



RHODESFIELD

Engineering School of
Specialisation



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Rhodesfield Engineering School of Specialisation, is a place where people grow. At Rhodesfield, we provide learners with the opportunity to bring their textbooks to life with our “hands-on” approach to teaching and learning.

We are an English medium school which offers: An academically decorated staff, STEM focused and technical streams, we offer a full range of technical subjects including; Engineering Graphics and Design; Technical Mathematics and Sciences; Electrical Technology; Civil Technology and Mechanical Technology (Fitting and Turning; Automotive; Welding), Workshops second to none and a wide range of sport and cultural activities.

ABOUT US

The school was identified to focus on aviation because of its proximity to OR Tambo International Airport. Then it has recently been changed to a school specializing in engineering.

OUR PEOPLE

School Management Team / School Governing Body / Educators / Administration Staff / General Assistants aim to create a safe and conducive environment for our learning. So that we help create the best engineering minds.

CURRICULUM

Grade 8 & 9 subjects

Grade 10 – 12 subjects

Technical Subjects offered.

Engineering Graphic and Design / Mechanical Technology: Automotive, Fitting & Machining, Welding & Metalwork / Civil Technology: Woodworking, Construction / Electrical Technology: Power Systems

Co-Curricular Activities.

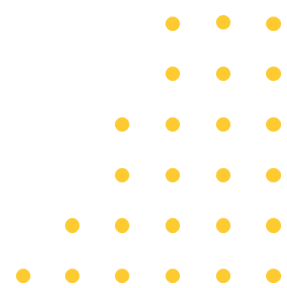
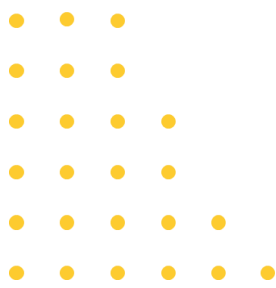
SPORT & CULTURE

Sport: Rugby / Soccer / Netball / Athletics

CULTURE

Culture: SoS Festival / industry Field Trips

CONTACTS



About us - SOS



A Mirage V airframe is on display at the front entrance of the school

In 2018 former Gauteng Education MEC Panyaza Lesufi launched Rhodesfield Technical High School as the first Engineering School of Specialisation with an aviation-focused Curriculum. Rhodesfield is one of 36 schools in the province identified and converted into Schools of Specialisation (SoS).

The launch of school as a School of Specialisation followed the opening of Curtis Nkondo School of Specialisation in Emndeni in 2016, Magaliesburg School of Specialisation in 2017 and of Nuclear Technology Schools of Specialisation (NTSOS) in April.

The introduction of schools of specialisation aims to assist in addressing critical skills shortages in South Africa. These schools will offer a highly specialised curriculum and will target top performing learners across the province," said Lesufi. "Schools of Specialisation (SoS) also seek to nurture the development of top talent in South Africa across key disciplines, breeding the country's future generation of leaders."

Rhodesfield was first established in 1975 for learners to study auto mechanic, electrical engineering and woodwork, among others, and now 50 years later, it has been redesigned to serve as a pipeline for the full value chain of the aviation and Engineering industry.



Former Gauteng Education MEC Panyaza Lesufi and former Minister of Basic Education Angie Motshekga were among the guests at the launch of Rhodesfield Technical High School as an Engineering School of Specialisation -focused Curriculum

About us - SOS

The school was identified to focus on aviation because of its proximity to OR Tambo International Airport. Our former principal at the time, said: "I am proud and very excited about the new venture we are going to face in the coming future. Our learners were always interested in engineering but now a whole new life has opened for them and now all of them want to become pilots. We are very excited and look forward to working with our partners and stakeholders. This will definitely benefit our learners and create more opportunities for them." More than 7 years from the launch, the school is still committed to seeing the idea and vision of making a great impact in South Africa through engineering and aviation.

The prestigious event started when members of Kempton Park SAPS assisted learners to hoist the South African and African Union flags with the school choir singing the national anthem. Former Gauteng Education MEC Lesufi, alongside former Minister of Basic Education Angie Motshekga, presided over the official unveiling of a Mirage V airframe donated by Paramount Group to mark the official launch of the school. The Mirage V is on display at the front entrance of the school.



