Mechanics

#### 6.5.7 Networks & Partners

The Mechanical Engineering Department is working in partnership with various institutions including Nelson Mandela African Institute of Science and Technology in Arusha, UDSM, DIT, NIT, MUST, ECO, CAMATEC, TEMDO, SENECA College in Improve Skills Training for Employment Project (ISTEP); Camosun College in Education for Employment project (EFE), Hanyang University and Seoul National University – South Korea etc.

#### 6.5.8 Research and Consultancy

The department conducts and promotes engineering and scientific research and offers consultancy services in:

- a. Energy and Environment
- b. Renewable energy and Energy efficient
- c. Machine design and manufacturing
- d. Machine parts development and metal

engineering works

- e. Welding and Metal fabrication
- f. Material testing
- g. 3D and Digital Printing technologies
- h. Casting processes
- i. Precision engineering
- j. Industrial Automation and Control
- k. Industrial Refrigeration and Air Condition
- l. Electric Mobility
- m. Smart Technologies

**6.5.9 Programme Module Names and Codes offered by Mechanical Engineering Department**

**DIPLOMA MODULES NAMES & CODES IN  
REVIEWED/NEW CIR**

(Filled and Updated after the review)

**S/N NTA LEVEL 4 - ME**

**SEMESTER I**

	Code	Module Name	Credits
1	GST 04111	Algebra and Trigonometry	6
2	MET 04111	Basics of Engineering Drawing	9
3	MET 04112	Basics of Engineering Materials	9
4	MET 04113	Mechanical Engineering Science	9

5	MET 04114	Basics of Automotive Technology	9
6	MET 04115	General Workshop Practice	9
7	MET 04116	Occupational Health, Safety and Work Relations	9

SEMESTER I CREDITS 60

S/N SEMESTER II

1	GST 04211	Linear Algebra, Complex Numbers and Statistics	6
2	GST 04213	Business Communication Skills	6
3	GST 04214	Entrepreneurship for Technicians	6
4	ITT 04217	Basic Computer Application	6
5	MET 04211	Isometric, Orthographic, Interpenetration and Development Drawings	9
6	MET 04213	Machine Shop Technology	9
7	MET 4214	Fundamentals of Electrical Engineering Science	6
8	MET 04214	Industrial Practical Training - IPT 1	10

SEMESTER II CREDITS 61

S/N NTA LEVEL 4 - MBE  
SEMESTER I

	Code	Module Name	Credits

1	GST 04101	Algebra and Trigonometry	5
2	GST 04102	Mechanics and Nuclear Physics	4
3	GST 04103	Basics of English Language	4
4	EET 04101	Basic electrical Engineering	9
5	MET 04101	Basics of Engineering Drawing	6
6	MET 04102	Mechanical Engineering Materials	9
7	MET 04105	Basics of Manufacturing Engineering	12
8	MBT 04101	Energy and Environment	6

SEMSETER I CREDITS 55

S/N SEMESTER II

1	GST 04201	Series and Boolean Algebra	4
2	GST 04202	Basic Entrepreneurship	5
3	GST 04203	Microcomputer Application	5
4	MET 04201	Pictorial, Orthographic and Auxiliary Drawing	8
5	MET 04203	Mechanical Engineering Science	6
6	MET 04205	Machine Tools/Processes and Maintenance	12
7	MBT 04201	Fundamentals of Bioenergy Technology	8

8	MBT 04202	Bioenergy materials	8
9	MET 04225	Industrial Practical Training	10

SEMSETER II CREDITS 66

S/N NTA LEVEL 4 - PWOGE  
SEMESTER I

	Code	Module Name	Credits
1	GST 04111	Algebra and Trigonometry	6
2	GST 04112	Fundamentals of Mechanics	6
3	MET 04111	Basics of Engineering Drawing	9
4	MET 04112	Basics of Engineering Materials	9
5	MET 04113	Mechanical Engineering Science	6
6	PWT 04111	Piping components and metering	9
7	PWT 04112	Basics of Electrical and electronics Engineering	6
8	PWT 04113	Benchwork for Pipework	9

SEMSETER I CREDITS 60

S/N SEMESTER II

1	GST 04211	Linear Algebra, Complex Number and Statistics	6
2	GST 04214	Entrepreneurship for Technicians	6
3	ITT 04217	Basic Computer Application	6

4	GST 04213	Business communication Skills	6
5	MET 04211	Isometric, Orthographic, Interpenetration and Development Drawings	9
6	PWT 04211	Water supply and sewage systems	12
7	PWT 04212	Lifting operations, Scaffolding and OHS	9
8	PWT 04213	Industrial Practical Training - IPT 1	10

**SEMSETER II CREDITS 64**

**S/N NTA LEVEL 4 - GGE  
SEMESTER I**

	Code	Module Name	Credits
1	GST 04111	Algebra and Trigonometry	6
2	GST 04112	Fundamentals of Mechanics	6
3	GGT 04111	Introduction to Geology and Earths processes	9
4	GGT 04112	Fundamentals of Gemmology	9
5	GGT 04113	Occupational Health, Safety and Work Relations	6
6	GGT 04114	Basics of Land Surveying	6
7	GGT 04115	Basics of Gemstone Cutting and Polishing	9

8	MET 04111	Basics of Engineering Drawing	7
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SEMSETER I CREDITS 58

S/N SEMESTER II

1	GST04211	Linear Algebra, Complex Numbers and Statistics	6
2	GST 04213	Business Communication Skills	6
3	GST 04214	Entrepreneurship for Technicians	6
4	ITT 04217	Basic Computer Application	6
5	GGT 04211	Lapidary and Jewellery Machine Repair & Maintenance	6
6	GGT 04213	Geological Mapping	8
7	GGT 04214	Structural Geology	9
8	GGT 04215	Fundamentals of Jewellery Design	6
9	GGT 04216	Industrial Practical Training - IPT 1	10

SEMSETER II CREDITS 63

S/N NTA LEVEL 5 - ME  
SEMESTER I

1	GST 05111	Differentiation and Integration	6
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2	GST 05113	Introduction to Programming Using C language	6
3	MET 05111	Details and Assembly Drawing	9
4	MET 05112	Basics of Machine Elements and Design	9
5	MET 05113	Strength of Materials	9
6	MET 05114	Applied Thermodynamics	9
7	MET 05115	Basic Welding Technology	12

SEMSETER I CREDITS 60

S/N SEMESTER II

1	GST 05211	Differential Equations and Coordinate Geometry	6
2	ITT 05218	Introduction to Networking	6
3	MET 05211	Fundamentals of Computer Aided Drafting	6
4	MET 05212	Measurements and Control Technology	9
5	MET 05213	Fluid Mechanics	9
6	MET 05214	Foundry and Metal Forming	9
7	MET 05215	Metal surface treatment and painting	6
8	MET 05215	Industrial Practical Training - IPT 2	10
	SEMSETER II CREDITS	61	

**S/N NTA LEVEL 5 - MBE  
SEMESTER I**

	Code	Module Name	Credits
1	GST 05101	Differentiation and Integration	5
2	GST 05102	Thermal Energy, Waves, and Organic Compounds	6
3	GST 05103	Introduction to C Programming	6
4	MET 05101	Sectioning, Development, and Interpenetration Drawings	6
5	MET 05102	Strength of Materials	4
6	MET 05103	Welding and Metal Fabrication	12
7	MET 05104	Basics of Machine Elements and Design	5
8	MET 05107	Engineering Thermodynamics	4
9	RET 05101	Renewable Energy Technology	6
10	MBT 05103	Assessment of Biomass Technology	6

**SEMSETER I CREDITS 60**

**S/N SEMESTER II**

1	GST 05201	Differential Equations and Complex Numbers	5
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2	GST 05202	English Language Skills	4
3	GST 05203	Entrepreneurship for Technicians	4
4	GST 05204	Computer Networking	4
5	MET 05201	Detail and Assembly Drawing	6
6	MET 05205	Foundry and Metal Forming	10
7	MET 05207	Fluid Mechanics	3
8	MET 05208	Measurements, Instrumentation, and Control Technology	6
9	MET 05215	Power Production	6
10	EET 05203	Electrical Power Utilization	5
11	MBT 05201	Design of Bioenergy Conversion Systems	6
12	MBT 05202	Industrial Practical Training	10

SEMESTER II CREDITS 69

S/N NTA LEVEL 5 - PWOGE  
SEMESTER I

	Code	Module Name	Credits
1	GST 05111	Differentiation and Integration	6
2	GST 05112	Principles of Thermodynamics, Waves and Polymers	6
3	MET 05113	Strength of materials	9
4	PWT 05111	Low and High Pressure Steam Piping Systems	6

5	MET 05112	Basics of machine elements and design	9
6	PWT 05112	Plumbing System Design	6
7	PWT 05213	Fire Protection Piping Systems Design	6
8	MET 05115	Basic Welding Technology	12

SEMSETER I CREDITS 60

S/N SEMESTER II

1	GST 05201	Differential Equations and Coordinate Geometry	6
2	ITT 05208	Introduction to Networking	6
3	PWT 05211	Water treatment plant operation and maintenance	6
4	GET 05205	Introduction to Petroleum Geology	9
5	PWT 05212	Computer Aided Plumbing Systems Design	9
6	MET 05213	Fluid mechanics	9
7	PWT 05214	Fuel Piping Systems	6
8	PWT 05215	Industrial Practical Training – IPT 2	10

SEMSETER II CREDITS 61

S/N NTA LEVEL 5 - GGE

SEMESTER I

	Code	Module Name	Credits

1	GST 05111	Differential and Integration	6
2	GST 05112	Thermal Energy, Waves and Organic Compounds	6
3	GST 05113	Introduction to Programming Using C language	6
4	GST 05113	Introduction to Programming Using C language	6
5	GGT 05111	Electricity and Magnetism	6
6	GGT 05112	Ore Geology	9
7	GGT 05113	Introduction to Petrology	7
8	GGT 05114	Geochemistry Survey	10

SEMSETER I CREDITS 56

S/N SEMESTER II

1	GST 05211	Differential Equations and Coordinate Geometry	6
2	GST 05214	Introduction to Networking	5
3	GGT 05211	Exploration Drilling	8
4	GGT 05212	Laboratory Techniques for Geology	10
5	GGT 05213	Geophysics Surveying	10
6	GGT 05214	Ore Loss and Recovery Control	8

7	GGT 05215	Introduction to Petroleum Geology	9
8	GGT 05216	Industrial Practical Training - IPT 2	10

SEMSETER II CREDITS 66

S/N NTA LEVEL 6 - ME  
SEMESTER I

1	MET 06111	3D Modelling in Solidworks	9
2	MET 06112	PLC Controlled Pneumatic and Hydraulic Systems	9
3	MET 06113	Welding Technology	9
4	MET 06114	Power Production	6
5	MET 06115	Fundamentals of Refrigeration Systems	9
6	MET 06116	Environmental Management and Climate Change	6
7	MET 06117	Mechanical Engineering Project I - Design	12

SEMSETER I CREDITS 60

S/N SEMESTER II

1	MET 06211	CNC Programming and Application	12
2	MET 06212	Fundamentals of Air-conditioning System	9
3	MET 06213	Fundamentals of Pump and Compressor Systems	9

4	MET 06214	Machine Installation, Commissioning and Maintenance	9
5	MET 06215	Workshop Management	9
6	MET 06216	Mechanical Engineering Project II - Production	12

SEMESTER II CREDITS 60

S/N NTA LEVEL 6 - MBE  
SEMESTER I

1	GST 06101	Coordinate Geometry and Differential Equations	6
2	GST 06102	Workplace Communication	5
3	MB T06101	Construction of Gasifiers	9
4	MB T06102	Organic Compounds	9
5	MET 06101	Fundamentals of AutoCAD	6
6	MET 06102	Machine Elements and Design	8
7	MET 06105	Fundamentals of Refrigeration Systems	8
8	MBT 06103	Bioenergy Project I - Design	6

SEMESTER I CREDITS 57

S/N SEMESTER II

1	GST 06201	Linear Programming and Probability	6
2	GST 06202	Enterprise Management	6
3	MBT 06201	Material Technology	6

4	MBT 06202	Construction of Bio-digester	8
5	MET 06208	Fundamental of 3d Modelling Using Solid Works	6
6	MET 06209	Fundamentals of Air-conditioning System	8
7	MET 06211	Industrial Automation	10
8	MET 06212	Mechanical Workshop Management	6
9	RET06201	Renewable Energy Hybrid System Design	8
10	MBT 06203	Bioenergy Project II - Production	10

