

2. Engineering Studies Report 191/ Nated N4 - N6

Entry Requirements:

- **N4 Entry Requirements**
 - Passed N3 Certificate
 - Grade 12 passed with Mathematics and Physical Science – 40 %

Course Structure:

- Students register three times a year, per Trimester, i.e., N4 - N6 & etc. January, May and September.

Duration: Three-year

- 9 Months (N4 – N6) Theory and
- 18 Months of Practical Experience

Qualification: Diploma

Career Opportunities

- Apprentice
- Electrician
- Artisan
- Electronic Technician
- Engineer
- Engineering Technician and Technologist

Campus Spread:

PROGRAMME OFFERED	LEVEL	MQLAPO CAMPUS	ROODEPOORT WEST CAMPUS	TECHNISA CAMPUS (Open Distance eLearning) [ODEL]
Civil Engineering	N4 - N6	✓		✓
Electrical Engineering	N4 - N6		✓	✓
Mechanical Engineering	N4 - N6	✓		✓
Chemical Engineering	N4 – N6		✓	
Multi-Disciplinary Drawing Office Practice	N4 – N5	✓		✓
Supervisory Management	N5 – N6	✓		

2.1 Civil Engineering N4 – N6

N4	N5	N6
<ul style="list-style-type: none"> • Building & Structural Construction • Building & Structural Surveying • Quantity Surveying 	<ul style="list-style-type: none"> • Building & Structural Surveying • Building & Structural Construction • Quantity Surveying 	<ul style="list-style-type: none"> • Building & Structural Surveying • Building & Structural Construction • Quantity Surveying
and any three of the following	and any three of the following	and any three of the following
<ul style="list-style-type: none"> • Building Administration • Mathematics 	<ul style="list-style-type: none"> • Building Administration • Mathematics 	<ul style="list-style-type: none"> • Building Administration • Mathematics



2.2 Electrical Engineering N4 – N6

N4	N5	N6
<ul style="list-style-type: none"> • Electrotechnics • Mathematics • Fault Finding and Protective Devices • Industrial Electronics 	<ul style="list-style-type: none"> • Electrotechnics • Fault Finding and Protective Devices • Industrial Electronics • Mathematics 	<ul style="list-style-type: none"> • Electrotechnics • Fault Finding and Protective Devices • Industrial Electronics • Mathematics

2.3 Mechanical Engineering N4 – N6

N4	N5	N6
<ul style="list-style-type: none"> • Engineering Science • Mathematics • Mechanical Draughting • Mechanotechnics 	<ul style="list-style-type: none"> • Mathematics • Mechanotechnics • Power Machines • Strength of Materials and Structures 	<ul style="list-style-type: none"> • Mathematics • Mechanotechnics • Power Machines • Strength of Materials and Structures

2.4 Chemical Engineering N4 – N6

N4	N5	N6
<ul style="list-style-type: none"> • Chemical Plant Operation • Chemistry • Engineering Science • Mathematics 	<ul style="list-style-type: none"> • Chemical Plant Operation • Chemistry • Engineering Physics • Mathematics 	<ul style="list-style-type: none"> • Chemical Plant Operation • Chemical Technology • Engineering Physics • Mathematics

2.5 Multidisciplinary Drawing Office Practice N4 – N5

Entry Requirements:

- An Appropriate National Certificate: N3 with Engineering Drawing or Building Drawing or Senior Certificate with Technical Drawing.

Duration:

Part – time: Two trimesters

N4	N5
<ul style="list-style-type: none"> • General Draughting • Mechanical Draughting • Mechanical Draughting Office Orientation • Pictorial Draughting 	<ul style="list-style-type: none"> • Building Draughting • Computer – Aided Draughting • Electrical Draughting • Structural Steel Detailing • Technical Illustration

2.6 Supervisory Management N5 - N6 Offered on part-time basis



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T: 086 176 8849
headoffice@swgc.co.za
www.swgc.co.za



**SOUTH WEST GAUTENG TECHNICAL AND VOCATIONAL™
EDUCATION AND TRAINING COLLEGE**
EDUCATION OF DISTINCTION

ENGINEERING STUDIES (NATIONAL CERTIFICATE (VOCATIONAL) [NC(V)] AND REPORT 191/ NATED



higher education & training
Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

1. National Certificate Vocational [NC(V)] Level 2 - 4

These vocational programmes are high skills and high quality introduced at the college. They are intended to directly respond to the priority skills demands of the modern economy.

Entry Requirements:

- A year-end report for a passed Grade 9, Grade 10, and Grade 11 with Mathematics and Physical Science with a 40% mark and above;
- An NQF Level 1 qualification; or
- ABET Level 4
- PLP (Pre-Vocational Programme)

Fundamental Compulsory Subjects in all programmes:

- English First additional language
- Mathematics
- Life Skills and Computer Literacy

Programme Offered

Programme Offered	LEVEL	Molapo Campus	Roodepoort West Campus
Civil Engineering and Building Construction	2 - 4	√	
Electrical Infrastructure Construction	2 - 4		√
Engineering and Related Design	2 - 4	√	

Duration: Three-year (NC(V) level 2 - 4)

Course structure: One year per NQF level

1.1 Civil Engineering and Building Construction NC(V) Level 2 - 4

- The National Certificate (Vocational) (Civil Engineering and Building Construction) is a Civil Engineering Qualification at each of levels 2,3 and 4 of the NQF.
- This qualification is designed to provide both the theory and practice of Civil Engineering and Building Construction.
- The practical component of the study may be offered in a real workplace environment or in a simulated workplace environment.
- It will provide students with an opportunity to experience work situations during the period of study.

