SCHOOL OF ENGINEERING SCIENCE AND TECHNICAL STUDIES
FULLY ACCREDITED DISTANCE LEARNING COURSES (NQF 2 – 7)
FROM THE PRINCIPAL’S DESK

Phillip Slatter
INTEC College Principal

Congratulations on taking the first step in your Engineering Science and Technical Studies. Follow through on your decision to enhance your life and your future career with INTEC.

INTEC’s 173 new accredited courses bear testimony to our vision for the future. We invite you to explore these programmes and choose a qualification that will empower you to succeed in your chosen career path. On behalf of the INTEC executive and academic team, I wish you all the success in your future studies.

Why study with us?
• Quality study material designed specifically for home study.
• The freedom to study at YOUR own pace, where and when it suits YOU.
• The widest range of courses for today’s world.
• Free consultations with INTEC’s career counselling and development specialists.

• Free study choice advice from INTEC’s Student Consultants.
• The convenience of online enrolment, contact and advice.
• Affordable, easy payment options.
• Ongoing study support and attention from qualified tutors.
• A virtual campus experience, which provides around-the-clock direct access to the student management system, and various services.

INTEC College (Pty) Ltd provides courses that are based on academic validation and quality assurance. These courses are developed to meet agreed standards within a national framework, to ensure that new entrants into the market are adequately trained, developed and skilled, as well as to acknowledge and enhance the skills of the current workforce. We also have programme accreditation with Sector Education and Training Authorities (SETAs), falling under the authority of the QCTO. Read more about our accreditation and affiliations:

Umalusi Accreditation
INTEC College (Pty) Ltd has been awarded provisional accreditation by Umalusi. Umalusi is the Council for Quality Assurance in General and Further Education and Training in South Africa - see www.umalusi.org.za

Umalusi Provisional Accreditation No.: FET 00037 PA.

DHET Registration
INTEC College (Pty) Ltd is registered with the Department of Higher Education and Training as a private FET College. Provisional Registration No. 2008/FE07/025 - see www.dhet.gov.za. For further information please refer to our website: (www.intec.edu.za).

Regards,

Phillip Slatter
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Luntu Mpofu (32)
Construction Site Manager
Studied: Diploma: Construction Technology: Civil Engineering

With the construction industry booming, Luntu is well secured for employment in a country that sees unemployment grow every year. He is well-placed to build his own empire where he can employ others.

His INTEC qualification taught him everything he needs to know about engineering and construction. With this expertise Luntu always prides himself in being able to build more than just houses, but quality homes that last for generations.

Every time he lays another foundation in preparation for more building, he is reminded of his own strong foundation he laid when he completed his INTEC studies. It is the one that he keeps building on, which money can’t buy!

“Homelessness is a sore point in the history of South Africa. With every brick I lay, I feel that I am making a positive mark, it warms my heart to be able to put a roof over peoples’ heads.”
Brett Young (30)
Engineer
Studied: Diploma: Architectural Draughting

“My place, my pace“. This is how Brett did his INTEC studies in Diploma: Architectural Draughting

Brett likes the idea of working at his own pace, especially when it comes to acquiring technical skills, which require precision to accurately copy a given drawing to scale, trace a given drawing, understand the simple geometric constructions and their use, and decide on preferred future specialisation.

Even better, he likes the idea that this industry is booming, so there will always be attractive job prospects or exciting entrepreneurial opportunities.

Brett insists: “Working at my pace, in my own space, I find it easier to take my creativity to the next level. INTEC provides the blueprint for a successful career.”
CERTIFICATE: GENERAL DRAUGHTING

Description
This entry-level qualification will empower you with the skills and competencies required to accurately copy a given drawing to scale, trace given drawings, interpret drawings and use and apply geometric constructions in the operational draughting environment. Draughting skills can be applied in the fields of architecture, civil and mechanical engineering and construction, to name but a few. The programme will also enable access to further studies in this field.

Admission Requirements
Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment.

Duration
You should be able to complete this course within 18 months.

Certification
Upon successful completion of the course, you will receive a Certificate: General Draughting.

Career Opportunities
This qualification will enable you to pursue a career in:

- Architectural Draughting
- Mechanical Draughting
- Pipe Draughting
Description

The Further Education and Training Certificate: Draughting equips you with an understanding of the fundamentals of draughting. The skills and competencies resultant from this programme will support the ability to handle accurate architectural drawings, mechanical drawings, and pipe drawings, as well as isometric drawings. Students will be taught to use scales and to read and interpret drawings within the field of draughting. This programme enables access into further studies in this field.

Admission Requirements

Grade 11 (Standard 9) with Engineering/Technical Drawing, or National Certificate Vocational L2 Engineering qualification or verifiable and relevant working experience (2 years) preferably in a technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Further Education and Training Certificate: Draughting.