SEMESTER II CREDITS 74

NTA LEVEL 6 - PWOGE  
S/N SEMESTER I

1	MET 06112	PLC Controlled Pneumatic and Hydraulic Systems	9
2	PWT 06111	Pump and Compressor Technology	6
3	MET 06115	Fundamentals Refrigeration Systems	9
4	PWT 06113	Pipe Welding Technology	9
5	MET 06111	3D Modelling in SolidWorks	9
6	MET 06116	Environmental Management and Climate Change	6
7	PWT 06112	Pipe-work engineering Project I – Design	12

## SEMESTER I CREDITS 60

## S/N SEMESTER II

1	MET 06212	Fundamentals of air condition Systems	9
2	PWT 06212	Solar Thermal Energy Systems	9
3	PWT 06213	Principles of Water, Oil and Gas Control	9
4	PWT 06214	Water, Oil and Gas Piping, Operation and System Planning	9
5	MET 06215	Workshop Management	6
6	PWT 06215	Oil and Gas Fired Appliances and Pressure vessels	9
7	PWT 06216	Pipe-works Engineering project II - Installation	12

## SEMESTER II CREDITS 63

## NTA LEVEL 6 - GGE

## S/N SEMESTER I

1	GGT 06111	Introduction to Hydrogeology	9
2	GGT 06112	Mining Geology	8
3	GGT 06113	Exploration Geology Project Management	6
4	GGT 06114	Application of GIS Technology in Geology	9
5	GGT 06115	Advanced Gemstone Cutting and Polishing	10

6	GGT 06116	Environmental Management and Climate Change	9
7	GGT 06117	Project Design	10

SEMESTER I CREDITS 61

S/N SEMESTER II

1	GGT 06211	Engineering Geology	9
2	GGT 06212	Mining Survey	7
3	GGT 06213	Rock Carving Techniques	12
4	GGT 06214	Mining Geology Software	9
5	GGT 06215	Legal Structure in Mining Operation	6
6	GGT 06216	Mine hazards	8
7	GGT 06217	Project Implementation	10

SEMESTER II CREDITS 61

BACHELOR MODULES NAMES & CODES IN REVIEWED/ NEW CIR

(Filled and Updated after the review)

S/N NTA LEVEL 7-1F6 : Form 6 Entry (MME & MEU) – New Curriculum

SEMESTER I

1	MEU 07111	Basics of Engineering Drawing	12
2	MEU 07112	Basics of Engineering Material	9
3	MEU 07113	General Workshop Practice	12
4	CSU 07111	Computer Fundamentals and Applications	6

5	MMU 07112	Fundamentals of Electrical and Electronics	9
6	MMU 07113	Basics of Electrical Installation	9

SEMESTER I CREDITS 57

S/N SEMESTER II

1	MEU 07211	Engineering Drawing	9
2	MEU 07212	Mechanical Workshop Practice	12
3	MEU 07213	Occupational Health, Safety and Work Relations	6
4	MMU 07211	Electrical Measurements	7
5	MMU 07212	Automation	9
6	MEU 07214	Basics of Computer Aided Draft	10
7	MEU 07214	Industrial Practical Training - IPT I	10

SEMESTER II CREDITS 63

NTA LEVEL 7-2F6 & OD : Form 6 Continue & Diploma Entry (MME) - New Curriculum

S/N SEMESTER III & I

1	GSU 07311	Advanced Calculus	6
2	GSU 07313	Technical Communication Skills	6
3	GSU 07314	Entrepreneurship for Engineers	6
4	MEU 07311	Workshop Technology	9
5	MMU 07311	Introduction to Materials Science and Engineering	12

6	MMU 07312	Non-traditional Manufacturing	12
7	EAU 07317	Analogue Electronics	9

**SEMESTER III & I CREDITS 60**

**S/N SEMESTER IV & II**

1	GSU 07411	Numerical Methods	6
2	GSU 07411	Fundamentals of Computer Programming	6
3	MEU 07411	Computer Aided Design (CAD)	9
4	MEU 07412	Fluid Mechanics	6
5	MMU 07411	Materials Properties and Applications	9
6	MMU 07412	Sensors and Actuators	6
7	MEU 07413	Engineering Thermodynamics	9
8	MMU 07413	Industrial Practical Training - IPT II	10

**SEMESTER IV & I CREDITS 61**

**NTA LEVEL 7-2 F6 & OD: Form 6 Continue & Diploma Entry (MEU) - New Curriculum**

**S/N SEMESTER III & I**

1	GSU 07311	Advanced Calculus	6
2	GSU 07313	Technical Communication Skills	6
3	GSU 07314	Entrepreneurship for Engineers	6
4	MEU 07311	Workshop Technology	8

5	GSU 07312	Computing Using Mathematical Software	6
6	MEU 07312	Principle of Metal Cutting	8
6	MEU 07314	Material Technology	8
7	MEU 07313	Mechanics of Machines	6
8	EAU 07317	Analogue Electronics	6

## S/N SEMESTER IV &amp; II

1	GSU 07411	Numerical Methods	6
2	CSU 07411	Fundamentals of Computer Programming	6
3	MEU 07411	Computer Aided Design (CAD)	8
4	MEU 07412	Fluid Mechanics	6
5	MEU 07413	Strength of Materials	6
6	MEU 07414	Engineering Thermodynamics	8
7	MEU 07415	Machine Elements and Design	8
8	MEU 07416	Dynamics of Mechanical Structures	6
9	EEU 07411	DC Machines	8
10	MEU 07415	Industrial Practical Training – IPT II	10

SEMESTER IV &amp; II CREDITS 66

NTA LEVEL 7-3F6 & OD : Form 6 and Diploma Continue (MME)- New Curriculum

**S/N SEMESTER V & III**

1	GSU 07511	Advanced Statistics	6
2	MMU 07511	Digital Manufacturing	9
3	MMU 07512	Materials Characterization	9
4	EAU 07315	Microcontroller Programming in C++	9
5	MEU 07511	Heating, Ventilation and Air Conditioning	9
6	MEU 07512	Industrial Measurements and Instrumentation	9
6	MMU 07513	Power Electronics and Motor Drives	9

**SEMESTER V & III CREDITS 60**

**S/N SEMESTER VI & IV**

1	GSU 07611	Computing Using Mathematical Software – (MATLAB)	6
2	GSU 07612	Research Methodology	6
3	MEU 07611	Fluid Power and Control	6
4	MMU 07611	Materials Processing and Fabrication	9
5	MEU 07612	Control Systems Engineering	6
6	MMU 07612	Materials Testing	12
7	MEU 07613	Renewable Energy Technologies	6
8	MMU 07613	Industrial Practical Training III	10

**SEMESTER VI & IV CREDITS 61**

**NTA LEVEL 7-3F6 & OD : Form 6 and Diploma Continue (MEU)- New Curriculum**

## S/N SEMESTER V &amp; III

1	GSU 07511	Advanced Statistics	6
2	MEU 07513	Computer Aided Manufacturing (CAM)	8
3	MEU 07514	Engineering Design	6
4	EEU 07511	AC Machines	8
5	MEU 07511	Heating, Ventilation and Air Conditioning	8
6	MEU 07512	Industrial Measurements and Instrumentation	8
7	MEU 07515	Metal forming Technology	6
8	EEU 07512	Power Electronics	6

SEMESTER V &amp; III CREDITS 55

## S/N SEMESTER VI &amp; IV

1	MEU 07611	Turbo Machines	8
2	MEU 07612	Fluid Power and Control	6
3	MEU 07613	Control Systems Engineering	6
4	MEU 07614	Piping Engineering	8
5	MEU 07615	Welding Technology	8
6	MEU 07616	Renewable Energy Technologies	8
7	MEU 07617	Research Methodology	4
8	MEU 07618	Industrial Practical Training III	10

SEMESTER VI &amp; IV CREDITS 58

NTA LEVEL 8 : New Curriculum - (MME)

## S/N SEMESTER I

1	MEU 08111	Industrial Safety and Maintenance	6
2	MMU 08110	Materials for Energy Storage and Conversion	6
3	MEU 08113	Material Handling Systems	6
4	MEU 08114	Process Automation	9
5	MEU 08115	Power Plant Engineering	9
6	MEU 08116	Quality Assurance and Control	6
7	MMU 08111	Corrosion and Degradation and of Materials in services	9
8	MMU 08113	Mechatronic-Materials Capstone Project I	10

SEMESTER I CREDITS 61

S/N SEMESTER II

1	GSU 08211	Entrepreneurship for Engineers	6
2	GSU 08212	Project Management and Procurement	6
3	GSU 08213	Engineering Ethics and Professional Conduct	6
4	MMU 8211	Nanotechnology and smart materials	6
5	MEU 08212	Industrial Energy Management	9
6	MEU 08213	Environmental Engineering and Management	6
7	MMU 08213	Intelligent control and Robotics	12

8	MMU 08214	Mechatronic-materials Capstone Project II	10

## SEMESTER II CREDITS 61

## NTA LEVEL 8 : New Curriculum - (MEU)

## S/N SEMESTER I

1	MEU 08111	Industrial Safety and Maintenance	6
2	MEU 08112	Industrial Refrigeration	6
3	MEU 08113	Material Handling Systems	9
4	MEU 08114	Industrial Process Control	6
5	MEU 08115	Power Plant Engineering	9
6	MEU 08116	Quality Assurance and Control	6
7	MEU 08117	Automotive Technology	9
8	MEU 08118	Project Design	10

## SEMESTER I CREDITS 61

## S/N SEMESTER II

1	GSU 08212	Project Management and Procurement	6
2	GSU 08213	Engineering Ethics and Professional Conduct	6
3	GSU 08214	Industrial Finance Management	6
4	MEU 08211	Industrial Energy Management	6
5	MEU 08212	Industrial Automation	9

6	MEU 08213	Environmental Engineering and Management	6
7	MEU 08214	Robotics	12
8	MEU 08215	Project Implementation	10

SEMESTER II CREDITS 61

### **6.5.10 Members of Teaching Staff Head of Department (HoD):**

#### **G. G. Mgaya**

B.Eng. (Mechanical Engineering) DIT; FTC (Mechanical Eng.) TCA; Certificate (Instructional Skills) ISW-TCA; Professional Training (Mechatronics) Politecnico di Milano- Italy; Certificate (Advanced Manufacturing with CAD/CAM) CTTC Bhubaneswar, INDIA; Certificate (Master CAM) INDIA.

#### **Deputy Head of Department (Deputy HoD):**

#### **E. Caroly**

BEng. (Mechanical Engineering) MUST; Diploma (Automobile Engineering) ATC.

#### **Examination Officers:**

#### **M. E. Nangale**

Diploma (Geology and Mineral Exploration) MRI - Chuo cha Madini Dodoma

**M. Kawamala**

MSc. (Oil and Natural Gas Engineering) China University of Geosciences, Wuhan, P.R. China; BSc. (Applied Geology) UDOM.

**Other Staff****Prof. B. N. Kichonge**

PhD (Sustainable Energy Science and Engineering – Sustainable Renewable Energy Engineering) NM-AIST; MSc (Production Engineering) UDSM; Post Graduate Diploma (PGD) (Mechanical Engineering) UDSM; Advanced Diploma in Engineering (ADE) (Mechanical Engineering) DIT; Full Technician Certificate (FTC) (Automotive Engineering) TCA.

**J. N. Mhusa1**

MSc. (Mechatronic Engineering) JKUAT, KENYA; BSc. (Production Engineering (Hons)) UDSM; Certificate (Advanced Manufacturing with CAD/CAM) CTTC Bubaneswar, INDIA; Certificate (Master CAM) INDIA; Certificate (Pipe Works, Oil and Gas Engineering) Camosun College, Victoria B.C. Canada; P. Eng. (T). Reg. No 3207.

**Dr. D. H. Ngoma**

PhD (Energy) Newcastle University-UK; MSc. (Renewable Energy) University of Oldenburg- German; BSc. (Mechanical Eng (Hons)) UDSM; Certificate (Environmental Science) Delft UNESCO-IHE, the Netherlands; Graduate Certificate (Vocational Education and Training) South Africa/Australia; Certificate

(Learning and Teaching in Higher Education) Newcastle University, UK.

### **A. S. Hassan**

MSc. (Agri. Eng.) SUA; Advanced Diploma (Mechanical Engineering) DIT; FTC (Mechanical Engineering) TCA.

### **E. Milyaso**

MSc. (Production Eng.) UDSM; BSc. (Mechanical Eng.) UDSM; Adv. Professional Training (CAD/CAM) German; Professional Training (Hydropower Engineering) ATC.

### **M. R. Kirumbi1**

MSc. (Sustainable Energy Sciences and Engineering) NM-AIST; B.Eng. (Mechanical Eng.) DIT; FTC (Mechanical Eng.) DIT; Certificate (Instructional Skills (ISW)) ATC; Basic training (CNC programming & operation) EMCOAuria; Professional training (operation, Maintenance and Management of Hydropower plants) ICH-Arusha.