Betty Maloka, strategic communication, and stakeholder engagement at Paramount Group, represented Paramount at the event. MEC Panyaza Lesufi shared words of gratitude for the donation and partnership

"The pool of students who can potentially access university and science-based TVET programs is very small in comparison to the skill demands in the country. Hence the need for Schools of Specialisation such as this one is indeed a catalyst for the future of basic education Skills shortages have been an issue for South Africa for some time now, and this is further compounded by the growing need for technical and digital skills. The introduction of SoS schools is part of Gauteng Department of Education (GDE)'s reorganization of schools programs which takes its lead from the National Development Plan (NDP).," said Motshekga.

The event was attended by a number of guests who joined the learners in celebrating the milestone. The learners rendered top-class items during the program in the school hall as a way to celebrate and show their appreciation of the venture. Guests also enjoyed the exhibition put up in and outside the school's workshop by Rhodesfield learners



Our People

OUR PEOPLE

At Rhodesfield, we have a staff of over 100. We have a strong, skilled and qualified Management Team, School Governing Body, Educators, Administration Staff and General Assistance

SCHOOL MANAGEMENT TEAM



Vacant
Principal



Mr. M Makabane
Deputy Principal



Mrs. C. Ngxanga
Deputy Principal



Mrs. M Maphosa
DH: Senior Phase



Mrs. C Bushman
DH: English HL



Mrs. K Fosu
DH: Afrikaans FAL



Mrs. N. Sebogoane
DH: Mathematics



Mrs. T Mabaso
DH: Sciences



Vacant
DH: Technical



Mr. S Tshamaano
DH: EGD &
Technology



Ms Kunene
DH: LO

Our People

AFRIKAANS (FAL) DEPARTMENT



Me. J Marobela



Mr. M Lombard



Ms. J Mashimbye



Me. H More



Ms Kruger



Me. Shihlomula

SENIOR PHASE DEPARMENT



Ms. M Makua



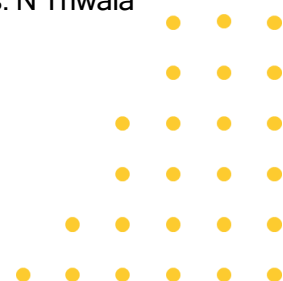
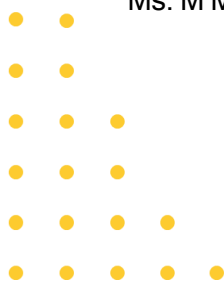
Mr. K Dlungwane



