



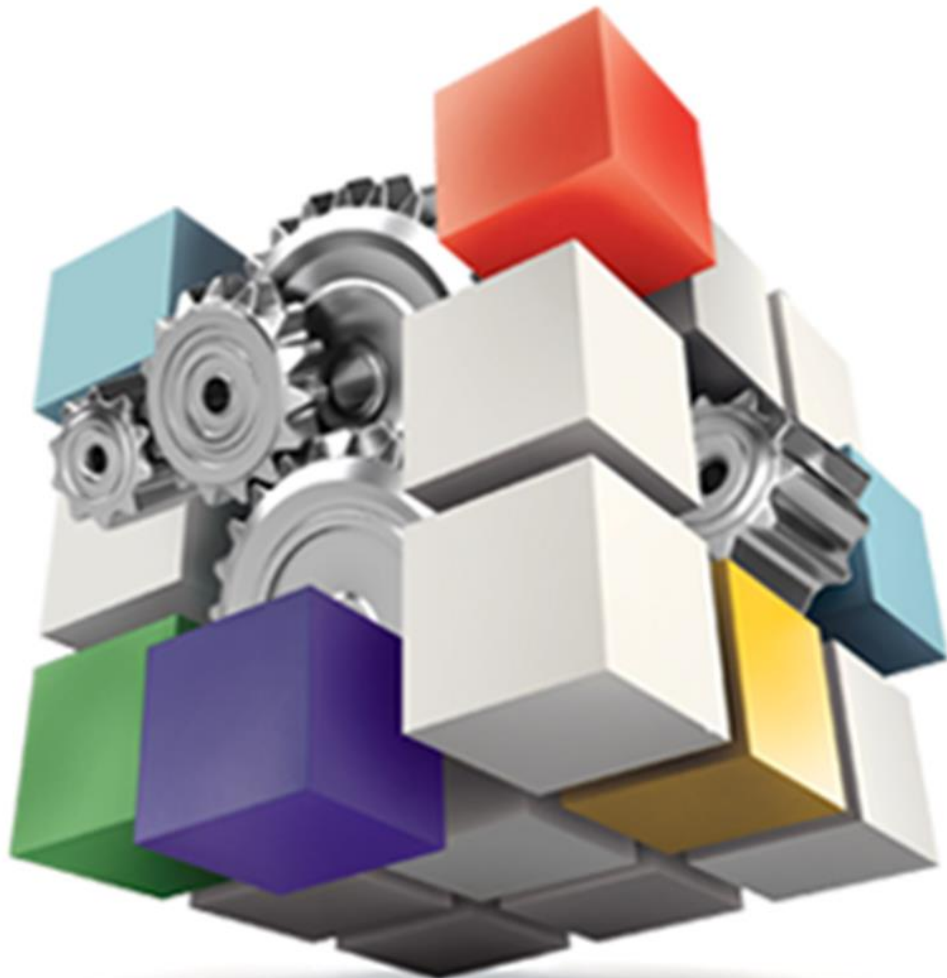
Mechanical Engineering Qualifications

Certificate in Mechanical Engineering Level 4
Diploma in Mechanical Engineering Level 5
Diploma in Mechanical Engineering Level 6
Bachelor of Technology in Mechanical Engineering

Qualifications Guide

First Teaching from January 2021
First Certification from 2022

Engineering



Your Mechanical Engineering Levels 4 to 7 Qualifications

The National Institute of Technology (NIT) programs are increasingly emerging as valued, respected and effective applied learning brand, engaging students in practical, interpersonal and thinking skills.

The National Institute of Technology (NIT) programs are work-related qualifications for students taking their first steps into employment or those already in employment and seeking career development opportunities. The National Institute of Technology (NIT) programs provide progression into the workplace either directly or via study at any higher education institution or university and are also designed to meet employer's needs. The National Institute of Technology (NIT) programs are therefore widely recognized by industry and higher education as the principal technical professional qualifications starting from Levels 4.

Affordable, Reliable and Industry Relevant Qualifications

Career Progressive Programs delivered through Flexible Modes of Studies

A word to Prospective Students

The new NIT programs are all very demanding, as you would expect of an innovative, dynamic, futurist and respected applied higher education institution. You will have to complete a range of units, be organized, and take all the assessments (assignments, projects, tests and examinations) that we will set and mark, and keep a portfolio of your assignments as evidences of your work. We are confident that after a great deal of time, efforts and all other resources you will be expected to put into your studies, you can feel proud to achieve the NIT qualification because, whatever your plans in life; whether you want to start and successfully run your own business, enter into a formal employment or you decide to study further, your NIT qualification will be your passport to success (to take you where you want to be) in the next stage of your life.