### **J. Fabian**

BSc. (Mechanical Eng.) UDSM; Adv. Professional Training (JIGS and Fixture (ITD)) Hyderabad, India; Tools and Maintenance CTTC-INDIA.

### **L. M. Petro**

MSc (Sustainable Energy Sciences and Engineering) NM-AIST; Beng. (Mechanical Eng.) MUST; FTC (Mechanical Eng.) TCA; Certificate (Instructional Skills (ISW)) ATC; Professional Training (Machine tools and Maintenance) CTTC-INDIA; Basic training

(CNC programming and operation) EMCO-Austria; Professional training (operation, Maintenance and Management of Hydropower plants) ICH-Arusha.

### **R. Mkacha**

Adv. Diploma (Mechanical Eng.) DIT; FTC (Automotive Engineering) TCA; Certificate (Instructional Skills (ISW)) ATC; Professional Training (Pipe Works, Oil and Gas Engineering) Camosun College, Victoria B.C. Canada; Professional Training Machine.

### **R. P. Mugusii1**

BEng. (Mechanical Engineering) MUST; Diploma (Mechanical engineering) ATC.

### **G. Z. Mrema**

Diploma (Petroleum Geology) ESIS; Trade Test I (Welding and Fabrication Mechanical Eng.) VETA, Moshi; Trade Test I (Fitter and Turner) VETA, Arusha; Trade Test III (Machine Tools and Maintenance) VETA, Arusha; Professional Training (Renewable Energy) REA; Certificate (Entrepreneurship Education and Training) ATC.

### **F. Moshi**

Trade Test I (Welding and Metal Fabrication) VETA, Arusha; Certificate (Entrepreneurship Education and Training) ATC; Professional Training (Hydropower) ATC.

### **B. Masenga**

Beng. (Mechanical Engineering) MUST; Diploma (Mechanical Engineering) ATC.

**J. N. James**

Beng. (Mechanical Engineering) DIT; Diploma (Mechanical Engineering) DIT; Certificate (Instructional Skills) ISW, ATC.

**N. J. Kidai**

BSc. (Petroleum Engineering) (Hons) UDSM; Certificate (OBET Curriculum Development and Facilitation) ATC; Certificate (PBL) ATC; Basic CNC Operation Training ATC.

**A. F. Mfangavo**

MSc. (Production Engineering) UDSM; BSc. (Production Engineering (Hons)) UDSM; Certificate (CNC programming using Master CAM software CITD) Hyderabad, India; Certificate (Injection Molding Process Analysis, Testing and characterization of plastic materials) Malaysia; P.Eng. (Reg. No 3989) ERB.

**H. Magesa**

BEng. (Mechanical Engineering) NIT; Diploma (Automobile Engineering) NIT.

**K. Lymo**

BEng. (Mechanical Engineering) MUST; Diploma (Mechanical Engineering) DIT.

**E. Mbise**

BEng. (Mechanical Engineering) MUST.

**J. O. Jumbe**

MSc. (Oil and Natural Gas Engineering) China University of Geosciences, Wuhan, P.R. China; BSc. DIT; Diploma (Mechanical Engineering) DIT

E. John

NVA III (Fitter Mechanics) VETA

1On Study – SNU: South Korea

2On Study – MUST: Mbeya, Tanzani

## **6.6 Applied Sciences and Social Studies Department**

Introduction The Department of Applied Sciences and Social Studies is a bedrock for all the engineering departments of the College. It offers cross-cutting modules such as: Mathematics, Physical Sciences, Communication Skills, Entrepreneurship and Research Methodology. These cross-cutting modules are tools for making learners aware of the need for scientific and technological advancement for the development of the nation and the human race as a whole. These modules also provide students with skills for standards of scholarship in communicating widely both verbally and in writing.

The Department offers Laboratory Science and Technology program with exit levels of Basic Technician Certificate (NTA 4), Technician Certificate (NTA 5) and Ordinary Diploma (NTA 6) and Science in Laboratory and Industrial Technology with exit levels of Higher Diploma (NTA 7-II) and Bachelor (NTA 8).

The department is in the process to establish other new programs in both Ordinary diploma and Bachelor degree levels. Expected new programs are Diploma and Bachelor in Nuclear Energy Technology, Diploma in Food Science and Processing Technology, Certificate in Food Processing and Preservation Technology, Diploma in Analytical Chemistry, Diploma in Food and Beverage Management, Diploma in Pharmaceutical Technology (Pharmacy), Diploma in Medical Laboratory Sciences, Diploma in Cosmetology, Diploma in Environmental Science and Technology, Diploma in Analytical Chemistry,

Diploma in Applied Biology and Diploma and Bachelor in Technical Education, Diploma and Bachelor in Business Administration. The department has 24 teaching staff and 5 technicians



***Laboratory Science and Technology student in Chemistry Laboratory***

**7.6.1 Courses offered by the General Studies Department**

Note that while NTA Level 4 of the AY 2018/2019 will use the reviewed curriculum, NTA levels 5 and 6 will continue with the old one as we phase it out. The following are the contents of the reviewed Curriculum:

(a) BASIC TECHNICIAN CERTIFICATE (NTA 4) IN  
 LABORATORY  
 SCIENCES AND TECHNOLOGY

Level 04

Semester I Modules

S/N	Module Code	Module title	Class	Credit
1.	GST 04101	Algebra and Trigonometry	Fundamental	5
2.	GST 04103	Basics of English Language	Fundamental	4
3.	LST 04101	Basic Mechanics for Laboratory Technology	Core	9
4.	LST 04102	Laboratory Safety, Procurement and		
Organization	Core	8		
5.	LST 04103	Laboratory Techniques and Preparation of		
Re-	Core	10		
6.	LST 04104	Fundamentals of Cell Biology	Core	10

7.	LST 04105	Specimen Collection and Preservation		
	Core	9		
8.	LST 04106	Basic Laboratory Instrumentation	Core	9
Total credits		60		

### Semester II Modules

S/N	Module Code	Module title	Class	Credit	
1.	GST 04201	Series and Boolean Algebra	Fundamental	5	
2.	GST 04203	Microcomputer Application	Fundamental	6	
3.	LST 04201	Basic Biology Experimentation	Core		9
4.	LST 04202	Qualitative analysis	Core	9	
5.	LST 04203	Inorganic Chemistry	Core	8	
6	LST 04204	Basic Mechanics Practical for			
	Core	9			
7	LST 04205	Gender Issues and Professional Ethics	Fundamental	5	

8	LPT 04201	Laboratory Practi- cal Training	Core	10	

Total credits 65

**(b) TECHNICIAN CERTIFICATE (NTA LEVEL 5)**

**LEVEL 05**

**Semester I Modules**

S/N	Module Code	Module Title	Class	Credit Per Module
1.	GST 05101	Differentiation and Integra- tion	Funda- mental	5
2.	LST 05101	Basics of Pesti- cides and		
Phyto- chemistry	Core	8		
3.	LST 05102	Principles of Thermody- namics and		
Optical Devices	Core	9		
4.	LST 05103	Fundamentals of Analogue Electronics	Core	8
5.	LST 05104	Quantitative Analysis	Core	9

6.	LST 05105	Fundamentals of Physical Chemistry	Core	7
7.	LST 05106	Basics of Plant and Animal Physiology	Core	8
8.	LST 05107	Thermo Chemistry and Chemical		
Kinetics	Core	8		

Sub-Total/week 62

### Semester II Modules

S/N	Module			
Code	Module title	Class	Credit	
1.	GST 05201	Matrices, Complex and Vectors	Fundamental	5
2.	GST 05202	English Language Skills	Fundamental	4
3.	GST 05203	Basics of Entrepreneurship	Fundamental	4
4	LST 05201	Digital Technology	Core	9
5.	LST 05202	Fundamentals of Microbiology and Tissue Culture	Core	9

6	LST 05203	Heat and Thermodynamics Practicals	Core	9
7	LST 05204	Water Quality Control	Core	9
9	LST 05205	Laboratory Practical Training	Core	10
Total credits		59		

(c) ORDINARY DIPLOMA CERTIFICATE (NTA LEVEL 6)  
LEVEL 06

Semester I Modules

S/N	Module Code	Module title	Class	Credit
1.	GST 06101	Coordinate Geometry and Differential		
Equation	Funda- mental	6		
2.	GST 06102	Correspondence and Report Writing	Funda- mental	4
3.	LST 06101	Current Electricity and Waves Theory	Core	9
4.	LST 06102	Electronics Practicals	Core	9

5.	LST 06103	Analytical Instrumentation	Core	10
6.	LST 06104	Organic Chemistry	Core	8
7.	LST 06105	Introduction to Immunology and		
Parasitology	Core	9		
8.	LST 06107	Research techniques	Core	8
Total credits		63		

### Semester II Modules

S/N	Module Code	Module title	Class	Credit
1.	GST 06201	Linear Programming, Statistics and		
Probability	Fundamental	3		
2.	GST 06202	Enterprise Management	Fundamental	6
3.	LST 06201	Radiation Protection and Safety	Core	9

4.	LST 06202	Electrical and Waves Practicals	Core	9
5.	LST 06203	Fundamentals of Industrial Chemistry	Core	8
6	LST 06204	Molecular Genetics	Core	9
7	LST 06205	Quality control and Assurance	Core	9
8	LST 06206	Project	Core	10
Total credits		63		

NTA 7

## MODULES - SEMESTER I

### Fundamental Modules

Code	Module Title							
		L	T	P	AS		Cred-its	
GSU 07101	Advanced Calculus	2	1	-	1		6	
GSU 07103	Technical Communication Skills	2	1		1		6	
GSU 07104	Entrepreneurship	2	1	-	1		6	

	TOTAL	6	3	-	3		18

### Core Modules

LIU 07101	Biological Techniques	1	1	3	1	10
LIU 07102	Analytical Instrumentation	1	1	5	1	12
LIU 07103	Preparation of Chemical Solution an					
Bench Re-agents	1	1	5	1		
LIU 07104	Laboratory Safety	1	1	3	1	10
	TOTAL	4	4	16	4	
44						

### MODULES - SEMESTER II

#### Fundamental Modules

Code	Module Title	L	T	P	AS	Credits
GSU	Numerical Methods	2	1	-	1	6
CSU	Fundamentals of					
Pro-	2	1	-	1	6	
	TOTAL	4	2	-	2	12

### Core Modules

LIU	Food Biochemistry	1	1	5	1	12
LIU	Laboratory Sample Analysis	1	1	5	1	12
LIU	Preventive of					
	1 Laboratory Tools and	1	3	1	10	
LIU	Fundamentals of Mechanics	1	1	3	1	10
LIU	Laboratory Practical Training					10
	TOTAL	4	4	16	4	
54						
		28				

### MODULES - SEMESTER III

#### Fundamental Modules

Code	Module Title	L	T	P	AS	Cred-its
GSU 07301	Advanced Statistics	2	1	-	1	6
	TOTAL	2	1	-	1	6

#### Core Modules

LIU 07301	Chemistry of Hydrocarbons	1	3	-	1	8
LIU 07302	Molecular Biology and Biotechnology	1	1	5	1	12

LIU 07303	Laboratory Risk Management	1	3	-	1	8
LIU 07304	Applied Electronics	1	1	3	1	10
LIU 07305	Principles of Thermodynamics	1	3	-	1	8
	TOTAL	5	11	8	5	
46						
		29				

## MODULES - SEMESTER IV

### Fundamental Modules

Code	Module Title	L	T	P	AS	
GSU 07401	Computing					
Soft- ware	2	1	-	1	6	
	TOTAL	2	1	-zs	1	6

### Core Modules

LIU 07401	Natural and Pharmaceutical Products	1	1	5	1	12
LIU 07402	Chemistry of Macromolecules	1	1	2	1	8
LIU 07403	Industrial Microbiology	1	1	3	1	10

LIU 07404	Laboratory	Pro- cure- ment	and				
Orga- niza- tion	1	1	3	1	10		
LIU 07405	Laboratory Waste Management	1	1	3	1	10	
LIU 07406	Essentials of Elec- trical Safety	1	1	3	1	10	
LIU 07407	Laboratory Practi- cal Training					10	
	<b>TOTAL</b>	6	6	19	6	70	

**NTA 8**  
**Semester I**

## Semester II

Code	Module Title	L	T	P	AS	Credit
LIU 08201	Quality Control and Standards	2	1	3	2	12
LIU 08202	Water and Soil Management	2	1	6	1	15
LIU 08203	Principles of Nuclear Science	3	2	1	2	12
LIU 08204	Project Design	2	1	6	1	15
LIU 08205	Professional Ethics	2	1	2	1	9
LIU 08206	Applied Electromagnetism	2	1	2	1	9
	13	7	2			
0	8					

Total hours/Week 48 72

### 7.6.2 Members of the Teaching Staff

#### Head of Department

#### Dr.A. O. Mmbuji

PhD in Engineering (Oil and Natural Gas- China University of Geosciences); MSc (Chemistry) UDSM; B.Sc. (Education (Hons) UDSM.