Career Opportunities

This qualification will enable you to pursue a career in:

- Architectural Draughting
- Piping Draughting
- Mechanical Draughting
- Autodesk Inventor Draughting
Description

This programme is designed to enable the application of draughting principles to create geometric constructions, use third angle orthographic projection and draw pipes, fitments and more. Additional skills and competencies include detailing of piping, the drawing of expansion joints and the use of different calculations relevant to strengths of supports, pipe fitment supports and the detailing and design of small pipelines. The ability to use automation and select tundishes, launders and channels further support to the relevant skill sets related to the programme.

Admission Requirements

Grade 12 (Standard 10), N3, or an INTEC General Draughting Certificate, or verifiable and relevant working experience (3 years) preferably in a technical environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Pipe Draughting.

Career Opportunities

This qualification will enable you to pursue a career in/as a:

- Pipeline Project Manager
- Piping Draughting
- CAD Operator Draughting
- Pipe Designer
- Senior Pipe Designer
- Civil Draughting
DIPLOMA:
ARCHITECTURAL DRAUGHTING

Description
The Diploma: Architectural Draughting will provide you with a broad knowledge and understanding of the use of drawing instruments and equipment, use of scale, reading, interpretation and drawing of site plans, sections, elevations and working drawings. In addition, you will gain the skills and competencies to use and apply geometric and construction principles relevant to architectural requirements and the drawing up of complete presentation drawings for submission to local authorities.

Admission Requirements
Grade 12 (Standard 10), N3, or an INTEC General Draughting Certificate or equivalent, or verifiable and relevant working experience (3 years) preferably in a technical environment.

Duration
You should be able to complete this course within 24 months.

Certification
Upon successful completion of the course, you will receive a Diploma: Architectural Draughting.

Career Opportunities
This qualification will enable you to pursue a career in:
- Architectural Draughting
- Autodesk Inventor Draughting
- Civil Draughting
DIPLOMA: 
MECHANICAL DRAUGHTING

**Description**

This programme enables a solid understanding of the use of drawing instruments, equipment and principles in order to draw machine components, mechanical devices, handling equipment, gears, hydraulic presses and turntables to scale. In addition, skills and competencies covered include the ability to calculate the strength of materials and conduct other calculations relevant to mechanical and machine component planning and design. The programme will thus prepare you for draughting within a range of fields by means of the use of computer-aided design.

**Admission Requirements**

Grade 12 (Standard 10), N3, or the Certificate: General Draughting with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical environment.

**Duration**

You should be able to complete this course within 24 months.

**Certification**

Upon successful completion of the course, you will receive a Diploma: Mechanical Draughting.

**Career Opportunities**

This qualification will enable you to pursue a career in/as a:

- CAD Operator
- Autodesk Inventor Draughting
- Civil and Architectural Draughting
- Mechanical Draughting
Description

AutoCAD Drafters are design professionals who use computer-aided design (CAD) software for drafting technical drawings used in the production and construction of complex objects and structures. The technical drawings that AutoCAD drafters create are used in architecture, engineering, aerospace and just about any discipline where something is being designed and built. The programme provides you with the relevant skills and competencies to apply drawing instructions and use CAD-specific editing and commands used for dimensioning as well as the handling of mechanical and construction-related drawings.

Admission Requirements

Grade 10 (Standard 8), N1 or equivalent, or relevant working experience (2 years) preferably in a technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: AutoCAD.

Career Opportunities

This qualification will enable you to pursue a career in:

- Architectural Draughting
- Civil Draughting
- Mechanical Draughting
Description

The Certificate: Construction Technology provides a focus on different construction equipment and principles used in the building industry. This includes amongst others, applications in carpentry and joinery as well as techniques used in the building of foundations, cavity walls and reinforced brickwork. Relevant calculations include the cost and price estimating whilst the programme also enables the meeting of building specifications. The programme allows for access into further studies and will support entry-level careers in the construction sector.

Admission Requirements

Grade 10 (Standard 8) or relevant working experience (2 years) preferably in a technical or construction environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Construction Technology.

Career Opportunities

This qualification will enable you to pursue a career in:

- Construction
- Civil Engineering
- Building Surveying
DIPLOMA: CONSTRUCTION TECHNOLOGY: CIVIL ENGINEERING

Qualification: DiplConTechCivEng (INTEC) NQF 6
SAQA ID: 21156
NQF Level 6
Credits: 240

Description

The Diploma: Construction Technology: Civil Engineering qualifies the student for employment with contractors, consultants, government departments and municipalities in departments responsible for construction projects, maintenance and planning. The programme supports skills and competencies required for the design and construction of civil engineering structures such as roads, railways, harbours, airports, buildings and dams. This course provides you with knowledge of the basic application of building drawing principles, various building materials and services, carpentry and joinery and civil engineering construction.

Admission Requirements

Grade 12 (Standard 10) or equivalent, or a Certificate: Construction Technology, or verifiable and relevant working experience (3 years) preferably in a technical or construction environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Construction Technology: Civil Engineering.