Good luck, and we hope you enjoy your course.

Higher Technical and Professional courses developed collaboratively with subject experts

With input from industry, employers, professional bodies, lecturers, students, and higher education institutions, your NIT programs have been designed to better meet the needs of a changing market and to develop skills for future of the world of work. The result is a qualification suite that is designed and developed to meet professional standards, recognized by employers and universities, which develop not only work-readiness skills and abilities, but academic skills.

The objectives of the development of the NIT higher Technical and Professional programs have been to ensure:

- Employer engagement;
- Work relatedness;
- Opportunities for progression to further higher education;
- Alignment with the industry and higher education expectations; and
- Qualifications which are up to date with current professional practice.

Why the NIT Course Programs are unique

At NIT, we know how important it is for career ambitious people to get the right education in order to start and further develop their careers. The NIT's Higher Technical and Professional programs are designed to help students secure the knowledge skills and behaviors needed to succeed in the current and future workplaces. With today's industry and employers demanding so much more than just a qualification to contain the effects of global competition and to attain a competitive edge, here are the main six (6) reasons why you must choose to study at NIT:

1) Work Readiness

NIT courses will give you real hands-on experience in pursuing your education. It is what is called learning by doing it or action learning. Based on a 70% practical (action learning, action research, projects, reflective thinking, critical thinking, etc.) and 30% theory teaching and learning and assessments methodologies, all the NIT students become work ready (prepared) during their first year of study and graduate with strong work ethics, analytical, problem solving, communication and entrepreneurial skills which are the major factors that employers are looking for in their new recruits.

2) Employability

NIT's courses prepare students for employment and self-employment. The NIT courses develop a student's employability skills as they offer the experience of real-life practical tasks and work placements. NIT's qualifications are generally well-regarded by employers as the courses enable students to develop useful hands-on skills in respective fields of study and in critical areas such as problem solving, time management, entrepreneurial, communication, work behavior, visionary and focus minded, team work, and project planning, execution to evaluation.

3) Relevant

NIT courses are designed and developed with the help of the employers, industrial experts, professional bodies, higher education experts and lecturers. NIT's qualifications provide students with industry-specific knowledge, skills and competencies which make graduates' work outputs to be relevant to their employers' missions, visions and goals.

4) Practical Teaching and Assessments

The NIT's 7 principles of teaching and learning through which integrate learnt theory and gained knowledge into applied and action learning methods develop employability and practical skills required by the current and future world of work. All the NIT programs are assessed through objective and rigor-based assignments and projects for which origination is examined through the Turnitin to prevent plagiarism. The outcome of these assignments must be in an implementable practical and quality standard.

5) Career Progression

Employers value NIT's qualifications as the courses are industry-centered and directed. In other words, unlike academic programs, the NIT courses give students the industry-specific knowledge and skills which makes them readily employable. This, combined with the problem solving, time management, entrepreneurial, communication, work behavior, visionary and focus minded, team work, and project planning skills they gained throughout their learning process give the NIT graduates a strong competitive edge to progress in senior job positions and to further pursue their postgraduate professional degrees such as Masters of Technical and Professional Doctorate Degree programs at various reputable higher education institutions/universities.

6) Reputation and Prestige

- The industry relevance, practicality, career specific and quality of the NIT qualification will make you to stand out and visibly be seen and noticed in a cloud of many academically qualified graduates.
- As more employers expect their new employees to have relevant practical skills and competencies than costly academic knowledge, NIT makes your CV and profile stand out.
- NIT is known for stringent quality standards which govern the provision of its higher vocational, technical and professional courses. NIT is also known for its practical, relevance and Industry driven courses.
- The above values, compounded with the work ethics, entrepreneurial and problem-solving skills you will learn and practice while studying at NIT will grant you the respect, reputation and prestige within the industry sector you will work.