## **Deputy Head of Department**

### **Winfrida J. Mbewe**

Masters (Business Management (MBM)) MOCU; Bachelor (Business Management) IAA; Cert. (Instructional Strategy and Students engagement) Parkland Canada; Cert. (National Training program for TVET Management) UNESCO; Cert. (Circular Economy in Entrepreneurial Learning in TVET (UNEVOC) Bonn Germany; Cert. (Transformational Collaborative Research for Sustainable Development in the COVID-19 Era) Malawi.

### **Other Staff Members**

#### **Dr. Naisujaki Sephania Lyimo**

PhD (Curriculum Development) MOI University; M.A. (Ed.) University of Dodoma (UDOM); B. (Ed.) Mount Meru University (MMU); Dip. (Ed.) Marangu T.T.C; Certificate (Facilitator Development) BCIT-CANADA; Certificate (Instructional Skills) Arusha Technical College (ATC); Certificate (Circular Economy and Entrepreneurship in TVET) UNESCO-UNEVOC- Bonn Germany.

#### **S. Q. Sebastian**

M.Sc. (Mathematical Modeling) UDSM; B.Sc. (Education (Hon.)) UDSM; Cert (Instructional Skills) ATC.

#### **Dr.L. M. Kanyonga**

PhD in Education, Research and Evaluation-MOI Univversity-Kenya); M.Ed. (Assessment and Evaluation) Jordan University College (SAUT); B. Ed. (Science

(Hons)) UDSM; Cert. (Co Teach - Seminar on Schooling and Diversity in Germany and Turkey) TU Dortmund University, Germany and Dicle University, Turkey; Cert. (Short-term Research Study) Institute for School Development Research - TU – Dortmund University, Germany; Cert. (World Wide Exchange Programme) University of Munster, Germany.

### **Dr.Zakia Issa Ndidi**

PhD in Mathematics ( Central University of Punjab- India);M.Sc. (Mathematics) UDOM; MBA Greenwich-UK; B.Sc. (Education) UDSM; Dip. (Education) MTC; Cert. (Instructional Skills) ATC.

### **Donatha Mwase**

MBA (Logistics Management) Coventry University; B.Ed. (Science) UDSM; Certificate (Entrepreneurship Training for Teachers) HUAS, Netherland; Certificate (Instructional Strategies and Students Engagement) Parkland College, Canada; Cert. (Circular Economy in Entrepreneurial Learning in TVET) UNEVOC, Bonn Germany.

### **Dr.Josephat D. Sengura**

PhD in Business Administartion (Wuhan University -China),MBA (Finance and Marketing) JNTU-Anantapur, India; BBA SAUT; Cert. (Entrepreneurship for Small Business Trainers/Promoters) NIESBUD, India; Cert. (Global Summit on Transforming Human Resources and Strategic Development) NIESBUD, India; Cert. (Incubation Manager Training) COSTECH; Cert. (Instructional skills) ATC.

**J. M. Mgoge**

M. (Ed.) OUT; BA. Ed. (Linguistic and Political Science) UDSM.

**Jacob Busumabu**

MSc (Physics) UDSM; BSc. (Ed. (Hons)) UDSM; Cert. (Instructional skills) ATC; Advanced Water Quality and laboratory Practice, NITTTR- India; Biomedical Equipment Repair and Maintenance, Arusha Technical College; Certificate (Entrepreneurship for Scientists and Engineers) UDSM and Institute of Physics (IOP), USA; Certificate (General Entrepreneurship Course) ATC, VETA; Certificate (Driving) VETA.

**M. E. Kakale**

MA (English Language Teaching) Makumira University; BA. Ed. (Linguistic and Geography) UDSM.

**Exavery Enoch**

MSc. (Mathematical Sciences) AIMS-Stellenbosch University, South Africa; BSc. (Mathematics - Computational Option) PAUIST, Jomo Kenyatta University of Agriculture and Technology, Kenya.

**Ramadhani Issa**

MA (English Language Teaching) Makumira University; BA. Ed (Linguistic and Geography) UDSM.

**A. Ghwanga**

MSc. (Life Sciences) NM-AIST; B. Ed. (Science) UDSM.

**O. M. Msamba**

Msc. (Applied Mathematics and Computational Science Engineering) NM-AIST

**B.M. Sima**

Master in Mathematical and Computer Science and Engineering (NM-AIST), B. Ed. (Economics and Mathematics – BEEM) Mzumbe University

**M.E Kakale**

BA. Ed. (Linguistic and Geography) UDSM

**\*G. M. Wilfred**

FTC (Laboratory Technology) DIT.

**J. B. Mankala**

Diploma (Laboratory Technology) DIT

**O.J. Molla**

Diploma (Laboratory Science and Technology) ATC.

**E. William**

Diploma (Laboratory Science and Technology) ATC.

**I. W. Mwamatembe**

Diploma (Laboratory Science and Technology) MUST.

**J.Nsulwa**

BSc. Education (Chemistry and Mathematics) SUA

**A. Mbekomize**

BSc. Education (Physics and Chemistry) UDSM

**V. Ngaai**

MA. Educational Leadership and Management, University of Arusha

**T. Kikaho**

MSc. (Education) Agkhan University

\* On study leave Bachelor degree

\*\* On study leave Master's degree

\*\* \* On study leave PhD

## **6.7 Information and Communication Technology Department**

Welcome to the Information and Communication Technology (ICT) Department. Our courses of study offer a community of learners a sound foundation of knowledge and problem-solving skills in ICT that can lead to valuable career certificates, diplomas, bachelor's degrees and lifelong learning.

Our outstanding instructors are committed to providing the most current courses and programs in the IT field. Under the National Technical Award framework, which is overseen by the National Council for Technical and

Vocational Education and Training (NACTVET), we provide Ordinary Diploma (NTA Level 4 – 6) in Computer Science (CS), Information Technology (IT), Cyber Security and Digital Forensic (CDF), and Multimedia and Animation Technology (MAT); and Bachelor Degree (NTA 7 - 8) in Computer Science (CS), and Information Technology (IT). We also provide more than fifty (50) short courses in the ICT field. Apart from teaching, the ICT department is also committed in conducting researches and consultancy services in the ATC campus and to the community in general.

By constantly updating our curricula, Information and Communication Technology remains on the cutting edge of new technologies and industry trends, which means that our students keep pace with the changing IT field and attain the most valued skills in the workplace. The curricula used in the department are modular in structure, competence-based and meet the challenges of current technological developments. The competence-based education and training (CBET) emphasizes on learning outcomes, which demonstrate competencies, knowledge and practical skills required for a particular task at a workplace. These curricula are developed and approved under the National Council for Technical and Vocational Education and Training (NACTVET) Standards.

The Department has adequate resources to run its programmes, which include well equipped networked Computer Labs, Internet connectivity and classrooms, enough teaching and technical supporting staff.

The Department is also responsible for teaching students from all other departments who are having computer

related modules, such as basic computer application, computer programming and networking.



Students in class session at Information and Communication Technology Laboratory

Basic Technician Certificate in Information Technology

NTA Level 4

PROGRAMME MODULES

SEMESTER I

Fundamental Modules

ODE	MODULE NAME					
		L	T	P	AS	Credit
GST 04103	English Language Basics	2	0	0	1	5

GST 04106	Elementary Mathematics	3	0	0	1	6
TOTAL	5	0	0	2	11	

7 hrs/wk

### Core Modules

#### Core Modules Semester I

CODE	MODULE NAME	L	T	P	AS	Credit
ITT 04101	Computer Fundamentals and Applications	3	1	3	1	12
ITT 04102	Microcomputer Applications	3	1	3	1	12
ITT 04103	Basics of Computer Networks.	3	1	4	1	14
ITT 04104	Basics of Electronics	3	1	3	1	12
TOTAL	12	4	13	4	48	

33 hrs/wk

### SEMESTER II

#### Core Modules Semester II

CODE	MODULE NAME	L	T	P	AS	Credit
ITT 04201	Computer Maintenance and Troubleshooting	3	2	4	1	15

ITT 04202	Web design	3	1	3	1	12
ITT 04203	Gender and HIV	3	2	4	1	15
ITT 04204	Programming using C	2	2	0	1	8
ITT 04205	Basics of Multimedia	-	-	-	-	10
	Customer Relation- ship Management (CRM)	2	2	0	1	8
	<b>TOTAL</b>	13	7	11	5	60

36 hrs/wk

#### Summary of Modules for NTA 4

SN	MODULE/SUBJECT NAME	MOD- ULE CODE	SEMES- TER	TOTAL CREDIT
1.	English Language Basics	GST 04103	I	5
2.	Elementary Mathe- matics	GST 04106	I	6
3.	Computer Funda- mentals and Appli- cations	ITT 04101	I	12
4.	Microcomputer Ap- plications	ITT 04102	I	12

5	English Language Basics.	ITT 04103	I	14
6.	Basics of Electronics	ITT 04104	I	12
7.	Internet Essentials	ITT 04201	II	15
8.	Internet Essentials and Web Technology	ITT 04202	II	12
9.	Introduction to High level programming	ITT 04203	II	15
10.	Customer relationship Management	ITT 04204	II	8
11.	Industrial Practical Training (IPT)	ITT 04205	II	10
	<b>TOTAL</b>			<b>121</b>

Technician Certificate in Information Technology  
(NTA Level 5)  
Semester I Fundamental Modules

CODE	MODULE NAME					
		L	T	P	AS	Credit
GST 05108	Business Communication skills	2	0	0	1	6
<b>TOTAL</b>	2	0	0	1	6	

3 hr/wk

## Semester I Core modules

CODE	MODULE NAME	L	T	P	AS	Credit
ITT 05101	Computer Network Design and Administration	3	1	3	1	12
CST 05101	Computer Architecture	3	1	1	1	09
ITT 05103	Multimedia Technology	4	0	0	1	8
ITT 05104	Database Management and Implementation	3	1	3	1	12
ITT 05105	Object oriented Programming using C++	2	1	2	1	09
TOTAL	16	3		5	52	

324 hr/wk

## SEMESTER II

### Semester II Core modules

CODE	MODULE NAME	L	T	P	AS	Credit
ITT 05201	Web Programming	4	2	0	1	09
ITT 05202	Fundamentals of Linux Administration	3	1	2	1	09

ITT 05203	Object Oriented Programming using JAVA	3	2	0	1	09
ITT 05204	Computer Maintenance and repair	3	2	0	1	09
ITT 05205	Operating Systems	3	1	0	1	08
ITT 05206	Industrial Practical Training (IPT)	-	-	-	-	20
CST 05206	Programming for mobile devices	2	0	1	1	6
GST 05203	Basics of entrepreneurship	2	1	0	1	6
<b>TOTAL</b>	<b>15</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>64</b>	

31 Hr/wk

Keys:

L - Lecture  
 P - Practical  
 AS - Assignment  
 T Tutorial

## SUMMARY OF MODULES

### Summary of Modules

SN	MODULE/SUBJECT NAME	MODULE CODE	SEMESTER	TOTAL CREDIT
1.	Business Communication skills	GST 05103	I	4

2.	Computer network Design and Administration	ITT 05101	I	9
3.	Computer Architecture	ITT 05102	I	12
4.	Multimedia Technology	ITT 05103	I	8
5.	Database management and Implementation	ITT 05104	I	12
6.	Object Oriented Programming using C++	ITT 05206	I	11
7.	Web Programming	ITT 05207	II	9
8.	Fundamentals of Linux Administration	ITT 05201	II	9
9.	Object-oriented Programming using JAVA	ITT 05202	II	9
10.	Computer Maintenance and Repair	ITT 05203	II	9
11.	Operating Systems	ITT 05204	II	8

12.	Programming for Mobile devices	ITT 05205	II	20
12	Basics of Entrepreneurship	GST 05203	II	6
13	Industrial Practical Training	ITT05207	II	10

**TOTAL** **121**

Ordinary Diploma in Information Technology  
(NTA Level 6)

### PROGRAMME MODULES-SEMESTER I

#### Semester I Core Modules

CODE	MODULE NAME	L	T	P	AS	Credit
ITD 06101	System Analysis and Design	4	2	0	1	11
ITD 06102	Python Programming	2	2	2	1	11
ITD 06103	Cyber Security	4	2	0	1	11
ITD 06104	System Administration	4	2	0	1	11
ITD 06105	Information System Project Management	2	1	0	1	6
FYP 01	Final Year Project I	0	0	7	0	10