Career Opportunities

This qualification will enable you to pursue a career in:

- Construction Industry Management
- Civil Engineering
- Construction Project Management

www.intec.edu.za
CERTIFICATE: ASSISTANT QUANTITY SURVEYING: BILLS OF QUANTITY

Description
The Certificate: Assistant Quantity Surveying: Bills of Quantity provides the relevant knowledge and competency to support proficiency in the interpretation of architectural drawings, determine quantities of materials through the use of relevant calculations and develop bills of materials. These skills and competencies will support the effective calculation of materials and costs. The programme enables access into further training and development within this field.

Admission Requirements
Grade 11 (Standard 9) with Mathematics, or verifiable and relevant working experience (2 years) preferably in a technical or construction environment.

Duration
You should be able to complete this course within 18 months.

Certification
Upon successful completion of the course, you will receive a Certificate: Assistant Quantity Surveying: Bills of Quantity.

Career Opportunities
This qualification will enable you to pursue a career in:

- Assistant Quantity Surveying
- Bills of Quantity
- Cost Management in Construction
**Description**

The programme allows for the transfer of the relevant skills and competencies required in the field of Quantity Surveying. In addition you will gain insight into various types of scaffolding, the construction of foundations, brick and mortar construction techniques, the installation of water and electricity as well as roof and ceiling construction. The programme will broaden your knowledge and competencies as a skilled surveyor within the construction environment.

**Admission Requirements**

Grade 10 (Standard 8) or the Certificate: Assistant Quantity Surveying with INTEC, or a job in a Quantity Surveying office for more than 6 months.

**Duration**

You should be able to complete this course within 18 months.

**Certification**

Upon successful completion of the course, you will receive an Advanced Certificate: Assistant Quantity Surveying: Construction.

**Career Opportunities**

This qualification will enable you to pursue a career in:

- Assistant Quantity Surveying
**Description**

The Diploma will provide you with a broad knowledge and understanding of the principles relevant to the field of quantity surveying. The skills and competencies provided by the programme include amongst others, the measurement and estimation of building costs and material requirements, tendering for projects, project management in the construction industry, financial administration and cost control. In addition, the qualification enables knowledge of specifications, people and task specific management as part of a team. Quantity Surveying is an integral part of any successful construction company and the effective management of all project development stages supports this role.

**Admission Requirements**

Grade 12 (Standard 10) or equivalent, or the Certificate: Basic Electronics with INTEC, or the Certificate: Digital Systems with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical or construction environment.

**Duration**

You should be able to complete this course within 24 months.

**Certification**

Upon successful completion of the course, you will receive a Diploma: Assistant Quantity Surveying.

**Career Opportunities**

This qualification will enable you to pursue a career in:

- Quantity Surveying
- Cost Management in Construction
- Project Management in Construction
DIPLOMA: CONSTRUCTION TECHNOLOGY: BUILDING SURVEYING

Description

This programme provides you with the knowledge required for the field of building surveying within the construction industry. The skills and competencies enabled include the handling of building drawing, building construction, selection and costing of building materials, understanding of different construction components, standards and specifications, management skills, building administration and the relevant financial skills required to manage construction projects effectively through the project cycle.

Admission Requirements

Grade 12 (Standard 10) or equivalent, or an INTEC Certificate in Construction Technology, or relevant working experience (3 years) preferably in a technical or construction environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Construction Technology: Building Surveying.

Career Opportunities

This qualification will enable you to pursue a career in:

- Construction Management
- Building Project Supervision
- Building Planning
- Site Management
- Building Surveying and Estimation

www.intec.edu.za
Description
If you have a keen interest in science and technology, Mechanical Engineering is a discipline that will enable entry into this field. The qualification provides a solid foundation in mechanical studies and was developed in partnership with industry in order to ensure that it is relevant and current. The entry-level qualification will enable the use and application of mathematical and physics principles to solve technical and basic engineering problems. In addition, the qualification will provide the skills and competencies to communicate technical concepts by means of drawings and sketches. Skills furthermore include the use of hand tools and welding as well as basic workshop operations.

Admission Requirements
Grade 7 (Standard 5) with Mathematics or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment.

Duration
You should be able to complete this course within 18 months.

Certification
Upon successful completion of the course, you will receive a Certificate: Introductory Mechanical Engineering.

Career Opportunities
This qualification will enable you to pursue a career in:

• Mechanical Engineering
• Automotive Repairing
Description

If you are interested in furthering your aptitude for mathematics and science within the mechanical engineering field, this qualification will help develop your problem-solving skills through the use of technology. The skills and competencies enabled by this qualification include the honing of creative thinking, the ability to read and interpret engineering drawings, as well as the ability to convey information by means of technical drawings and the use of mathematical and physical science related solutions. The qualification furthermore enables access into further mechanical engineering programmes.

Admission Requirements

Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment, or the Certificate: Introductory Mechanical Engineering, with INTEC.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Basic Mechanical Engineering.

Career Opportunities

This qualification will enable you to pursue a career in:

- Mechanical Engineering
- The Automotive Industry
Description

Mechanical Engineering as a field of study focuses on the application of science and technology to the manufacturing and maintenance of, amongst others, machines and equipment. The qualification ensures the transfer of skills and competencies, enabling the integration of analytical and practical mechanical techniques and engineering knowledge to solve problems within the technical environment. The qualification has a strong mathematical and physical science foundation in support of solving a range of mechanical problems both theoretically and practically.