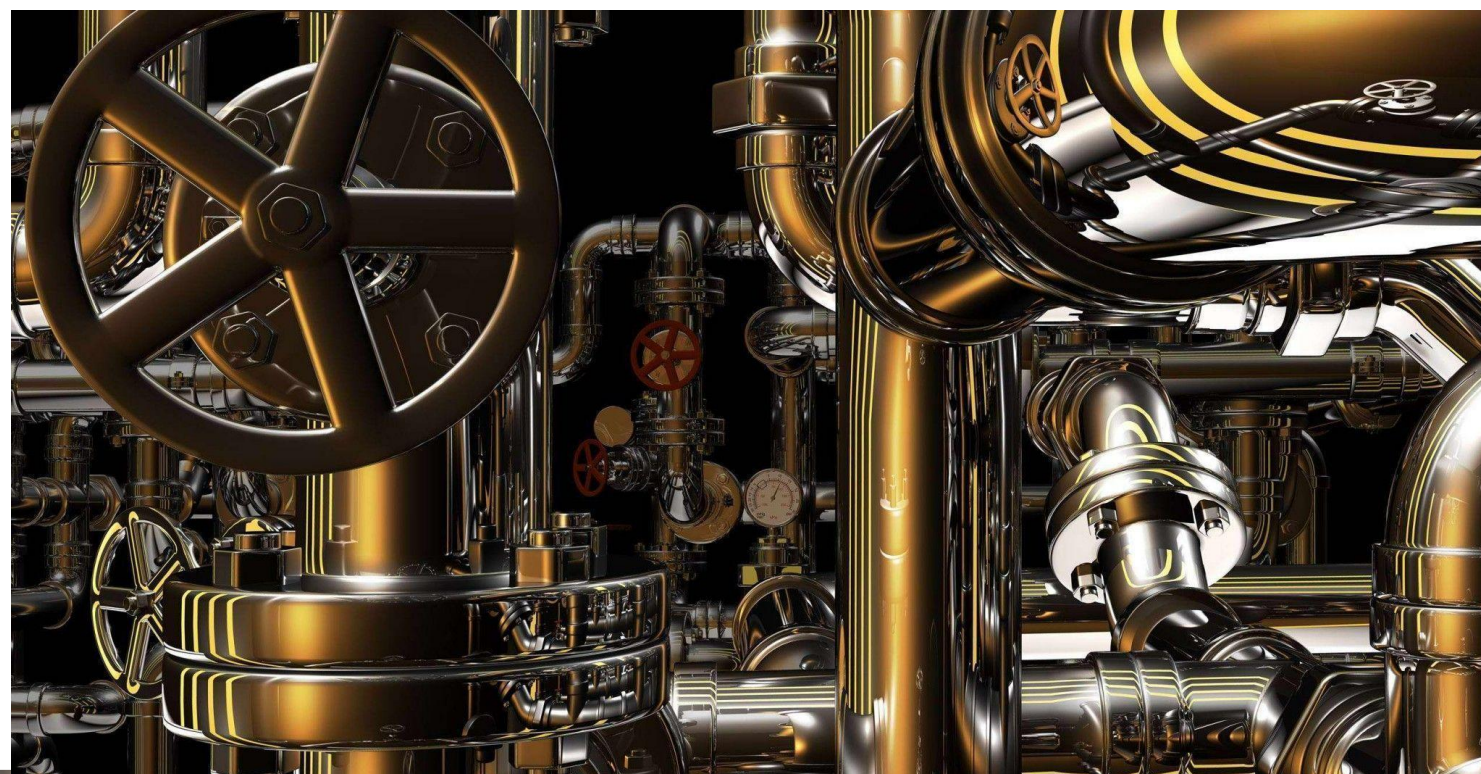
Specialized course unit for the development of unique skills and Teaching and Learning Resources

The NIT Qualifications in Mechanical Engineering are made of:

- A mixture of unique specialist integrated range of units, qualifications sizes, each with a clear purpose, so there is something to suit each student's choice of study programme and progression plans
- Refreshed content that fully supports self-employment (entrepreneurship) and is closely aligned with employers' and higher education needs for a skilled future workforce
- A combination of assignments and projects assessments methods are used to help students to gain and retain knowledge and skills as they progress to the next stage.