## SEMESTER II

## Semester II Fundamental Module

CODE	MODULE NAME	L	T	P	AS	Credit
GSD 06203	Supervisory Communication Skills	3	2	0	1	9
	TOTAL	3	2	0	1	9

6 hrs/wk

## Semester II Core Modules

CODE	MODULE NAME	L	T	P	AS	Credit
ITD 06201	Principles of Management	4	0	3	1	12
ITD 06202	Wireless Networking	2	1	0	1	6

ITD 06203	Advanced Network management	3	2	2	1	12
ITD 02	Final Year Project II	0	0	7	0	10
	TOTAL	13	5	12	4	51

34 hrs/wk

Keys:

L - Lecture  
 P - Practical  
 AS - Assignment  
 T Tutorial

## SUMMARY OF MODULES

SN	MODULE/SUBJECT NAME	MODULE CODE		TOTAL CREDIT
1.	System Analysis and Design	ITD 06101	I	11
2.	Python Programming	ITD 06102	I	11
3.	Cyber Security	ITD 06103	I	11
4	System Administration	ITD 06104	I	11
5.	Information system Project Management	ITD 06105	I	6

6.	Supervisory Communication Skills	GSD 06203	II	9
7.	Principles of Management	ITD 06201	II	12

## Basic Technician Certificate in Computer Science

### NTA LEVEL 4 PROGRAMME MODULES SEMESTER I

#### Semester I Fundamental Module

CODE	MODULE NAME	L	T	P	AS	Credit
	English Language Basics	2	0	0	1	5
	Elementary Mathematics	3	0	0	1	6
	<b>TOTAL</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>11</b>

#### Core Modules Semester I

CODE	MODULE NAME	L	T	P	AS	Credit
	Computer Fundamentals and Applications	3	1	3	1	12
	Internet Essentials	3	1	1	1	12
CST	Basics of Computer Networks.	3	1	3	1	12
	Basics of Electronics	3	1	3	1	12

			4	12	4	12
TO-TAL	16	3		5	48	

32 hr/wk

### Core Modules Semester II

CODE	MODULE NAME					
		L	T	P	AS	Credit
	Computer Maintenance and Troubleshooting	3	2	4	1	12
	Web design	3	1	3	1	12
GST 04202	Gender and HIV	2	-	-	1	05
CST 04201	Programming using C	3	2	4	1	12
CST 04202	Basics of Multimedia	3	2	4	1	12
GST 04204	Matrices, Statistics and Complex Numbers	2	1	0	1	06
TOTAL						
	32 hr/wk					

### Technician Certificate in Computer Science

NTA LEVEL 5

#### Semester I Core Modules

CODE	MODULE NAME					
		L	T	P	AS	Credit

	Computer Network Design and Administration	3	1	3	1	12
CST 05101	Computer Architecture	3	1	1	1	12
	Object oriented Programming using C++	2	1	2	1	12
	Database Management and Implementation	3	1	3	1	12
ITT 05105	Multimedia Technology	2	0	1	1	06
GST 05105	Basics of Differentiation and Integration	2	1	0	1	06
GST 05108	Business Communication Skills	2	0	0	1	06
TOTAL	17	5	10	7	66	

39 hr/wk

## Semester II Core Modules

CODE	MODULE NAME	L	T	P	AS	Credit
	Web Programming	3	1	3	1	12
	Fundamentals of Linux Administration	2	0	1	1	09
	Object Oriented Programming using JAVA	2	1	2	1	09

	Computer Maintenance and repair	2	1	2	1	09
	Operating Systems	3	1	1	1	09
CST 05206	Programming for mobile devices	2	0	1	1	06
GST 05203	Basics of entrepreneurship	2	1	0	1	06
	Industrial Practical Training(IPT)	-	-	-	-	10
<b>TOTAL</b>	<b>15</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>64</b>	

31 hr/wk

### SUMMARY OF MODULES

SN	MODULE/SUBJECT NAME	MODULE CODE		TOTAL CREDIT
1.	Business Communication skills		I	6
2.	Computer network Design and Administration		I	12
3.	Computer Architecture	CST 05101	I	09
4.	Multimedia Technology		I	6
5.	Database management and Implementation		I	12

6	Object Oriented Programming using C++	CST 05105	I	9
7.	Web Programming	CST 05201	II	12
8.	Fundamentals of Linux Administration		II	6
9.	Object-oriented Programming using JAVA	CST 05203	II	09
10.	Computer Maintenance and Repair		II	09
11.	Operating Systems	CST 05205	I	09
12.	Programming for Mobile devices	CST 05206	II	6
13	Basics of Entrepreneurship	GST 05203	II	6
14	Industrial Practical Training		II	10
15	Basics of Differentiation and Integration		II	6
TOTAL		127		

Ordinary Diploma in Computer Science  
(NTA Level 6)

PROGRAMME MODULES  
SEMESTER I

Semester I Fundamental Module

CODE	MODULE NAME	L	T	P	AS	Credit
GSD 06106	Discrete Mathematics	3	2	0	1	9
TOTAL	3	2	0	1	9	

6 Hrs/wk

### Semester I Core Modules

CODE	MODULE NAME	L	T	P	AS	Credit
CSD 06101	Software design & Development	4	1	2	1	12
CSD 06102	Cyber Security	3	1	1	1	09
CSD 06103	Python programming	3	1	2	1	10
CSD 06104	Information system Project Management	3	1	2	1	11
FYP I	Final Year Project -I	0	0	7	0	10
TOTAL	13					
4						
14						
4						
52						

35 hrs/wk

## Semester II Fundamental Module

CODE	MODULE NAME	L	T	P	AS	Credit
GSD 06203	Supervisory Communication Skills	3	2	0	1	9
	TOTAL	3	2	0	1	9

6 hrs/wk

## Semester II Core Modules

CODE	MODULE NAME	L	T	P	AS	Credit
CSD 06201	Advanced Network Management	4	0	3	1	12
CSD 06202	Java Programming	3	1	2	1	11
CSD 06203	Fundamental of Data structures and Algorithms	2	1	2	1	09
CSD 06204	Microprocessor Technology	3	2	0	1	09

ITT 06201	Principles of Management	3	2	0	1	09
FYP II	Final Year Project –II	0	0	7	0	10
TOTAL						
4						
14						
4						
51						

34 hrs/wk

Keys:

L - Lecture  
 P - Practical  
 AS - Assignment  
 T Tutorial

## SUMMARY OF MODULES

SN	MODULE/SUBJECT NAME	MODULE CODE		TOTAL CREDIT
1.	Discrete Mathematics	GSD 06106	I	9
2.	Software design & Development	CSD 06101	I	12
3.	System design and development	CSD 06102	I	09

4.	Cyber security	CSD 06103	I	10
5.	Python Programming	CSD 06104	I	11
6	Information systems project management	GSD 06103	II	9
7.	Final Year project	CSD 06201	II	12
8.	Supervisory Communication skills	CSD 06202	II	11
9.	Advanced Network Management	CSD 06203	II	09
	Fundamentals of Data structure and management	CSD 06204	II	09
	Final Year Project –I	FYP-I	I	10
	Principles of Management	ITT 06201	II	10
TOTAL		121		

**Basic Technician Certificate in Cyber Security and Digital Forensic NTA Level 4**  
**PROGRAMME MODULES**  
**SEMESTER I**  
**Fundamental Modules**

CODE	MODULE NAME					
		L	T	P	AS	Credit

GST 04111	Algebra and Trigonometry	1	2	0	1	6
GST 04213	Business Communication Skills	2	1	0	1	6
GST 04204	Entrepreneurship for Technicians	2	1	0	1	6
<b>TOTAL</b>	<b>5</b>	<b>4</b>	<b>0</b>	<b>3</b>	<b>18</b>	

12 hrs/wk

### Core Modules

#### Core Modules Semester I

CODE	MODULE NAME	L	T	P	AS	Credit
CDT 04111	Electronics Application in Computing	2	1	4	1	12
CDT 04112	Forensic investigation	2	1	4	1	12
ITT 04111	Computer application operations	2	1	4	1	12
CST 04112	Computer networks	2	1	4	1	12
CST 04212	Multimedia analysis	1	1	3	1	9
<b>TOTAL</b>	<b>9</b>					
5						
19						
5						

38 hrs/wk

**SEMESTER II****Core Modules Semester II**

CODE	MODULE NAME	L	T	P	AS	Credit
CDT 04213	Python Programming	2	1	4	1	12
	Occupational Safety and Health practices	2	1	0	1	6
ITT 04212	Web Development	2	1	4	1	12
GST 04211	Linear Algebra, Complex Numbers and Statistics	2	1	0	1	6
GST 04203	Industrial Practical Training (IPT)	0	0	7	0	10
	<b>TOTAL</b>	<b>8</b>	<b>4</b>	<b>15</b>	<b>4</b>	<b>46</b>

31 hrs/wk

## Summary of Modules for NTA 4

SN	MODULE/SUBJECT NAME	MOD- ULE CODE	SE-	TOTAL CREDIT
1.	Electronics Application in Computing	CDT 04111	I	12
2.	Forensic investigation	CDT 04112	I	12
3.	Computer application operations	ITT 04111	I	12
4.	Computer networks	CST 04112	I	12
5	Multimedia analysis	CST 04212	I	9
6.	Algebra and Trigonometry	GST 04111	I	6
7.	Entrepreneurship for Technicians	GST 04204	II	6
8.	Python Programming	CDT 04213	II	12
9.	Occupational Safety and Health practices		II	6
10.	Web Development	ITT 04212	II	12
11.	Linear Algebra, Complex Numbers and Statistics	GST 04211	II	6

12.	Business Communication Skills	GST 04213	II	6
13	Industrial Practical Training (IPT)	GST 04203	II	10
TOTAL		121		

Technician Certificate in Cyber Security and Digital Forensic (NTA Level 5)  
Semester I Fundamental Modules

CODE	MODULE NAME	L	T	P	AS	Credit
GST 05111	Differentiation and Integration	1	1	1	1	6
TOTAL	1	1	1	1	6	

4 hr/wk

Semester I Core modules

CODE	MODULE NAME	L	T	P	AS	Credit
CDT 05111	Database Systems	1	1	2	2	9

CDT 05112	Web Application Development	1	-	2	1	6
CDT 05113	Data communication	1	1	3	3	9
CDT 05114	Ethical hacking	1	1	3	3	9
CDT 05115	Operating systems	1	1	2	2	9
CDT 05116	Linux for Cyber Security	1	1	2	2	9
TOTAL	6					
4						
14						
13						
51						

37 hr/wk

## SEMESTER II

### Semester II Core modules

CODE	MODULE NAME	L	T	P	AS	Credit
CDT 05211	Internet of Things	1	1	2	2	9
CDT 05212	Cloud computing	1	1	2	2	9
CDT 05213	Web application security	1	1	2	2	9
CDT 05214	Digital forensic	1	1	2	2	9

CDT 05215	Information system audit	1	1	3	3	9
CDT 05216	Biometric Security	1	1	3	3	9
ITT 05207	Industrial Practical Training (IPT)	-	-	5	4	10
TOTAL	6	6	19		64	

49 Hr/wk

#### Keys:

- L - Lecture
- P - Practical
- AS - Assignment
- T - Tutorial

#### SUMMARY OF MODULES

#### Summary of Modules

SN	MODULE/SUBJECT NAME	MODULE CODE	SEMESTER	TOTAL CREDIT
1.	Differentiation and Integration	GST 05111	I	6
2.	Database Systems	CDT 05111	I	9
3.	Web Application Development	CDT 05112	I	6
4.	Data communication	CDT 05113	I	9
5.	Ethical hacking	CDT 05114	I	9

6.	Operating systems	CDT 05115	I	9
7.	Linux for Cyber Security	CDT 05116	I	9
8.	Internet of Things	CDT 05211	II	9
9.	Cloud computing	CDT 05212	II	9
	Web application security	CDT 05213	II	9
	Digital forensic	CDT 05214	II	9
	Information system audit	CDT 05215	II	9
13	Biometric Security	CDT 05216	II	9
	Industrial Practical Training (IPT)	ITT 05207	II	10
TOTAL		121		

Ordinary Diploma in Cyber Security and Digital Forensic (NTA Level 6)

#### PROGRAMME MODULES-SEMESTER I

##### Semester I Core Modules

CODE	MODULE NAME						
		L	T	P	AS	Credit	
CDD 06111	Code Exploit Using Python	2	0	4	2	8	