Ms. L Musheche



Ms. N Thwala



Our People

ENGLISH (HL) DEPARTMENT



Ms. L Dludlu



Mrs. T Mabuza



Ms. L Mphela



Mr. C Mutindi



Ms. X Myeni



Ms. T Mbali



Mrs. S Mowela

LIFE ORIENTATION DEPARTMENT



Mrs. Z Gangxa



Mr. L Phetshula



Ms. Z Mciza

Our People

MATHEMATICS DEPARTMENT



Mr. F Langa



Mrs. S Sibanda



Mrs. N Ramaloko



Mr. J Moyo



Mr. T Shumba



Mrs. N Mchunu

SCIENCE DEPARTMENT



Mrs. P. Kunene



Mr. T Mnkandla



Mr. S Pitseng



Mrs. I Venter

Our People



Ms. G Skosana



Mrs. I Mahlaela



Mr. J Moyo

ENGINEERING GRAPHIC AND DESIGN & TECHNOLOGY DEPARTMENT



Mr. L Mdlalose



Ms. C Ngobeni



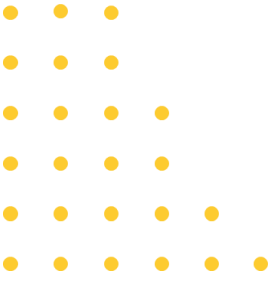
Mr. B Lekoane



Ms. Z Mangesi



Mr. T Modika



Our People

TECHNICAL DEPARTMENT



Ms. K Molekwa
Automotive



Mr. S Ngwenya
Woodworking



Mr. K Sebothoma
Power Systems



Mr. M Mofokeng
Welding & Metal work



Mrs. M Shivambu
Fitting & Turning



Ms. E Chemhuru
Construction

ADMINISTRATION STAFF



Me. I Nnawe
Finance



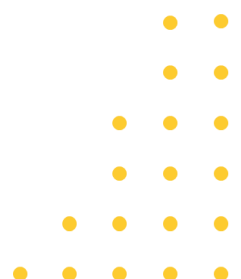
Mr L. Gwebu
Admin Clerk



Me. O Mabusela
Finance



Mr. C Pretorius
Receptionist



Our People



Ms. J Sedie
Data Capturer

GENERAL ASSISTANTS



Mr. T Cele



Mr. V Dlamini



Mr. G Halom



Ms. C Khubeka



Mr. V Lamola



Mr. C Simelane



Mr. W Letageng



Ms. J Mntambo
Admin Assistant



Our People



Mr. S Mashigo



Mr. M Masilela



Ms. P Mathenjwa



Mr. B Matlou



Ms. L Sangweni



Ms. P Mhlongo



Ms. O Skhosana
Print Operator



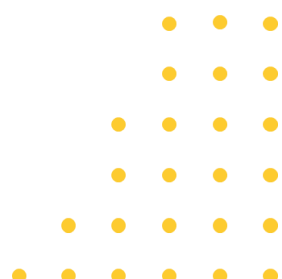
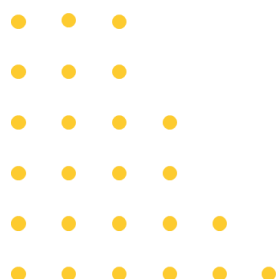
Mr. M Mohale



Mr. S Mchunu
Driver



Mr TD Mmata



Curriculum

GRADE 8 & 9

SAME SUBJECTS AS IN GRADE 7

- English (Home Language)
- Afrikaans (First Additional Language)
- Mathematics
- Life Orientation
- Social Sciences
- Natural Sciences
- Economic and Management Sciences
- Creative Arts
- Technology

GRADE 10 – 12

Compulsory

- English (Home Language)
- Afrikaans (First Additional Language)
- Mathematics / Technical Maths
- Physical Science / Technical Science
- Life Orientation
- Engineering Graphics and Design
- Technology

Choice subjects *(choose 1 only)*

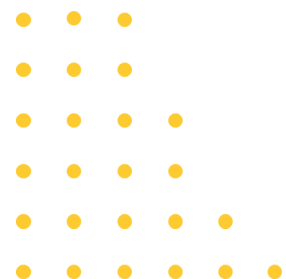
- Mechanical Technology : Automotive
: Fitting and Machining
: Welding and Metalwork
- Electrical Technology : Power Systems
- Civil Technology : Woodworking
: Construction

ADDITIONAL 8TH SUBJECT

- Geography

CO-CURRICULA ACTIVITIES

- Robotics club
- Multi-skills club (Career guidance in Aviation)
- Entrepreneur club
- Drone club



Curriculum

ENGINEERING GRAPHIC AND DESIGN

INTRODUCTION TO ENGINEERING GRAPHICS AND DESIGN (EGD)

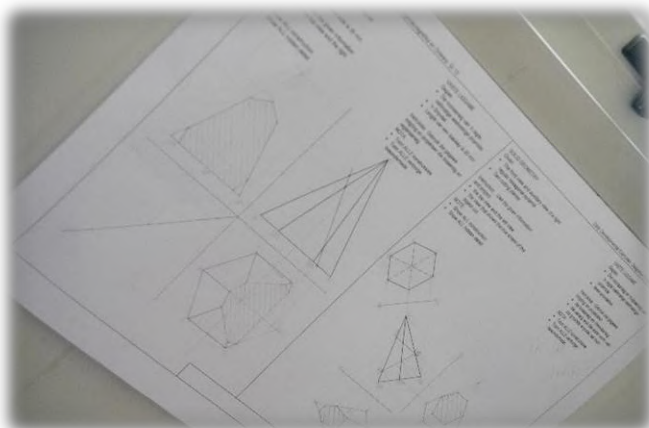
Engineering Graphics and Design (EGD) teaches internationally acknowledged principles that have both academic and technical applications. The emphasis in EGD is on teaching specific basic knowledge and various drawing techniques and skills so that the EGD learners will be able to interpret and produce drawings within the contexts of Mechanical Technology, Civil Technology and Electrical Technology.