The NIT programs are applied in nature hence at your completion of the program, you will:

- (A) Be empowered with the following critical but yet very uncommon skills in the modern humanity:
- Cognitive and problem-solving skills: critical thinking, approaching non-routine problems by applying expert and creative solutions, use of systems and digital technology, generating and communicating ideas creatively.
 - Intrapersonal skills: self-management, adaptability and resilience, self-monitoring and self-development, self-analysis and reflection, planning and prioritizing.
 - Interpersonal skills: effective communication and articulation of information, working collaboratively, negotiating and influencing, self-presentation.
- (B) Gain technical-related education and training which is essential if you are intending to work, or already work in the entry levels or operations role within the Mechanical engineering industry
- (C) Have an opportunity to the job market needed qualification in Mechanical Engineering and progress either into employment or progress to do further studies.
- (D) Develop your own personal growth and engagement in learning through the development of Personal, Learning and Thinking Skills (PLTS)
- (E) Have your existing skills recognized.



Certificate in Mechanical Engineering (Level 4)

Code No	Unit Title	NQF	TNLT	Credits
2ME101	Engineering Principles	4	150	15
2ME102	Delivery Engineering Processes	4	120	12
2ME103	Engineering Drawing	4	120	12
2ME104	Principles of Programming	4	120	12
2ME105	Static Mechanical Principles in Practice	4	120	12
2ME106	Principles and Application of Fluid Mechanics	4	120	12
2ME107	Pneumatic and Hydraulic Systems	4	120	12
1STU101	Applied Business Communication and Technology	4	120	12
1STU102	Principles of Entrepreneurship	4	120	12
1STU103	Applied Fundamentals of Statistical Methods	4	150	15
1STU104	Legal and Ethical Context in Practice	4	120	12
Total TNLT and Credits			1380	138

Admission Requirements

The Certificate in Mechanical Engineering has been designed on the assumption that it is available, without artificial barriers which restrict access and progression, to everyone who can achieve the required standard. However, applicants who meet any one of the following will be prioritized as they are likely to benefit more readily from the programme:

The entry to this qualification shall be based on:

- (a) a minimum requirement of twenty-five (25) points in NSSCAS (grade 12) in five (5) subjects with a D or better symbol in English and E or better symbol in Physical Science and Mathematics respectively or
- (b) any recognized qualification in Mechanical Engineering at NQF level 3 or equivalent.

A recognized qualification at NQF level 3 or equivalent

Mature age entry is acceptable provided that applicant:

- Is 23 years old or over at the time of making the application
- Has at least five (5) years' work experience in a related field
- Has at least passed grade 10 which must include E in English
- Provides acceptable reference from the employer. Self-employed applicants must provide recommendation letter from Municipal Authorities under which their businesses operate.

Specialized course unit for the development of Unique Skills and Teaching and Learning Resources

Diploma in Mechanical Engineering (Level 5)

Code No	Unit Title	NQF	TNLT	Credits
2ME201	Calculus for Engineering	5	150	15
2ME202	Mechanical Measurement and Inspection Technology	5	120	12
2ME203	Thermodynamic Principles and Practice	5	120	12
2ME204	Computer Aided Design for Engineering	5	120	12
2ME205	Dynamic Mechanical Principles in Practice	5	120	12
2ME206	The Internet of Things	5	150	15
2ME207	Engineering Product Design and Manufacture	5	150	15
1STU201	Entrepreneurship and Business Development	5	120	12
1STU202	Applied Statistics for Decision Making	5	150	15
1STU203	Project Management	5	120	12
1STU204	Professional Work Etiquettes and Employability	5	200	20
1STU205	Specialized Industrial Related Project	5	300	30
TNLT and Credits			1820	182

Bachelor of Technology in Mechanical Engineering (Level 7)

Code No	Unit Title	NQF	TNLT	Credits
2ME401	Advanced Mechanical Principles	7	150	15
2ME402	Advanced Engineering Mathematics	7	150	15
2ME403	Industrial Power, Electronics and Storage	7	150	15
2ME404	Industrial Systems	7	120	12
2ME405	Industrial Robots	7	150	15
2ME406	Virtual Engineering	7	120	12
2ME407	Advanced Control Systems Engineering	7	150	15
2ME408	Professional Engineering Management	7	150	15
1STU401	Corporate Finance	7	150	15
1STU402	Corporate Strategy and Planning	7	120	12
1STU403	Action Project	7	300	30
1STU404	Professional Practice	7	400	40
TNLT and Credits			2110	211

Teaching and Learning Resources

We have a wealth of teaching and learning resources and support to ensure that tutors and students have the best possible experience during their course. In addition to our Resources Centre, Min Engineering Laboratory, Computer Laboratory and a wealth of study manuals and books which students and lecturers can easily access from our e-Library, we have an understanding with the Engineering Lab, Namibia University of Technology (NUST) for NIT Engineering and IT students to use their facilities.