CDD 06112	Fraud Forensic Auditing	1	0	3	2	6
CDD 06113	Blockchain Technology	1	0	2	1	4
CDD 06114	Artificial Intelligence in Security	1	0	2	1	4
CDD 06115	Cloud Computing and IoT Security	2	0	4	2	8
CDD 06116	Cyber Security Incident Management	1	0	2	1	4
CDD 06117	Project Design	2	0	5	1	

8

## SEMESTER II

### Semester II Core Modules

CODE	MODULE NAME	L	T	P	AS	Credit
CDD 06211	Encryption Technology	2	0	4	2	8
CDD 06212	Information Quality Assurance	1	0	3	2	6
CDD 06213	Database Security	2	0	4	2	8
CDD 06214	Mobile and Wireless Security	1	0	3	2	6

CDD 06215	Mobile Device Forensic	1	0	3	2	6
CDD 06216	Information Security Management	1	0	2	1	4
CDD 06217	Project Implementation	2	0	5	1	8
	TOTAL					
0						
24						
12						
46						

46 hrs/wk

Keys:

L - Lecture  
 P - Practical  
 AS - Assignment  
 T Tutorial

## SUMMARY OF MODULES

SN	MODULE/SUBJECT NAME	MODULE CODE		TOTAL CREDIT
1.	Code Exploit Using Python	CDD 06111	I	12

2.	Fraud Forensic Auditing	CDD 06112	I	9
3.	Blockchain Technology	CDD 06113	I	6
4	Artificial Intelligence in Security	CDD 06114	I	6
5.	Cloud Computing and IoT Security	CDD 06115	I	12
6.	Cyber Security Incident Management	CDD 06116	I	6
7.	Project Design	CDD 06117	I	12
8.	Encryption Technology	CDD 06211	II	12
9.	Information Quality Assurance	CDD 06212	II	9
10.	Database Security	CDD 06213	II	12
11	Mobile and Wireless Security	CDD 06214	II	9
12	Mobile Device Forensic	CDD 06215	II	9
13	Information Security Management	CDD 06216	II	6
14	Project Implementation	CDD 06217	II	12

Basic Technician Certificate in Multimedia and Animation Technology NTA Level 4

## PROGRAMME MODULES

## SEMESTER I

## Fundamental Modules

CODE	MODULE NAME	L	T	P	AS	Credit
GST 04113	Mathematics for Multi-media	1	2	2	1	6
GST 04214	Entrepreneurship for Technicians	2	0	1	1	4
GST 04213	Business Communication Skills	2	1	0	1	4
TOTAL	5	3	3	3	14	

14 hrs/wk

## Core Modules

## Core Modules Semester I

CODE	MODULE NAME	L	T	P	AS	Credit
MAT 04111	Computer application operations	1	1	3	1	6
MAT 04112	Digital Art and Design	2	1	4	1	8
MAT 04113	Digital Photography	1	1	4	2	8
MAT 04114	Occupational Safety and Health Practices	2	1	0	1	4

MAT 04115	Introduction to Programming	1	1	3	1	6
MAT 04116	Computer Networks	1	0	2	1	4
TOTAL	8	5		7		36

36 hrs/wk

## SEMESTER II

### Core Modules Semester II

CODE	MODULE NAME	L	T	P	AS	Credit
MAT 04211	Graphics Design	1	1	4	2	8
MAT 04213	Java Programming	1	1	3	1	8
MAT 04214	Sound Design and Production	1	2	4	1	8
MAT 04215	Industrial Practical Training (IPT)	0	0	7	0	7
	TOTAL	3	4		4	31

31 hrs/wk

## Summary of Modules for NTA 4

SN	MODULE/SUBJECT NAME	MODULE CODE	SEMESTER	TOTAL CREDIT

1.	Mathematics for Multimedia	GST 04113	I	9
2.	Computer application operations	MAT 04111	I	9
3.	Digital Art and Design	MAT 04112	I	12
4.	Digital Photography	MAT 04113	I	12
5	Occupational Safety and Health Practices	MAT 04114	I	6
6.	Introduction to Programming	MAT 04115	I	9
7.	Computer Networks	MAT 04116	I	6
8.	Graphics Design	MAT 04211	II	12
9.	Java Programming	MAT 04213	II	12
10.	Business Communication Skills	GST 04213	II	6
11.	Sound Design and Production	MAT 04214	II	12
12.	Entrepreneurship for Technicians	GST 04214	II	6
13	Industrial Practical Training (IPT)	MAT 04215	II	10

TOTAL 121

# Technician Certificate in Multimedia and Animation Technology (NTA Level 5)

## Semester I Core modules

CODE	MODULE NAME	L	T	P	AS	Credit
MAT 05111	Video Production	1	1	4	2	8
MAT 05112	Preproduction operations	1	1	1	1	4
MAT 05113	Database Management and Implementation	1	1	2	2	6
MAT 05114	Web Design	1	1	3	1	6
MAT 05115	Legal and Ethical Issues in Multimedia and Animation	2	1	0	1	4
MAT 05116	UI/UX Design	2	1	1	2	6
MAT 05117	Multimedia Project Management	1	1	2	2	6
TOTAL	9	7	13			40

40 hr/wk

## SEMESTER II

### Semester II Core modules

CODE	MODULE NAME	L	T	P	AS	Credit
MAT 05211	2D Animation	1	1	4	2	8
MAT 05212	Web Programming	1	1	2	2	6
MAT 05213	Motion Graphics and Visual Effects (VFX)	1	1	4	2	8
MAT 05214	Programming for Mobile Devices	1	1	3	1	6
MAT 05215	Operating Systems	2	1	2	1	6
MAT 05216	Industrial Practical Training (IPT)	-	-	7	-	10
<b>TOTAL</b>	<b>6</b>	<b>5</b>	<b>22</b>	<b>8</b>	<b>44</b>	

41 Hr/wk

Keys:

L - Lecture  
 P - Practical  
 AS - Assignment  
 T Tutorial

### SUMMARY OF MODULES

#### Summary of Modules

SN	MODULE/SUBJECT NAME	MODULE CODE	SEMESTER	TOTAL CREDIT

1.	Video Production	MAT 05111	I	12
2.	Preproduction operations	MAT 05112	I	6
3.	Database Management and Implementation	MAT 05113	I	9
4.	Web Design	MAT 05114	I	9
5.	Legal and Ethical Issues in Multimedia and Animation	MAT 05115	I	6
6.	UI/UX Design	MAT 05116	I	9
7.	Multimedia Project Management	MAT 05117	I	9
8.	2D Animation	MAT 05211	II	12
9.	Web Programming	MAT 05212	II	9
	Motion Graphics and Visual Effects (VFX)	MAT 05213	II	12
	Programming for Mobile Devices	MAT 05214	II	9
	Operating Systems	MAT 05215	II	9

	Industrial Practical Training (IPT)	MAT 05216	II	10
TOTAL		121		

## Ordinary Diploma in Cyber Security and Digital Forensic (NTA Level 6)

### PROGRAMME MODULES-SEMESTER I

#### Semester I Core Modules

CODE	MODULE NAME	L	T	P	AS	Credit
CDD 06111	Code Exploit Using Python	2	0	4	2	8
CDD 06112	Fraud Forensic Auditing	1	0	3	2	6
CDD 06113	Blockchain Technology	1	0	2	1	4
CDD 06114	Artificial Intelligence in Security	1	0	2	1	4
CDD 06115	Cloud Computing and IoT Security	2	0	4	2	8
CDD 06116	Cyber Security Incident Management	1	0	2	1	4
CDD 06117	Project Design	2	0	5	1	8
TOTAL		10				

42 hrs/wk

## SEMESTER II

## Semester II Core Modules

CODE	MODULE NAME	L	T	P	Credit
CDD 06211	Encryption Technology	1	0	3	1 6
CDD 06212	Information Quality Assurance	1	0	3	2 6
CDD 06213	Database Security	2	0	4	2 8
CDD 06214	Mobile and Wireless Security	1	0	3	2 6
CDD 06215	Mobile Device Forensic	1	0	3	2 6
CDD 06216	Information Security Management	1	0	2	1 4
CDD 06217	Project Implementation	2	0	5	

TOTAL 9

43 hrs/wk

Keys:

- L - Lecture
- P - Practical
- AS - Assignment
- T - Tutorial

## SUMMARY OF MODULES

SN	MODULE/SUBJECT NAME	MOD- ULE CODE		TOTAL CREDIT
1.	Code Exploit Using Python	CDD 06111	I	12
2.	Fraud Forensic Auditing	CDD 06112	I	9
3.	Blockchain Technology	CDD 06113	I	6
4	Artificial Intelligence in Se- curity	CDD 06114	I	6
5.	Cloud Computing and IoT Security	CDD 06115	I	12
6.	Cyber Security Incident Management	CDD 06116	I	6
7.	Project Design	CDD 06117	I	12
8.	Encryption Technology	CDD 06211	I	9
9.	Information Quality Assur- ance	CDD 06212	II	9
10.	Database Security	CDD 06213	II	12
11	Mobile and Wireless Security	CDD 06214	II	9

12	Mobile Device Forensic	CDD 06215	II	9
13	Information Security Management	CDD 06216	II	6
14	Project Implementation	CDD 06217	II	12

## HIGHER DIPLOMA IN COMPUTER SCIENCE (NTA Level 7)

### PROGRAMME MODULES

#### Semester I Fundamental modules

CODE	MODULE NAME	L	T	P	AS	Credit
GSU 07112	Applied Mathematics	2	1	-	1	4
GSU 07114	Entrepreneurship	2	-	-	2	4
GSU 07113	Technical Communication Skills	2	-	-	2	4
TOTAL	6	1	-	5	12	

11 hr/wk

#### Semester I Core Modules

S/N	Module Name						

			L	T	P	AS	Total Hrs/	
1	CSU	Programming in C	1	-	3	2	6	9
2	ITU	Front-End Web Development	2	-	3	1	6	9
3	CSU	Digital Electronics	1	-	2	1	4	6
4	ITU	Computer Network Design	2	-	3	1	6	9
5	CSU	Database Systems	1	-	3	2	6	9
6	GSU	Applied Mathematics	2	1	-	1	4	6
7	GSU	Entrepreneurship	2	-	-	2	4	6
8	GSU	Technical Communication Skills	2	-	-	2	4	6
Sub Total	13	1		12		60		

Total Contact Hours/Week 28

Total Credits/Semester

## SEMESTER II

Semester II Core Modules

		Module Name	L	T	P	AS	Total Hrs/	
9	CSU	Data Structure and Algorithms	2	-	3	1	6	9
10	ITU	Back-End Web Development	2	-	3	1	6	9
11	CSU	Operating Systems	2	-	-	2	4	6
12	GSU	Probability and statistics	2	1	-	1	4	6
13	CSU	Python Programming	2	-	3	1	6	9
14	ITU	Computer Security	1	-	2	1	4	6
15	ITU	Multimedia	1	-	2	1	4	6
15	CSU	Industrial Practical Training	-	-	-	7	-	10
12	1		13	8		61		

Total Contact Hours/Week 26

Total Credits/Semester

### Semester III Modules

S/N		Module Name	L	T	P	AS	Total Hrs/	
16	CSU	OOP Using Java	2	-	3	1	6	9
17	CSU	Encryption Technology	1	-	2	1	4	6

18	CSU	Communication Networks	2	-	3	1	6	9
19	CSU	Computer Architecture	2	-	-	2	4	6
20	CSU	Software Engineering	2	-	2	2	6	9
22	CSU	Intelligent Systems	2	-	3	1	6	9
23	GSU	Differential Equations	2	1	-	1	4	6
24	CSU	Database Management	1	-	2	1	4	6
Sub Total	14	1				60		

Total Contact Hours/Week 30

Total Credits/Semester

#### Semester IV Modules

S/N								
			L	T	P	AS	Total Hrs/	

25	CSU	Mobile Applications Development	2	-	3	1	6	9
26	CSU	Human	1	-	2	1	4	6
27	CSU	3D	1	-	2	1	4	6
28	CSU	Ma-	2	-	3	1	6	9
29	CSU		2	-	3	1	6	9
30	ITU	Legal Issues in ICT	2	1	-	1	4	6
31	ITU	Re-	2	1	-	1	4	6
15	CSU	Indus-trial	-	-	-		-	10
Sub Total	12	2	13	7		61		

Total Contact Hours/Week 27

Total Credits/Semester

BACHELOR DEGREE IN COMPUTER SCIENCE (NTA Level

8)

		Module Name						
			L	T	P	AS	Total	
1	CSU	Cloud Computing	1	1	2	-	4	6
2	CSU	Internet of Things	2	1	3	2	8	12
3	CSU	Data Analytics	2	1	3	2	8	12
4	CSU	Wireless Technology	2	-	3	1	6	9
5	ITU	Ethical Hacking	2	-	3	1	6	9
6	CSU	Project Design	2	-	-	8	10	12
		10						
3	14	14						