Admission Requirements

Grade 12 (Standard 10) or National Senior Certificate with Mathematics, or verifiable and relevant working experience (2 years), or the Certificate: Basic Mechanical Engineering with INTEC.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Mechanical Engineering.

Career Opportunities

This qualification will enable you to pursue a career as a:

- Mechanical Specialist
- Mechanical Engineer
- Product Developer and Consultant
HIGHER DIPLOMA: MECHANICAL ENGINEERING

Description

Mechanical Engineering is a discipline that applies the principles of physics, mathematics and material science for the analysis, design, manufacturing, and maintenance of mechanical systems. The qualification focuses on real-world, practical systems typically encountered by mechanical engineers. The programme allows for the development of relevant skills and competencies supporting the solving of mechanical problems by means of graphical methods, the calculation of the stresses in components under simple loading conditions, the determining of the mechanical properties of materials by standard test procedures and the use of a computer to perform calculations and present information.

Admission Requirements

Grade 12 (Standard 10) with Mathematics or equivalent, or the Diploma in Mechanical Engineering with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical environment.

Duration

You should be able to complete this course within 36 months.

Certification

Upon successful completion of the course, you will receive a Higher Diploma: Mechanical Engineering.

Career Opportunities

This qualification will enable you to pursue a career as a/an or in:

- Mechanical Engineering Specialist
- Advanced Mechanical Engineer
- Generalist and Drawing in the Mechanical field
Description

The air conditioning, refrigeration and ventilation industry provides a service to many sectors of the country’s economy such as food processing and warehousing, food transportation, distribution and retailing. The Certificate: Introduction Air Conditioning and Refrigeration will enable you to identify faults and causes correctly, replace and repair faulty components, describe and apply operating principles, and maintain safety during servicing and repairs.

Admission Requirements

Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Introduction: Air Conditioning and Refrigeration.

Career Opportunities

This qualification will enable you to pursue a career in:

- Air Conditioning and Refrigeration Repairs
- Mechanical Engineering
**Description**

Air conditioning (often referred to as aircon, AC or A/C) is the process of altering the properties of air, primarily temperature and humidity, to create more comfortable conditions. More generally, air conditioning can refer to any form of technological cooling, heating, ventilation, or disinfection that modifies the condition of air. This Diploma: Air Conditioning and Refrigeration will develop the relevant skills and competencies for the performing of routine air-conditioning systems maintenance and repairs. In addition the programme will support the use and application of thermodynamic and heat transfer principles as a basis for the sizing and selection of suitable systems to meet the needs and requirements of clients.

**Admission Requirements**

Grade 12 (Standard 10) or equivalent or the Certificate: Air Conditioning and Refrigeration with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical environment.

**Duration**

You should be able to complete this course within 24 months.

**Certification**

Upon successful completion of the course, you will receive a Diploma: Air Conditioning and Refrigeration.

**Career Opportunities**

This qualification will enable you to pursue a career in:

- Air Conditioning and Refrigeration
- Mechanical Engineering
**Description**

All machinery requires components and parts to make them work. Fitters and Turners are responsible for the manufacturing and installation of these pieces. They use different tools and machines such as mills and drills to turn metal into the required parts and install them into the greater structure to complete the machine. The Certificate: Fitting and Turning enables skills and competencies required to use precision measurement, set up work and mark work pieces and use relevant tools, materials and equipment to perform basic turning, welding and grinding operations. In addition you will learn the skills to handle different surface cleaning and protective coating techniques.

**Admission Requirements**

Grade 10 (Standard 8) with Mathematics or equivalent, or verifiable and relevant working experience (2 years), preferably in a suitable technical environment.

**Duration**

You should be able to complete this course within 18 months.

**Certification**

Upon successful completion of the course, you will receive a Certificate: Fitting and Turning.

**Career Opportunities**

This qualification will enable you to pursue a career in:

- Fitting and Turning
- Tool Making
- Basic Mechanical Engineering
DIPLOMA:
FITTING AND TURNING

Qualification: DiplFitTurn (INTEC) NQF 6
SAQA ID: 21119
NQF Level 6
Credits: 240

Description

This learning programme enables the relevant skills and competencies required for the use and application of skills relevant to fitting and turning. This includes the setting up of work pieces and machines to perform shaping and plane operations, the use of automated machine tools and the meeting of engineering drawing specifications. The Diploma in Fitting and Turning also focuses on gear cutting and boring operations, as well as the design, faultfinding and maintenance and repairs of gears.

Admission Requirements

Grade 12 (Standard 10) or equivalent or N3 Engineering studies (Fitting and Turning) or the Certificate: Fitting and Turning with INTEC, or verifiable and relevant working experience (3 years), preferably in a suitable technical environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Fitting and Turning.