Diploma in Mechanical Engineering (Level 6)

Code No	Unit Title	NQF	TNLT	Credits
2ME301	Engineering Design	6	150	15
2ME302	Engineering Mathematics	6	150	15
2ME303	Engineering Science	6	150	15
2ME304	Managing a Professional Engineering Project	6	150	15
2ME305	Mechatronics	6	150	15
2ME306	Instrumentation and Control Systems	6	120	12
2ME307	Fundamentals of Thermodynamics and Heat Engines	6	120	12
2ME308	Automation, Robotics and Programmable Logic Controllers (PLCs)	6	150	15
1STU301	Ethics, Corporate Government and Business Law	6	120	12
1STU302	Applied Entrepreneurship and Intrapreneurship	6	120	12
1STU304	Action Research Methodology	6	300	30
1STU305	Specialized Mechanical Engineering Industry Work Experience	6	400	40
TNLT and Credits			2140	214

Admission Requirements

Diploma in Mechanical Engineering (Level 5)

Applicants must meet any of the following requirements:

Minimum requirement of twenty-two (22) points in grade 12 (now grade 11) in six (6) subjects with an E or better symbol in English. English shall be part of the six (6) subjects you must have completed. Additionally, a D, or better, symbol is required in Physical Science and Mathematics for Engineering programs.

- (A) A recognized qualification at NQF level 4 or equivalent
- (B) Mature age entry is acceptable provided that applicant:
 - a. Is 25 years old or over at the time of making the application
 - b. Has at least five (5) years' work experience in a related field
 - c. Has at least passed grade 10 which must include E in English
 - d. Passes NIT (Level 4) equivalent Aptitude Test
 - e. Provide acceptable reference from the employer. Self-employed applicants must provide recommendation letter from Municipal Authorities under which their businesses operate.

Diploma in Mechanical Engineering (Level 6)

Applicants must meet any of the following requirements:

Minimum requirement of twenty-five (25) points in grade 12 (now grade 11) in five (5) subjects with an E or better symbol in English. English shall be part of the five (5) subjects you must have completed. Additionally, a D, or better, symbol is required in Physical Science and Mathematics for Engineering programs.

- (A) A recognized qualification at NQF level 5 or equivalent
- (B) Mature age entry is acceptable provided that applicant:
 - a. Is 25 years old or over at a time of making the application
 - b. Has at least six (6) years' work experience in a related field
 - c. Has at least passed grade 10 which must include E in English and at least three (3) subjects at grade 12
 - d. Provide acceptable reference from the employer. Self-employed applicants must provide recommendation letter from Municipal Authorities under which their businesses operate.

Bachelor of Technology in Mechanical Engineering

Applicants must meet any of the following requirements:

Minimum requirement of twenty-five (25) points in grade 12 (now grade 11) in five (5) subjects with an D or better symbol in English. English shall be part of the five (5) subjects you must have completed. Additionally, a C, or better, symbol is required in Physical Science and Mathematics for Engineering programs.

- (A) A recognized qualification at NQF level 6 or equivalent
- (B) Mature age entry is acceptable provided that applicant:
 - a. Is 25 years old or over at the time of making the application
 - b. Has at least 5 years' work experience in a related field
 - c. Has at least passed grade 10 which must include E in English and at least three (3) subjects at grade 12
 - d. Provides acceptable reference from the employer. Self-employed applicants must provide recommendation letter from Municipal Authorities under which their businesses operate.

Progression and Articulation Opportunities and Rules

Certificate in Mechanical Engineering (Level 4)

Progression Opportunities and Rules

Upon successful completion of all the units or 80% of the units of the Certificate in Mechanical Engineering (Level 4), students can progress to the Diploma in Mechanical Engineering (Level 5). No students will, however, be allowed to graduate with Diploma in Mechanical Engineering (Level 5) without first completing the outstanding units at that level. No direct progression will be allowed from Certificate in Mechanical Engineering (Level 4) to Diploma in Mechanical Engineering (Level 6).