Vocational Subjects:

Level 2	Level 3	Level 4
<ul style="list-style-type: none"> • Construction Planning • Plant & Equipment • Materials 	<ul style="list-style-type: none"> • Construction Planning • Plant & Equipment • Materials 	<ul style="list-style-type: none"> • Construction Planning • Construction Supervision • Materials
and one of the following	and one of the following	and one of the following
<ul style="list-style-type: none"> • Carpentry & Roof Work • Masonry • Plumbing 	<ul style="list-style-type: none"> • Carpentry • Masonry • Plumbing 	<ul style="list-style-type: none"> • Carpentry & Roof Work • Masonry • Plumbing

Career Opportunities

- Participate in operations and maintenance of construction equipment and machinery
- Participate in the construction of roads, bridges, dams, railways and houses
- Take part in designing and construction of tunnel road, factories, reservoirs etc.
- Participate in the erection of reinforced concrete, structural steel, timber and masonry structures.

Career Paths

- Architectural Technology
- Drainage Inspection
- Industrial Designing
- Quantity Surveying
- Sanitation Engineering
- Road Construction Engineering
- Civil Construction Engineering
- Building Construction

1.2 Electrical Infrastructure Construction NC(V) Level 2 - 4

- The National Certificate (Vocational) (Electrical Infrastructure Construction) is an Electrical Infrastructure Construction Qualification at each of Levels 2,3 and 4 of the NQF.
- This qualification is designed to provide both the theory and practicals of electrical infrastructure construction.
- The practical component of the study may be offered in a real workplace environment or in a simulated workplace environment.
- It will provide students with an opportunity to experience work situations during the period of study.

Vocational Subjects:

Level 2	Level 3	Level 4
<ul style="list-style-type: none"> • Electrical Principles and Practice • Electrical Systems and Construction • Electronic Control and Digital Electronics • Workshop Practice 	<ul style="list-style-type: none"> • Electrical Principles and Practice • Electrical Systems and Construction • Electrical Workmanship • Electronic Control and Digital Electronics 	<ul style="list-style-type: none"> • Electrical Principles and Practice • Electrical Systems and Construction • Electrical Workmanship • Electronic Control and Digital Electronics

Career Paths

- Work at a power station
- Work as an electrician at an energy producing company or power plant
- Work at a recording studio as an electrical engineer
- Work at a theatre as a technician.

Career Opportunities

- Electrical Engineering
- Electrician
- Industrial Engineering
- Sound Technology
- Theatre Technology
- Process Level Control
- Digital Electronics
- Instrumentation

1.3 Engineering and Related Design (Mechanical) NC(V) Level 2 - 4

- The National Certificate (Vocational) (Engineering and Related Design) is an Engineering and Related Design Qualification at each of Levels 2,3 and 4 of the NQF.
- This qualification is designed to provide both the theory and practicals of Engineering and Related Design.
- The practical component of the study may be offered in a real workplace environment or in a simulated workplace environment.
- It will provide students with an opportunity to experience work situations during the period of study.

Vocational Subjects:

Level 2	Level 3	Level 4
<ul style="list-style-type: none"> • Engineering Fundamentals • Engineering Technology • Engineering Systems 	<ul style="list-style-type: none"> • Engineering Graphic and Design • Engineering Practice & Maintenance • Material Technology 	<ul style="list-style-type: none"> • Applied Engineering Technology • Engineering Processes • Professional Engineering Practice
and one of the following	and one of the following	and one of the following
<ul style="list-style-type: none"> • Automotive Repair and Maintenance • Fitting & Turning • Welding 	<ul style="list-style-type: none"> • Automotive Repair and Maintenance • Fitting & Turning • Welding 	<ul style="list-style-type: none"> • Automotive Repair and Maintenance • Fitting & Turning • Welding

Career Opportunities

- Participate in designing and construction of buildings
- Take part in manufacturing of tools, machines and engines
- Take part in the operation maintenance an of machines
- Extraction of metallic and non-metallic minerals
- Design of shaft and ventilation systems
- Interpret and produce engineering drawings, maps and sketches
- Extract tools, equipment, methods, and processes to produce components

Career Paths

- Metallurgical and Materials Engineering
- Fitting and Machining
- Mechanical Engineering
- Car Manufacturing
- Aerospace Engineering
- Tool Making
- Automotive Repair and Maintenance

1.4 Pre-Vocational Programme (PLP)

Pre-Vocational Programme is offered to students who do not meet the minimum requirements to study a particular course. One-year foundational course to prepare students for further study at a TVET College. This applies to learners who left school at Grades 9, 10, and 11 who did not meet the entry criteria for a specific course.

- The programme prepares the students for entry into vocational or occupational studies.
- It is a non-credit qualification based on Foundation English, Foundation Mathematics, Foundation Science, and Foundation Life Skills.
- However, it is not a repeat programme, but it aims to provide access to TVET Programmes.

Subjects
<ul style="list-style-type: none"> • Foundational Mathematics • Foundational Science • Foundational English • Foundational Life Orientation

Programme Outcome

It is a beneficial one-year course as it covers the most basic knowledge needed for a certain course. More than half of the students enrolling for the Pre-Vocational Programme make it through to the next level. Therefore, giving a guarantee that the course has a more positive outcome for students.

Examinations

Internal examinations