Total Contact Hours/Week 27

Total Credits/Semester

## Semester II Modules

S/N		Module Name	Dis-tri-bu-tion of						
			L	T	P	AS	Total		
1	ITU	Mobile Security	2	-	2	2	6	9	
2		Information System Security	2	-	4	2	8		

3	ITU	System Adminis- tration	2	-	4	2	8	
4		Network Manage- ment and Admin- istration	2	1	4	1	8	
5		Project Imple- mentation	2	-	-	8	10	

Total Contact Hours/Week 22

Total Credits/Semester

## HIGHER DIPLOMA IN INFORMATION TECHNOLOGY (NTA Level 7)

### PROGRAMME MODULES

#### Semester I Fundamental modules

CODE	MODULE NAME						
		L	T	P	AS	Credit	
GSU 07112	Algebra and Matrices	2	1	-	1	4	
GSU 07114	Entrepreneurship	2	-	-	2	4	
GSU 07113	Technical Communica- tion Skills	2	-	-	2	4	
TOTAL	6	1	-	5	12		

12 hr/wk

#### Semester I Core Modules

		Module Name	Dis-tribu-tion of				AS	Total Hrs/	
				L	T	P			
1	CSU	Program-ming in C	1	-	3		2	6	9
2	ITU	Front-End Web Devel-opment	2	-	3		1	6	9
3	CSU	Digital Elec-tronics	1	-	2		1	4	6
4	ITU	Computer Network Design	2	-	3		1	6	9
5	CSU	Database Systems	1	-	3		2	6	9
	7	-	14	7					

42

Total Contact Hours/Week 28

Total Credits/Semester

## SEMESTER II

Semester II Core Modules

		Module Name	Distr- bu- tion of	L	T	P	AS	Total Hrs/	
9	CSU	Data Struc- ture and Algorithms		2	-	3	1	6	9
10	ITU	Back-End Web Devel- opment		2	-	3	1	6	9
11	CSU	Operating Systems		2	-	-	2	4	6
12	CSU	Python Pro- gramming		2	-	3	1	6	9
13	ITU	Computer Security		1	-	2	1	4	6
14	ITU	Multimedia		1	-	2	1	4	6
15	CSU	Industri- al Practical Training		-	-	-	7	-	10
	10	-		13	7		55		

Total Contact Hours/Week 26

Total Credits/Semester

Semester III Modules

S/N		Module Name	L	T	P	AS	Total Hrs/	
16	CSU	Java Programming	2	-	3	1	6	9
17	ITU	Communication Networks	2	-	3	1	6	9
18	CSU	Computer Architecture	2	1	2	1	6	9
19	ITU	System Analysis and Design	2	-	2	2	6	9
20	CSU	Statistics and Statistical Applications	2	-	2	1	5	6
21	CSU	Intelligent Systems	2	1	2	1	6	9
22	ITU	Database Management	2	-	3	1	6	9
Sub Total	14	2	17	8		60		

Total Contact Hours/Week 41

Total Credits/Semester

Semester IV Modules

S/N		Module Name	Distribution of Hours per Week					
				L	T	P	AS	Total Hrs/
23	CSU	Mobile Applications Development	2	-	3	1	6	9
24	CSU	Human Computer Interactions	1	-	2	1	4	6
25	ITU	Blockchain Technology	1	-	2	1	4	6
26	CSU	Machine Learning	2	-	3	1	6	9
27	CSU	Wireless Networks	2	-	3	1	6	9
28	ITU	Laws in ICT	2	1	-	1	4	6
29	ITU	Research Methodology	2	1	-	1	4	6
30	CSU	Industrial Practical Training		1	3	2	6	9

Sub Total Hours/Week 12

3      13      8      60

Total Contact Hours/Week      36  
 Total Credits/Semester

**BACHELOR DEGREE IN INFORMATION TECHNOLOGY  
 (NTA Level 8)**  
**Semester I Modules**

S/N	Module Name	Dis-tri-bu-tion of	L T P AS Total				
			L	T	P	AS	
1	Data Analytics	1	1	2	2		9
2	Cloud Comput-ing	1	1	1	1		6
3	IT Project Man-agement	1	1	4	2		12
4	3D printing	1	1	4	2		9
5	Ethics in Infor-mation Tech-nology	1	2	-	3		9
	Undergraduate Project Design	1	0	9	0		15
Sub Total	10						

60

Total Contact Hours/Week 22

Total Credits/Semester

Semester II Modules

S/N	Module Name	Dis- tribu- tion of Hours per Week						
			L	T	P	AS	Total	
1	Ethical Hack-ing	1		1	4	2	8	12
2	Information System Au-diting	1		2	-	1	6	9
3	Server ad-ministration	1		2	4	1	8	12
4	Network Management and Adminis-tration	1		2	4	1	8	12
5	Undergrad-uate Project Implemen-tation	1		-	9	-	10	15
Sub Total	10							

1	11						
15							

60

Total Contact Hours/Week 38  
 Total Credits/Semester

## **Members of the Department**

### **Head of Department**

#### **P. Kaaya**

MBA (Information Technology) Coventry University, UK; Adv. Diploma (Information Technology) IAA; Cert. (Computer Network Engineering & Management) CDAC- India; Cert. (Software & Data processing) NICT- India; Cert. (Instructional Skills) Camosun-ATC; Registered Technical Teacher (NACTVET); Cert. (Project Management) Mzumbe University; Cert. (Enhancing visibility and Marketing of Technical and Vocational Education and Training programs) Nairobi-Kenya.

#### **Deputy Head of Department**

#### **J. Lissa**

MSc. (Computer Science) UDSM; BSc (Information Systems) UDOM; Cert. (Instructional Skills)-Camosun-ATC; Registered Technical Teacher(NACTVET).

## Other Staff

### **J. Mmari**

MSc. (Information Systems) Kobe Institute of Computing-Japan; B.Eng. (Computer Eng.) DIT; FTC (Computer Engineering) DIT; Cert. (Introduction to Project Mgt.) In Went Global Campus; Cert. (Instructional Skills) Camosun-ATC; Cert (System Administration (TER-NET)) DIT; Cert. (Advanced Multimedia & Web Design Technology) CDAC- Mohali-India; Registered Technical Teacher (NACTVET).

### **A. Mjema**

B.Eng. (Computer Eng.) DIT; FTC (Computer Engineering) DIT; Registered Technical Teacher (NACTVET); Cert. (Instructional Skills) Camosun, ATC; CISCO Certified (Network Association); Cert. Eng. (Medical Equipment Repair) World Health and Duke University.

### **B. Mgalla**

BSc (Information Technology) OUT; Diploma (Computer Engineering) DIT.

### **A. Kirobo**

MBA (Information Technology) Coventry University, UK; BSc (Electronics Engineering) Halettepe University, Turkey; Registered Technical Teacher(V).

### **S. Sadock**

B.Eng. (Information Systems and Network Engineering) SJCET; FTC (Mechanical Engineering) MIST; Registered Technical Teacher (NACTVET).

### **A. Selemani**

MSc. (Information and Communication Systems Engineering) NM-AIST; Postgraduate Dip.(Computing)IAA; Advanced Diploma (Computer Science (ADCS)) IAA; Registered Technical Teacher(NACTVET).

### **F. January**

BSc. (Computer Science) IAA; FTC (Computer Engineering) DIT, Cert. (Linux Administration), Cert. (system and Network Security), CISCO- CCNA Instructor, CCNA Cyber Security Instructor.

### **P. Simalike**

B.Eng. (Computer Engineering) DIT; FTC (Computer Engineering) DIT; Registered Technical Teacher (NACTVET).

### **D. Flavian**

MSc (Embedded and Mobile Systems)- NM-AIST, Bachelor (Information Technology) ATC; Diploma (Information Technology) ATC; Registered Technical Teacher (NACTVET).

### **J. Kashaija**

Masters (Information Security) IAA; BSc (Information Technology) IAA; Registered Technical Teacher (NACTVET).

**B. Manyahi**

Masters (Information Technology) ST. XAVIERS COLLEGE, INDIA; BSc. (Computer Science) ST. XAVIERS COLLEGE, INDIA; Cert. CCNA, Registered Technical Teacher (NACTVET)

**Dr. A. Mtaho.**

PhD (Computer Science) UDOM; MSc. (Telecommunication Engineering) UDOM; BSc. (Information Communication and Technology Management) Mzumbe University, FTC (Electrical Engineering) DIT.

**F. Amon**

BSc. (Information Technology and Systems) Mzumbe University; Registered Technical Teacher (NACTVET).

**M. Mwasaga**

M.Eng. (Computer and Automated Systems Software) Odessa National Polytechnic University, Ukraine; BSc. (Computer Science) Odessa National Polytechnic University, Ukraine; Registered Graduate Engineer, Odessa National Polytechnic University Ukraine; Certificate of IBM PC/AT System administrator, Odessa National Polytechnic University, Ukraine; Registered Technical Teacher (NACTVET).

**A. Kafuria**

MSc. (Data Science) University of Rwanda; B.Sc. (Information Technology) IAA; Registered Technical Teacher (NACTVET).

## PROFILE OF ACADEMIC RELATED DEPARTMENT/SECTION/UNIT

### 7.1 Vocational Education and Training (VET)

The Department of Vocational Education and Training Offers part-time courses in Engineering, Science and Technology. It is also responsible for VET Programs whereby Primary school leavers as well as secondary school leavers have an opportunity to be trained as artisan under Vocational Education and Training Authority (VETA) mandate within a duration ranging from one to three years. Once completed VET programs and awarded National Vocational Award (NVA) level III, it is possible for the successful student to progress further to Technical Education Training (TET) programs through a special programme known as Pre-Technology Programme offered at Arusha Technical College for about three months to pursue the National Vocational Award. There are two campuses: Main Campus is within ATC and the other one is at Kikuletwa.

The Department is led by Head of Department assisted by Deputy Head of Department and Admission Officer. They have responsibility of coordinating all activities in the Department. The Department has no permanent staff but entirely depend on outsourced staff from within the College or other institutions.

II-III), Laboratory Assistant (LAB NVA II-III), Masonry and Bricklaying (MB NVA II-III), Motor Vehicle Mechanics (MVM NVA II-III), Plumbing and Pipe Fitting (PPF NVA II-III), Refrigeration and Air Conditioning (RAC NVA II-

III), Road Maintenance (RMNVA II-III), Tour Guide (TG NVA III) and Welding and Metal Fabrication

However, the major VET programmes conducted at Kikuletwa campus are Bio-Energy (BE NVA II-III), Domestic Electrical Installation (EL NVA II-III), Hydro Power Plants Maintenance (HPM NVA II-III), Plumbing and pipe Fitting (PPF NVA II-III) Masonry and Bricklaying (MB NVA II-III), Solar Power Installation (SP NVA II-III), Wind Energy (WE NVA II-III). It should be noted that at Kikuletwa campus there is accommodation for students.

#### **7.1.4 Members of the Department**

##### **Head of Vocational Education and Training Department:**

##### **Ally Ngulugulu**

M.Eng (Biomedical Engineering) UESTC, China, MSc. (Biomedical Engineering) China; BEng. (Electronics and Communications) STJUIT; Diploma (Education) Monduli TTC.

##### **Industrial Practical Training (IPT)**

As a requirement every student studying for an ordinary diploma in Engineering/ Sciences or Bachelor's degree in Engineering has to undergo Industrial Practical Training for the duration of Ten Weeks. The training is aiming at giving students exposure to the profession in the real world of work as well as provide them with opportunities to correlate their theoretical understanding and the reality of the profession

Students in NTA levels 4 and 5 do their IPT after the second semester of the academic year while Bachelor of Engineering students NTA 7, do their IPT after 2nd and 4th Semester of the academic year. Students NTA Level 6 and 8 do not go for IPT

**Industrial Liaison Officer:**

**Dr.Nicodemus Msafiri Mbwambo.**

Ph.D (Computer Science) Clemson University, USA; MSc. (Computer Science) Clemson University, USA; BEng. (Electronics and Telecommunication) DIT; FTC (Electronics and Telecommunication) DIT.

## 7.2 Library Section

The College has a modest library with limited Internet facilities. The library 6000 volumes and in addition to that there are 7000 volumes in the Satellite Libraries in various Departments making a total of 15,000 Volumes

The library and study centre offers facilities for studying, preparation for assignments, test, examinations and research. These services include books in all technical fields, magazines, newspapers, newsletters and journals



Students in ATC Library

### **Membership:**

The library may be accessible to all teaching staff, all registered students, administrative staff members and other employees of the College. All people allowed to use the library are required to abide with the library regulations. All books may be borrowed with the exception

of works of reference and special materials in demand.