THE MAIN TOPICS OF EGD:

- General drawing principles for all technological drawings
- Free-hand drawing
- Instrument drawing
- First- and third-angle orthographic projections
- Descriptive and solid geometry
- Mechanical working drawing
- Civil working drawing
- Isometric drawing
- Perspective drawing
- Electrical diagrams
- Interpenetrations and developments
- Loci of helixes, cams and mechanisms
- The Design Process
- CAD (Computer-Aided Drawing/Design).

THE SPECIFIC AIMS OF EGD ARE TO TEACH THE FOLLOWING:

- Graphical drawings as the primary means of communication in the technological world
- Specific basic content and concepts within the contexts of Mechanical Technology, Civil Technology and Electrical Technology
- Various instrument and freehand drawing techniques and skills
- Solving technological problems through graphical drawings
- The application of the Design Process
- The implementation of CAD (Computer Aided Drawings/Design) as a drawing method.



- The minimum requirements for each EGD learner are:
 - ✓ An approved EGD textbook with self-explanatory examples and exercises for each topic
NOTE: A workbook/work file may only be used in conjunction with a textbook and not as a substitution for a textbook.
 - ✓ Learners must also purchase their own full engineering drawing set.

Curriculum

MECHANICAL TECHNOLOGY AUTOMOTIVE

WHAT IS MOTOR MECHANICS?

Motor mechanics introduces students to the fundamentals of vehicle technology and equips them with the necessary confidence to perform basic tasks related to, for example, vehicle components, engines, gearboxes, fuel systems, body components and electronic systems. The tasks are limited to removal, cleaning, servicing (replenishing of fluid) and fitting.



TOPICS TO BE STUDIED IN MOTOR MECHANICS

- Safety
- Hand tools
- First Aid: HIV / AIDS
- Measuring equipment
- Power tools
- Vehicle lifting equipment
- Automotive batteries
- Lubrication
- Engine technology
- Automotive components
- Mechanical components
- Servicing
- Inspection and lubrication
- Basic hydraulic components
- Basic welding / joining of metals

Curriculum



SPECIFIC AIMS

The learner is able to:

- Demonstrate safety practise in the workshop
- Use and care for hand tools
- Understand and deal with First Aid in the context of HIV / AIDS
- Use and care for measuring equipment
- Explain fundamental engine technology
- Remove and fit automotive components
- Assemble mechanical components
- Carry out an automotive service
- Inspect and lubricate a vehicle
- Use and care for power tools
- Use vehicle lifting equipment
- Identify and maintain automotive batteries
- Lubrication vehicle components
- Identify and repair basic hydraulic components
- Use basic welding / joining of metal to repair components

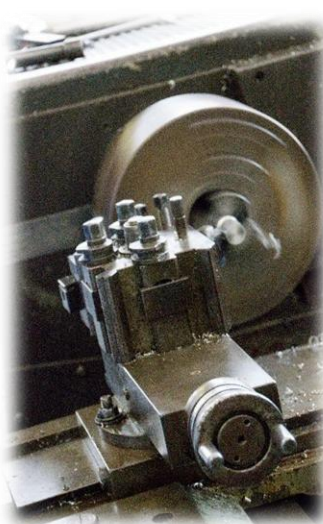


Curriculum

MECHANICAL TECHNOLOGY FITTING AND MACHINING

WHAT IS FITTING & MACHINING?

Focuses on the manufacturing and machining of machines parts using processes such as lathe turning, milling, cutting, shaping, fitting of keys, couplings, bushes, shafts and bearings.



Turning is a machining process in which a cutting tool, typically a non-rotary tool bit, moves more or less linearly while the work piece rotates. Turning can be done manually, in a traditional form of lathe, or by using an automated lathe. Today the most common type of such automation is computer numerical control, better known as CNC. (CNC is also commonly used with many other types of machining besides turning. When turning, a piece of relatively rigid material is rotated and a cutting tool is traversed along axes of motion to produce precise diameters and depths. Turning can be either on the outside of the cylinder or on the inside (also known as to produce tubular components of various geometries.

The turning processes are typically carried out on a lathe, considered to be the oldest machine tools, and can be of four different types, namely straight turning, taper turning, profiling or external grooving. These types of turning processes can produce various shapes of materials such as straight, conical, curved or grooved work pieces. In general, turning uses simple, single-point cutting tools. Each group of work piece materials have an optimum set of tool angles which have been developed through the years.