Career Opportunities

This qualification will enable you to pursue a career in:

- Fitting and Turning
- Tool Making
- Basic Mechanical Engineering
Description

The Certificate: Electrical Engineering provides a student with the basic skills necessary for a career as an engineering technician in the fields of Electronics, Computers, Electrical, Testing and Control and Telecommunications. On successful completion of the Certificate: Electrical Engineering, you will be able to calculate the stresses in components under simple loading conditions, solve electrical engineering problems, work safely with electricity and determine voltage, current and resistance of series and parallel circuits. The qualification supports access into other qualifications in this field – allowing you to further expand and develop your skills and knowledge.

Admission Requirements

Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Electrical Engineering.

Career Opportunities

This qualification will enable you to pursue a career in:

- Electrical Engineering
- Electronic Engineering
Description

The Diploma: Electrical Engineering enables the identification and understanding of the skills and competencies relevant to Electrical Installation. This includes different motors, DC Machinery and the application of the SABS Code of Practice for electrical installations within, for example, the domestic market. Skills and competencies are underpinned by a solid foundation in physical science and electrical calculations to ensure effective operations within the field.

Admission Requirements

Grade 12 (Standard 10) or equivalent, or the Certificate: Electrical Engineering with INTEC, or relevant working experience (3 years) preferably in a technical environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Electrical Engineering.

Career Opportunities

This qualification will enable you to pursue a career in:

• Electrical Engineering
• Electronic Engineering
CERTIFICATE: BASIC ELECTRONICS

Description
This programme has been designed for individuals interested in a career in electronics. The qualification will enable the transfer of skills and competencies applicable to basic electronics and electronic principles used for the repairs and maintenance of electrical/electronic circuitry. In addition, you will be able to construct electronic components, and describe the role and functioning of both analogue and digital logic circuits in a safe manner. The qualification also allows access into further qualifications in the field of electrical sciences.

Admission Requirements
Grade 10 (Standard 8) with Mathematics or equivalent, or verifiable and relevant working experience (8 months) preferably in a technical environment.

Duration
You should be able to complete this course within 18 months.

Certification
Upon successful completion of the course, you will receive a Certificate: Basic Electronics.

Career Opportunities
This qualification will enable you to pursue a career in:

- Home Entertainment Equipment Repair
- Power Tool Repair
- Telecommunications Equipment Repair
- Electronics
Description

The Advanced Diploma in Electronic Engineering provides a solid overview of the current state of electronic engineering practice. The programme will enable you to describe the pulse generation for use in electronics circuits and systems, explain the operation of circuits for forming square, rectangle, saw tooth and triangular waves, discuss electronic solid-state motor control and servo systems and conduct troubleshooting. The programme thus ensures the relevant skills and competencies to enable the use and application of electronic engineering principles in a variety of operational contexts.

Admission Requirements

Grade 12 (Std 10) or equivalent. Student may be given exemptions upon completion of the Certificate: Basic Electronics or the Diploma: TV and Video Repair with INTEC, or Electronics Technician Diploma or based on previous qualifications (prior learning), age and working experience.

Duration

You should be able to complete this course within 36 months.

Certification

On successful completion of the course, the student will receive an Advanced Diploma: Electronic Engineering.

Career Opportunities

This qualification will enable you to pursue a career in:

- Electronics Engineering
- TV and Radio Repairing
- Computer Repairing
- ICT Systems
- Electrical Engineering
- Telecommunications Industry
Description

The Diploma: Electronics Technician will provide you with a broad knowledge and understanding of the mathematical and physical science principles relevant to the field of electronics technology. These skills and competencies will support effective troubleshooting, maintenance, repair, testing, installation and assembly of electronic circuits and equipment within a workshop environment. The programme furthermore enables the construction of electronic components with specific emphasis on their functioning and the physical science principles informing their operation. The programme will broaden your knowledge and competencies as a multi-skilled technician in various electronics industries.

Admission Requirements

Grade 12 (Standard 10) or equivalent, or the Certificate: Basic Electronics, with INTEC, or the Certificate: Digital Systems, with INTEC, or relevant working experience (3 years) preferably in a technical environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Electronics Technician.

Career Opportunities

This qualification will enable you to pursue a career in:

- Electronics
- Electrical Engineering
- Digital Systems
Description

PICs are popular with industrial developers and hobbyists alike due to their low cost, wide availability, large user base, extensive collection of application notes, and availability of low-cost or free development tools. The Diploma: PIC Micro-Controller Development is an instructional hands-on training experience in the operation and application of PIC micro-controllers. Skills and competencies gained will enable the designing and building of application systems, the development of object-oriented applications software in the Assembler language, the simulation of applications, the programming of controllers and the evaluation of controller applications.

Admission Requirements

Grade 12 (Standard 10) or equivalent, or the Introduction to Programming Certificate with INTEC, or verifiable and relevant working experience (3 years) preferably in an IT or programming environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: PIC Micro Controller Development.