### **Head of the Library section:**

**Judith Mwase:** Bachelor of Science in library and Information Management. BSc LIM (Mzumbe University Morogoro).

Diploma in Library Archive and Documentation studies (SLADS-Bagamoyo).

### **Other members of Library staff:**

**Sharifa O. Mkwazu:** Diploma in Library Archive and Documentation Studies. (SLADS-Bagamoyo)

**R.M. Chihemwe :**Bachelor of Library Studies and information science (IAA), Diploma in Library Archive and Documentation studies (SLADS-Bagamoyo), Certificate in Library Archive and Documentation studies. (SLADS-Bagamoyo), Certificate of Full secretary Course (Msimbazi Center)

**Zakaria Chacha:** Library and Information Science(LIS) (MoCU)

## **7.3 Research, Consultancy and Publication Directorate**

### **Introduction**

ATC emphasizes both staff and students to use its facilities to do applied and basic engineering and scientific researches in partnership with the public and private sector so as to contribute to improvement of techno- socio-economic development. In 1999, the College established Research, Education, Academic and Documentation (READ) unit to coordinate and promote excellence in academic and applied engineering and scientific research.

### **Objectives of Research, Consultancy and Publications Directorate**

The objectives of Research, Consultancy and Publications Directorate are to:

- (a) Carry out technical education related research activities to enable the college achieve academic and professional excellence
- (b) Undertake applied research to generate technical information on priority technology problems of the country and channel the information to policy makers, planners, industry and other end-users
- (C) promote, appraise, monitor and evaluate the development of science and technology in Tanzania;
- (d) Conduct training on research methods and techniques to staff, students, individuals, industries, government and non government agency
- (e) Promote and facilitate engineering and Scientific Research within Arusha Technical College
- (f ) Promote the efficient exchange of information and experiences within the fields of science and technology by organizing

local and regional conferences and seminars,

(g) Collect and document information on engineering and scientific research and general development in Tanzania, and make these accessible to researchers in and outside Tanzania, and

(h) Compile, publish and disseminate research and evaluation results.

### **Research Priority areas**

The directorate promotes and coordinates those researches in the following research priority areas:

(a) Technical and Training

(b) Industry and Energy

(c) Basic Sciences

(d) Agricultural Development/Irrigation engineering

(e) Environmental Development

(f) Entrepreneurship development in TVET

### **Head of Research, Consultancy and Publications Directorate**

#### **Dr. Naisujaki Sephania Lyimo**

PhD (Curriculum Development) MOI University; M.A. (Ed.) University of Dodoma (UDOM); B. (Ed.) Mount Meru University (MMU); Dip. (Ed.) Marangu T.T.C; Certificate (Facilitator Development) BCIT-CANADA; Certificate (Instructional Skills) Arusha Technical College (ATC); Certificate (Circular Economy and Entrepreneurship in TVET) UNESCO-UNEVOC- Bonn Germany.

## 7.4 ATC Production and Consulting Bureau (PCB)

### Introduction

ATC offers consultancy as one of its core function. This is carried out by its Production and Consultancy Bureau (ATC-PCB). The Bureau is a legal entity registered by Engineers Registration Board (ERB) since May 2010. The College has competent and diversified experience professionals who are part of ATC-PCB ready to serve esteemed customers depending on their needs

### **ADMINISTRATION AND MANAGEMENT OF ARUSHA TECHNICAL COLLEGE-PRODUCTION & CONSULTING BUREAU (ATC-PCB)**

The line authority runs from the Executive Committee which is led by the College Rector Office to Bureau Manager down to Departmental production/consultancy and facility/property hiring heads.

#### **Bureau Executive Committee Chairperson**

##### **Eng. Dr. E.V Mgaya**

Ph.D. Electrical Power Engineering, Czech Technical University in Prague, Czech Rep., MSc. Electrical Engineering, Czech Technical University in Prague, Czech Rep., BSc. Electrical Engineering, Electric Power supply and Electrical Installation, Czech Technical University Prague, Czech Rep.

#### **Bureau Manager**

**Eng.F.M.Magania:** Bachelor's Degree in Civil and Irrigation Engineering, Arusha Technical College, Diploma in Irrigation Engineering (Igurusi, Mbeya), Registered Professional Engineer-PEng.No.5671

**Lead Consultant****Eng. Dr. R. Masika**

PhD (Structural Engineering) (Hungary), MSc. Eng. (Hungary), FTC (Civil Engineering) (DTC), CEng. (T). Eng. Dr. R. Masika is the Consulting Engineer registered with ERB(T))

**Members of Bureau Executive Committee (BEC)**

**1. Eng. Dr. U. Msovu:** PhD (Water Resource Engineering) (UDSM), MSc. (Water Resource Eng. (UDSM), BSc (UDSM). She is a Head of Civil Eng. Department

**2. Eng. T. Chuwa:** Master's degree in Infrastructures and Geotechnical Engineering, at Abou Bekr Belkaid University of Tlemcen, Algeria Department of Civil Engineering, Bachelor degree in Structure and Environmental Engineering, at Abou Bekr Belkaid University of Tlemcen, Algeria Department of Civil Engineering. He is a Head of Transportation Eng. Department.

**3.Dr.Nicodemus Msafiri Mbwambo.**

Ph.D (Computer Science) Clemson University, USA; MSc. (Computer Science) Clemson University, USA; BEng. (Electronics and Telecommunication) DIT; FTC (Electronics and Telecommunication) DIT.

**4. Eng. A. Mtunguja:** Master's degree in Automotive Engineering, Bachelor's Degree in Automotive Engineering. He is the Head of Automotive Eng. Department.

**5. G. G. Mgaya** Master's in sustainable Energy Science and Engineering 9 (NM-AIST); B.Eng. (Mechanical Engineering) DIT; FTC (Mechanical Eng.) TCA; Certificate (Instructional Skills) ISW-TCA; Professional Training (Mechatronics) Politecnico diMilano-Italy; Certificate (Advanced Manufacturing with CAD/CAM) CTTC Bubaneswar, INDIA; Certificate (Master CAM) INDIA.

**6.Dr. Naisujack:** PhD-Curriculum Development (MOI University) M.A. (Ed.) (UDOM), B. Ed (MMU), Dip. Ed. (Marangu T.T.C), Certificate (Facilitator Development) (BCIT-CANADA), Certificate in Instructional Skills (ATC), Certificate in Circular Economy and Entrepreneurship in TVET, (UNESCO-UNEVOC- Bonn Germany). She is the Head of Department of Applied Science and Social Studies

**7.Peter Kaaya:** MBA (Information Technology) Coventry University-UK, Adv. Diploma in Information Technology (IAA), Cert. (Computer Network Engineering & Management) CDAC- India, Cert. (Software & Data processing)- NICT- India, He is a Head of ICT Department.

**8.CPA (T) K. Sanga:** MBA (Mzumbe) PGDA (IFM), B. Com Acc (UDSM), CPA (T). He is the Chief Internal Auditor (CIA).

**9.CPA (T) A. Msongole:** Msc. (Finance) (University of Strathclyde- Scotland), CPA (T). He is the College Bursar.

**(10) Mr. E. Ishika:** MBA- HRM ESAMI, BPA (Public Administration) Kampala University (Uganda) . He is the Director of Human Resource and Administration

**(11) Adv. E.H Mtui:** LLM (Mzumbe), LLB (OUT), Dip in International Relations and Diplomacy (CFR), Certified Director (IoDT), State Attorney, Notary Public and Commissioner for Oaths

**(12) Prof. Baraka Kichonge:** PhD (Sustainable Renewable Energy Science and Engineering) (NM-AIST); MSc (Production Engineering) (UDSM); Post Graduate Diploma in Mechanical Engineering (PGD) (UDSM); Advanced Diploma in Mechanical Engineering (ADE) (DIT); Full Technician Certificate in Automotive Engineering (FTC) (TCA).Ag. Director of Academic and Support services

## **Production and Consultancy works that are carried out by the bureau**

### **1. Production works**

The Bureau has a great potential for carrying out production activities. Various Departments at ATC have adequate resources which can be utilised effectively for a number of production activities including the following:

- 1.Design and manufacture of spare parts of machines.
- 2.Routine maintenance and repairs of machines, vehicles and electrical machines.
- 3.Panel beating and spraying
- 4.Production of various machines, metal work fabrications and wrought ironworks.
- 5.Furniture and other woodwork products.
- 6.Testing of Concrete blocks and other concrete products.
- 7.Construction, maintenance and repairs of electronic devices and equipment.
- 8.Water testing for different uses, Soil testing for agricultural and Plants

### **2.Consultancy Works**

The Bureau have various professional capacity to undertake a wide range of consultancy works including the following:

- 1.Engineering and Non-Engineering Disciplines.
- 2.Feasibility studies, this includes Environment Impact Assessment (EIA) etc.,
- 3.Design of Master Plans.
- 4.Design of Architectural and Civil engineering projects and their related projects.
- 5.Design and Supervision of Water, Sewage System and Irrigation Engineering projects.
- 6.Structural Design for Civil Engineering projects and its related projects.
- 7.Quantity surveying services.
- 8.Supervision of Architectural and Civil engineering projects and their related projects.

- 9.Land surveying and geomatics activities. Soil and bitumen testing with professional advisory services.
- 10.Geotechnical investigation works.
- 11.Design and Supervision of Electrical and Mechanical Engineering projects.
- 12.Electronics and Telecommunications.
- 13.Development of Energy sources.
- 14.Preparation of project proposals and Request for Proposal (RFP).
15. Design and installation of ICT Works

### GENERAL INFORMATION

#### 8.1 Accommodations

Currently the College has a limited number of rooms in its four hostels of which two are for male and two for female students capable of accommodating 348, 260 and 200 students respectively.

Provision of accommodation place is a privilege. Currently, Campus accommodation is obtained upon application by full time B.Eng students who are required to pay a prescribed accommodation fee. As for OD students, campus accommodation is a privilege provided to the Government sponsored students. This privilege can be withdrawn in the event of the breach of the College Hostel accommodation.

Students accommodated at the College hostels must observe rules and regulations applicable to the College's hostels. These include, but not limited to, the strict requirement for all students to vacate their rooms and hand- over their room keys to the Warden/Matron during vacation and Industrial Practical Training periods as well as not to cook in hostels.



Female Hostel

## **8.2 Cafeteria Service**

The College has a cafeteria, which has a sitting Capacity of approximately 500 people at a time. Services provided by the cafeteria include meals for students and other customers holding seminars or meetings within the College premises. Incompliance with the policy of public private- partnership, the college has subcontracted cafeteria services to a Private Service provider for effective and efficient operation.



**College Cafeteria**

### **8.3 Recreation services**

Various recreational facilities in the proximity of the College playgrounds, allow ample opportunity for sports and games for the student. This aim sat contributing to social development of students.

Such services include TV, video show and sports. There is a broad range of sports including football, basketball, volleyball, netball, and athletics to mention a few.

### **8.4 Best Students' Prizes and Awards**

In order to promote learning competitions among students, the College, awards prizes to the three categories of best students who have shown outstanding performance in an academic year.

The following Table indicates the type of Awards offered by the College

<b>S/ No</b>	<b>Category of award</b>	<b>Prize (TZS)</b>
1	Best overall performer	500,000
2	Best Female Performer	300,000
3	Best performer from each programme	250,000

### **Special awards**

Other awards aimed at promoting competition among students are:

<b>S/N</b>	<b>Category of Prize</b>	<b>Prize</b>
1	Second Overall Best Female	TZS 150,000
2	Best Student in Project from Civil and Irrigation Programme	TZS 100,000
3	Best student in Mathematics	TZS 100,000
4	Best Student in Entrepreneurship	TZS 200,000
5	Best Student in Industrial Practical Training	TZS 100,000
		TZS 50,000
6	Best Student in Machine Design from Mechanical Engineering	TZS 100,000
7	Best Student in Final Project from Mechanical Engineering	TZS 100,000
8	Best Overall female student in Sports	TZS 50,000

9	Best Overall Male student in Sports	TZS
50,000		

## 8.5 Gender Management Unit

Gender Management Unit (GMU) is a unit which deals with solving problems related to gender imbalance in education and training at ATC. The task force, in collaboration with ATC management, plans and implements various programs for improving enrolment of female students in engineering courses. The establishment of GMU at ATC is an important strategy for bridging the ever-growing gap in technical education between men and women at the College and the society at large. GMU also undertakes the task of promoting capacity building for female staff at the College through seminars, workshops and other related courses.

## 8.6 Rental Services

ATC possesses a variety of renting facilities, which are available for use at reasonable charges. Its ideal location in the city centre makes it possible for excellent use and access of these facilities for interested Users. ATC hostels and the Dining Hall may be available when students are out for vacation.

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