Articulation Opportunities and Rules

The credit transfers from other programs offered by other institutions or other NIT programs will be dealt with according to NIT rules and regulations on Recognition of Prior Learning. Provided that an applicant has qualification accredited by NQA and verifiable through the NQF, the NIT rules provide for course-by-course credits as well as credit transfer by volume under certain conditions. Maximum credits that can be granted from none technical (hands-on) programs are 15% of the credits for a qualification. Maximum credits that can be granted from the technical (hands-on) programs of similar standards with those of NIT are 50% of the credits for a qualification.

Diploma in Mechanical Engineering (Level 5)

Progression Opportunities and Rules

Upon successful completion of all the units or 80% of the units of the Diploma in Mechanical Engineering (Level 5), students can progress to the Diploma in Mechanical Engineering (Level 6). No students will, however, be allowed to graduate with Diploma in Mechanical Engineering (Level 5) without first completing the outstanding units at that level. No direct progression will be allowed from Diploma in Mechanical Engineering (Level 5) to the Bachelor of Technology in Mechanical Engineering (Level 7).

Articulation Opportunities and Rules

The credit transfers from other programs offered by other institutions or other NIT programs will be dealt with according to NIT rules and regulations on Recognition of Prior Learning. Provided that an applicant has qualification accredited by NQA and verifiable through the NQF, the NIT rules provide for course-by-course credits as well as credit transfer by volume under certain conditions. Maximum credits that can be granted from none technical (hands-on) programs are 15% of the credits for a qualification. Maximum credits that can be granted from the technical (hands-on) programs of similar standards with those of NIT are 50% of the credits for a qualification.

Diploma in Mechanical Engineering (Level 6)

Progression Opportunities and Rules

Upon successful completion of all the units or 80% of the units of the Diploma in Mechanical Engineering (Level 6), students can progress to the Bachelor of Technology in Mechanical Engineering (Level 7). No students will, however, be allowed to graduate with Diploma in Mechanical Engineering (Level 6) without first completing the outstanding units at that level.

Articulation Opportunities and Rules

The credit transfers from other programs offered by other institutions or other NIT programs will be dealt with according to NIT rules and regulations on Recognition of Prior Learning. Provided that an applicant has qualification accredited by NQA and verifiable through the NQF, the NIT rules provide for course-by-course credits as well as credit transfer by volume under certain conditions. Maximum credits that can be granted from none technical (hands-on) programs are 15% of the credits for a qualification. Maximum credits that can be granted from the technical (hands-on) programs of similar standards with those of NIT are 50% of the credits for a qualification.

Bachelor of Technology in Mechanical Engineering

Progression Opportunities and Rules

No student can progress to the Bachelor of Technology in Mechanical Engineering (Level 7) unless he/she completes and passes a minimum of 80% of Diploma in Mechanical Engineering (Level 6) units. A student may also not be allowed to graduate with Diploma in Mechanical Engineering (Level 6) without first completing the outstanding units at that level.

Articulation Opportunities and Rules

Course articulation is the process by which one institution matches its courses or requirements to course work completed at another institution. Students use course articulation for assurance that the completed courses are not repeated at the institution to which they are transferring.

Holders of Bachelor of Technology in Mechanical Engineering (Level 7) can also apply and be admitted on similar programs offered by various Higher Education Institutions in Europe, Asia and USA through the NIT franchise arrangement with Pearson BTEC.

Teaching and Learning Methods and Assessments Strategies

Mode of Delivery

Our modes of delivery/study are flexible to suit time schedules of every one. These are:

- Full-Time
- Part-Time (Evening)
- Distance
- Online/E-learning
- Blended (Mixture with E-Learning, Distance and Weekend Tutorials) learning.

When does each Semester (Intake) Start

The following are two (2) annual teaching and learning intakes for students to register to study on this program at NIT:

- February – June
- July – November

Applications must be made in-time to avoid late registration fees and to be disappointed if spaces are allocated to earlier applicants.