Career Opportunities

This qualification will enable you to pursue a career in:

- PIC Controller Development
- Assembler Programming
Description

If you are interested in the use of physical science (electrical and electronics) for the maintenance of home audio equipment, the Diploma: Radio and Hi-Fi Repair is a good choice. The qualification will empower you with the technical skills and competencies to test and repair receivers, amplifiers and recorders amongst other components. The underpinning mathematical and physical science knowledge will furthermore ensure a solid understanding of electrical and electronic circuitry, enabling additional use and application in the field of electrical science.

Admission Requirements

Grade 10 (Standard 8) or equivalent or the Certificate: Basic Electronics with INTEC, or verifiable and relevant working experience (8 months) preferably in a technical environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Radio and Hi-Fi Repair.

Career Opportunities

This qualification will enable you to pursue a career in:

- Radio and Hi-Fi Repair
- Electronics
Description

Repair Technicians set up and fix televisions, audio and video equipment, entertainment systems and satellite dishes. Repair staff may work in a retail service environment or travel to customers’ homes. The qualification supports a solid understanding of electronics and current TV/Video technology. It furthermore enables understanding and use of television receivers, signal propagation and reception principles as well as the reading and interpretation of circuit diagrams in order to troubleshoot and repair electrical circuits. This qualification will provide a good foundation for entering the electronics industry.

Admission Requirements

Grade 10 (Standard 8) or equivalent or the Certificate: Basic Electronics Certificate with INTEC, or verifiable and relevant working experience (8 months), preferably in a technical environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: TV and Video Repair.

Career Opportunities

This qualification will enable you to pursue a career in:

• TV and Video Repairs
• Basic Electronics
• Basic Computer Repairs
Description

Within the field of Home Appliance Repair, you will be able to repair main household appliances, such as washers and dryers, gas and electric stoves, microwave ovens, dishwashers and refrigerators through the use and application of physical science and electrical and electronics principles and calculations. From the knowledge and skills achieved through this programme, individuals will have the ability to identify faults, predict possible causes and repair appliances. The programme also supports the necessary competencies to replace or repair faulty components whilst maintaining relevant operational safety.

Admission Requirements

Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Home Appliance Repair.

Career Opportunities

This qualification will enable you to pursue a career in:

• Home Appliance Repairs
Description

If you have a keen interest in chemistry, this programme will help you develop the relevant knowledge and skills to use and apply organic and inorganic chemistry in different industries. The programme enables a foundation in the areas of chemicals and chemical processes, bacteriology, chemistry of water, the use of laboratory equipment and techniques as well as quantitative and qualitative analysis. The programme provides a strong foundation to gain access into further studies in this field.

Admission Requirements

Grade 11 (Standard 9) or verifiable and relevant working experience (2 years).

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Chemical Laboratory Assistant.

Career Opportunities

This qualification will enable you to pursue a career in:

- Analytical Chemistry
- Industrial Chemistry
DIPLOMA: ANALYTICAL CHEMISTRY

Description

The Diploma: Analytical Chemistry provides you with advanced knowledge of physical chemistry, quantitative analysis, inorganic chemistry and micro-chemical analysis amongst other scientific skills. Additional skills and competencies include report writing, cost controlling, management skills and qualitative and quantitative analysis. The programme equips the student with the required background and knowledge to build a career in the field of chemical analysis and its application in various industries.

Admission Requirements

Grade 12 (Standard 10) or equivalent, or the Certificate: Chemical Laboratory Assistant with INTEC, or verifiable and relevant working experience (3 years).

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Analytical Chemistry.

Career Opportunities

This qualification will enable you to pursue a career as a:

- Chemical Technologist
- Chemical Analyst
- Research Assistant
- Quality Controller
- Laboratory Manager
The Diploma provides a solid knowledge base of process control instrumentation, industrial chemical operations, chromatography and electro analytical methods, as well as chemistry. In addition, skills and competencies obtained also include report writing, cost control, management, planning and organising skills relevant to industry; industrial chemistry use and application in various industries including the petro-chemical, pharmaceutical, plastics, paint and rubber industries, to name but a few. The programme allows for employment within the industrial chemistry field in various applications and capacities.

**Admission Requirements**

Grade 12 (Standard 10) or equivalent, or the Certificate: Chemical Laboratory Assistant with INTEC, or verifiable and relevant working experience (3 years).

**Duration**

You should be able to complete this course within 24 months.

**Certification**

Upon successful completion of the course, you will receive a Diploma: Industrial Chemistry.

**Career Opportunities**

This qualification will enable you to pursue a career in:

- Chemical Technology
Description

The Certificate: Digital Systems presents you with the opportunity to acquire basic knowledge to analyse, design, and evaluate digital devices. The programme furthermore enables the relevant skills and competencies to convert and perform calculations using different number systems, use the application of logic devices and circuits, apply the rules of logic to solve problems and deal with pulse and logic circuits and systems. The qualification enables employment in the field of computer technology where its application is relevant to a variety of sectors.

Admission Requirements

Grade 10 (Standard 8) with Mathematics or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Digital Systems.

Career Opportunities

This qualification will enable you to pursue a career in:

- Digital Systems
- Digital Systems Controlling
- Digital Systems Engineering
- Service Desk Technology
- Electrical Test Engineering
- IT Technology
Description

The Diploma: Digital Systems covers the principles and techniques that are common to all digital systems from a simple on/off switch to the most complex computer systems. You will gain a full understanding of the operational principles of digital systems and will gain the ability to use and apply these skills in order to analyse and troubleshoot digital system design, operation and maintenance. The programme likewise focuses on the operations and limitations of digital to analogue systems, the use of computer control systems and the ability to write entry-level controller programmes. The programme will broaden your knowledge and competencies applicable to various industries utilising electronics and digital systems.

Admission Requirements

Grade 12 (Standard 10) or equivalent, or the Certificate: Digital Systems with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Digital Systems.

Career Opportunities

This qualification will enable you to pursue a career in:

- Digital System Design
- Digital Systems Engineering
- Digital Systems Controls
- Electronics
Description
If you enjoy working with your hands and have an aptitude for mechanics, the Certificate: Diesel Mechanic will enable the honing of relevant skills and competencies in this field. The programme equips you with the relevant knowledge relating to the practical fundamentals of diesel mechanics including the use of relevant tools, materials and equipment, knowledge of the functioning of diesel engines, lubrication systems, cooling, air-intake and exhausts as well as the electrical systems relevant to the diesel engine. In addition you will gain competencies in the use of measuring instruments for fault finding as well as the drawing of various diesel engine components. The qualification enables access into further studies in this field.

Admission Requirements
Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical or automotive environment.

Duration
You should be able to complete this course within 18 months.

Certification
Upon successful completion of the course, you will receive a Certificate: Diesel Mechanic.

Career Opportunities
This qualification will enable you to pursue a career as a:

- Diesel Mechanic
- Motor Mechanic
- Repair Shop Assistant
DIPLOMA: DIESEL MECHANIC

**Description**

Various vehicles in the commercial, agricultural and industrial markets run on diesel. The Diploma: Diesel Mechanic enables skills and competencies applicable to diesel engine operation, including the identification of faults, maintenance and repair requirements for various components of the diesel engine system, as well as in-frame overhauling. In addition, the programme focuses on electrical and fuel systems and supports skills such as welding for application within the field of diesel mechanics. You will also become familiarised with manufacturer’s specifications and industry standards in support of effective service delivery.

**Admission Requirements**

Grade 12 (Standard 10) or equivalent, or N3: Engineering Studies (Specialisation in Motor or Diesel Mechanics) or the Certificate: Diesel Mechanic with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical or automotive environment.

**Duration**

You should be able to complete this course within 24 months.

**Certification**

Upon successful completion of the course, you will receive a Diploma: Diesel Mechanic.

**Career Opportunities**

This qualification will enable you to pursue a career in:

- Diesel Mechanics
- Petrol Mechanics
- Maintenance Mechanics
- Motor Repair Shop Administration

www.intec.edu.za
Description

Small Petrol Engine Repairing is a vocational occupation that involves the maintenance and repair of various engines including low-power internal combustion engines, as well as petrol and electric engines. The Certificate: Small Petrol Engine Repair will enable you to repair chain saws, string trimmers, leaf blowers, snow blowers, lawn mowers, wood chippers, outboard motors, motorcycles and more. The programme supports the gaining of knowledge, techniques and practise that you will need to conduct fault finding, troubleshooting and maintenance and repairs relating to, amongst others, ignition, fuel, cooling and drive systems.

Admission Requirements

Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a suitable technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Small Petrol Engine Repair.

Career Opportunities

This qualification will enable you to pursue a career in:

- Motor Vehicle Technology
- Motor Mechanics
- Motor Vehicle Engine Repairs
Description

The Certificate: Motor Vehicle Technology will enable you to have the knowledge required to perform effectively in the field of motor vehicle technology. This programme supports the skills and competencies required to master the art of the maintenance and repair of motor cars, motorcycles, buses, trucks and other vehicles. Skill sets also focus on brake adjustment, shock-absorber replacement, radiator repairs and the replacement of oil and filters. The programme enables access into further studies in the field of motor vehicle maintenance and repairs.

Admission Requirements

Grade 10 (Standard 8) or equivalent, or N2 Engineering Studies (Mechanical) or verifiable and relevant working experience (2 years) preferably in a technical or automotive environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Motor Vehicle Technology.

Career Opportunities

This qualification will enable you to pursue a career in:

- Motor Vehicle Technology
- Motor Mechanics
- Motor Vehicle Engine Repairs
Description

The programme provides a suitable mix of automotive repair, technology and engineering subjects in combination with management, communication, sales and financial skills. In essence the programme will support the operation and management of a vehicle workshop and as such focuses on specific legal issues including employment and labour relations. The programme enables the use and application of skills relevant to vehicle maintenance and repairs, whilst also equipping the individual with general garage management skills.

Admission Requirements

Grade 12 (Standard 10) or equivalent, or the Certificate: Motor Vehicle Technology with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical or automotive environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Motor Engineering.