Teaching and Learning Methods

The NIT tutors/lecturers are equipped with various traditional teaching methods which are all used to create and develop Vibrant, Skilled, Competent and Work-prepared Entrepreneurial Technicians, Technologists and Professionals. The teaching and learning practices involve 70% practical and 30% theory methodologies by applying a wide range of following action learning techniques:

- Lectures/Instructor-led Teaching Methods
- Workshops/ Practical (hands-on) Demonstration
- Tutorials/ Action Learning Set
- Work-based Learning: Work Experience, Professional Practice, Job Attachments, Volunteered Work
- Invited Industry Guest Lecturers/Tutors
- Experimental Learning
- Online: Virtual Learning Environment (VLE)
- Blended learning

Withdrawal/Cancellation

Any cancellations/withdraw or refunds are executed in accordance with the institutional policies. For more details, refer to the Students Registration Agreement and the Withdraw Policy

Assessments Strategies

The NIT programs are assessed using a combination of:

- a. Informal Assessments
- b. Formal Assessments

Informal assessments are conducted by lecturers on each covered component of the unit outcome to weigh knowledge created into his/her students in order that necessary teaching practices adjustments can be made as appropriate.

Formal Assessments are further classified into two parts:

- [1] Formal Continuous Assessments which comprise of:
 - a) Main Test
 - b) Integrated Project
- [2] Formal Final Assessments which comprise of:
 - a) Examination
 - b) Assignments

Assessments Rules

Formal Continuous Assessments

- In order to pass any assessment, student must achieve a pass mark of 60% or more.
- A student who fails to attain a mark of 60% in the main test will be allowed to take a supplementary test on the official set Assessments (Tests) Dates.
- A student who fails to attain a mark of 60% in the integrated project will be given resubmission opportunity within two (2) weeks from the date of the official release of continuous assessments results.
- Students wishing to take supplementary test or to resubmit the integrated project must complete a formal application within one week from the date of official release of results.

Formal Final Assessments

- Each module is assessed through a practical based assignment.
- The assignment brief is issued to each student at the start of the module and the final work with evidences are presented to the assessments committee as per dates set in the NIT Assessments Plan
- Practical, career focused and industry relevance features are embedded throughout each assignment to compel students/students to independently work with their own minds and hands to prepare the required evidences which must support their work and present them to the Assessments Committee
- In order to pass any test, the student must achieve a pass mark of 60% or more.
- A student who fails to attain a mark of 60% in any examination will be allowed to take a supplementary examination on the official set Assessments (examinations) Dates.
- A student who fails to attain a mark of 60% in the integrated assignment will be given re-submission opportunity within three (3) weeks from the date of the official release of final assessments results.
- Students wishing to take supplementary examination or to resubmit the assignment must complete a formal application within one week from the date of official release of results.

Frequent Asked Questions (FAQs)

How will I be assessed?

- You will be expected to take continuous assessments and final assessment.
- Continuous Assessments comprise of one Test and an Integrated Project. A test contributes 30% to the overall average semester mark. The integrated project contributes 70% to the overall semester mark.
- The passing rate per assessment is 60%.
- You will not qualify for final examinations if you get 59% or less in the Semester assessment.
- Main Final Assessments comprise of an examination and an assignment per each unit. An examination contributes 30% to the overall average semester mark. Assignment contributes 70% to the overall final mark.

What is the duration of each qualifications level?

Each qualification level is taken over a two-semester period which run from February to June and July to November each year.

Does NIT assist international students to apply for Study Permits?

Yes, our Students Affairs Department is responsible for assisting international students who wish to study at NIT provided that study permit applicants have all requirement as stipulated and required by the Namibian Immigration Control Act, Act No 7 of 1993.

Where can I find more information about my studies, attendance of teaching and learning sessions, assessments, etc.?

Please make use of the Qualification Speciation, Students Rules and Regulations, Students Notices and feel free to contact your Campus Call Centre and Administration or the Students Affairs in the Office of the Registrar.

Is job attachment mandatory for all the qualifications?

No, job attachment or Professional practice is only mandatory for Levels 6 and 7. However, it is expected that students doing levels 4 and 5 must have good exposure to work places.

Are there any organizations which provide financial support to NIT students?

Yes, there various Namibian and International organizations which sponsor the NIT students while some get financial support from their employers and Namibia Students Financial Assistant Fund (NSFAF). These include Bank of Namibia, Social Security Commission, GIPF, Telecom Namibia, MTC, Ministries, and many others.

Can I pay my tuition fees in instalments?

- Yes, Namibian students may pay 20% upfront deposit together with application/registration fee. 80% balance if paid in equal instalments over a period of eight (8) months.
- There are no instalments payments for international students. 100% upfront payment of tuition fees is required prior to commencement of studies.
- All payments must be deposited in NIT's bank account. You must always use your Student Number as reference when making payment.
- No payment must be made in cash as NIT does not receive cash payments.

CONTACT DETAILS

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