Career Opportunities

This qualification will enable you to pursue a career in:

- Motor Mechanics
- Mechanical Engineering
- Motor Repair Shop Administration
Description

The programme provides comprehensive skills and a competency base enabling the effective maintenance and repairs of motor cycles as well as three and four wheelers. Knowledge and skills include two-stroke engine repairs, handling of clutches as well as transmission and suspension repairs. Knowledge is furthermore gained in drive systems, cable service, valves, cylinders, carburetion, wheel and brake maintenance and repairs as well as lubrication, electrical systems and a range of chargers. Attention is also given to the relevant skills and competencies required for motor cycle painting and customising.

Admission Requirements

Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a suitable technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Motor Cycle Repair.

Career Opportunities

This qualification will enable you to pursue a career in:

- Motor Cycle Repair
Description

The programme is suitable for both individuals with experience in fire extinguishing who require recognition as well as individuals interested in fire engineering as a career path. The programme provides you with the relevant knowledge of fire engineering, fire service operations, fire extinction, fire prevention and fire safety. It likewise deals with aspects including the understanding of the phenomena and effects of fire and the reaction and behaviour of people to fire. Skills and competencies gained will enable the safe and efficient protection of people, property and the environment from the destructive effects of fire.

Admission Requirements

Grade 10 (Standard 8) with Mathematics or equivalent, or verifiable and relevant working experience (2 years) preferably in a health and safety environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Preliminary Certificate: Institute of Fire Engineers.

Career Opportunities

This qualification will enable you to pursue a career in:

- Fire Engineering
- Fire Extinguishing Services
Description

Welding skills can be applied for various purposes including construction, fabrication, repair and maintenance. The Certificate: Welding will enable the handling and operating of electric and gas welding equipment whilst maintaining relevant occupational safety standards. Likewise, the programme enables the performance of different welding processes and techniques to different types of steel and metal. Welding skills can be used across different industries and allows for further specialisation in the mechanical environment.

Admission Requirements

Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment.

Duration

You should be able to complete this course within 18 months.

Certification

Upon successful completion of the course, you will receive a Certificate: Welding.

Career Opportunities

This qualification will enable you to pursue a career in:

- Welding
- Arc-welding Operations
- Mechanical Engineering
Description

The Diploma: Welding will empower you with the relevant skills and competencies supporting the selection of suitable welding methods for different types of metal and applications, the preparation of components and the use of different joints. Likewise, it supports the use and application of different tests to enable quality assurance of welded metals and joints. The programme furthermore ensures the ability to read and interpret technical drawings and specifications for welding requirements and applies welding skills and techniques to pipe welding. Skills obtained can be applied for various purposes including construction, fabrication, repair and maintenance.

Admission Requirements

Grade 12 (Standard 10) or equivalent or the Certificate: Welding with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical environment.

Duration

You should be able to complete this course within 24 months.

Certification

Upon successful completion of the course, you will receive a Diploma: Welding.

Career Opportunities

This qualification will enable you to pursue a career in:

- Welding
- Arc-welding Operations
- Mechanical Engineering
**Accreditation**

The certification, usually for a particular period of time, of a person, a body or an institution as having the capacity to fulfil a particular function within the quality assurance system set up by SAQA.

**Quality Council for Trades and Occupations (QCTO)**

The Quality Council for Trades and Occupations (QCTO) is the band that ETQA mandated to quality assure all trade and occupational qualifications on the National Qualifications Framework (NQF). SETAs handle the operational quality assurance for specific sectors under the auspices of the QCTO.

**The South African Qualifications Authority (SAQA)**

The South African Qualifications Authority (SAQA) is the apex organisation in the framework of the National Skills Development strategy, and one of their major functions is the maintaining of the three qualifications sub-frameworks (The Higher Education and Training, General and Further Education and Training and Trades and Occupational Qualifications Sub-frameworks) making up the NQF.

**The National Qualifications Framework (NQF)**

The NQF is a comprehensive system approved by the Minister of Higher Education and Training for the classification, registration, publication and articulation of quality-assured national qualifications. The NQF is organised as a series of learning achievements arranged in ascending order from one to ten. Each level on the NQF is described by a statement of learning achievement known as level descriptors.

**Level Descriptor**

A level descriptor provides a broad indication of learning achievements or outcomes that are appropriate to a qualification at that level. There is one set of level descriptors for the NQF. A level descriptor describes a particular level of the eight levels of the NQF.

**Field of Learning**

A particular area of learning used as an organising mechanism for the NQF.

**Qualification**

The formal recognition of the achievement of the required number and range of credits and other requirements at specific levels of the NQF determined by the relevant bodies registered by SAQA.

**Unit Standard**

A registered statement of desired education and training outcomes and its associated assessment criteria together with administrative and other information as specified in the regulations.

**Elective Unit Standard**

A selection of additional credits (level of the National Qualifications Framework specified), from which a choice may be made to ensure that the purpose of the qualification is achieved.

**Learning Programme**

A structured set of learning offerings and related assessment and attainment requirements as aligned to a qualification and its specific requirements.
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