Curriculum

Milling operates on the principle of rotary motion. A milling cutter is spun about an axis while a work piece is advanced through it in such a way that the cutters are able to shave chips of material. This non-continuous cutting operation means that no surface cut by a milling machine will ever be completely smooth; at a very close level (microscopic for very fine feed rates), it will always contain regular ridges.

WHO IS BEST SUITED FOR FITTING & MACHINING?

The Fitting and Machining pathway course is for individuals whose duties include performing engineering measurements, calculations, planning activities, a range of cutting processes, use drawings and mark out, maintain drives, and precision work, use lathes and mills.

Possible career opportunities for graduates include:

- Mechanical Engineer
- Fitter Machinist
- Fitter and Turner
- Mechanical Fitter
- Maintenance Fitter
- Tool And Die Maker

MECHANICAL TECHNOLOGY WELDING AND METALWORK

INTRODUCTION TO BASIC WELDING AND METAL WORK

DEFINITION

Nearly everything we use in our daily life is welded or made by equipment that is welded. Welders help build metal products from furniture to buildings. The use of welding is practically unlimited and there is no lack of variety of the type of work that is done.

Welding is defined as a process for joining similar metals. Welding joins metals by melting and fusing: 1. the base metals being joined and 2. the filler metal applied. Welding employs pinpointed, localized heat input. Most welding involves ferrous based metals such as steel and stainless steel.

PURPOSE

The Basic Welding and Metalwork qualification is to provide learners with the standards and the range of skills required to work effectively in the welding industry and to meet the challenges of the welding and metalwork environment in South Africa.



Curriculum



This Qualification recognises the basic skills, knowledge and values acquired by learners to do welding. The purpose of this Qualification is to develop learners who, after completion, demonstrate the ability to:

- Use and apply basic mechanical and welding technology, techniques, processes and skills, as applied in the manufacturing and welding industry, using appropriate tools and measuring equipment.
- Use and apply a variety of basic fillet welding, oxy-fuel cutting and oxy-fuel joining processes.
- Demonstrate basic knowledge of welding and its productive requirements, by applying appropriate work-procedures safely.
- Communicate (speak and demonstrate) effectively in order to achieve personal, business and organizational objectives by reading of basic words and understanding pictures and interpreting basic work instructions and drawings, maintaining effective relationships; exploring options for further learning. (These functions may require mediation.)

UNIQUE FEATURES AND SCOPE

The Basic Welding and Metalwork qualification gives learners the opportunity to:

- develop basic skills and knowledge necessary to begin a career in the welding industry
- produce products that will meet a wide variety of exacting customer and consumer requirements
- join material that is subjected to considerable stress using consistent and accurate welding processes.
- develop, a career path with greater security of employment within the welding industry.
- obtain Recognition of Prior Learning for the basic skills and knowledge gained to be used for further qualification when employed in the welding industry

Curriculum

ELECTRICAL TECHNOLOGY POWER SYSTEMS

WHAT IS ELECTRICAL TECHNOLOGY?

Electrical Technology focuses on the understanding and application of electrical and electronic principles. The subject focuses on three main areas of specialisation, namely:

- Electrical (Power Systems)
- Electronics
- Digital Electronics

CAREER OPPORTUNITIES IN ELECTRICAL TECHNOLOGY

Electrical Technology unlocks a world of potential opportunities to any learner taking the subject. Owing to the nature of electrical Technology, it is easy and relatively cheap to setup and operate an electrical/electronic/digital workshop at home for the purpose of starting a business or to practise a hobby for personal gain.

Learners that opt for careers not related to the subject will have sufficient knowledge and skills at the end of Grade12 to continue experimenting for the purpose of self-tuition and the practice of electrical technique.



Learners taking Electrical Technology will opt for one of the following study opportunities:

- Apprenticeship to become an artisan
- Study at a FET college in a vocational career pathway
- Enter higher education at a University of Technology or any academic University
- Enter the world of work as an entrepreneur or working with an entrepreneur
- Enter higher education to study technical education in order to become a technical teacher.

Career and life experience opportunities that exist for learners with a foundation in Electrical Technology include:

- | | |
|---|------------------------------------|
| • Electrical fitter | • Cell phone technician |
| • Electrical or electronic engineer | • Communications technician |
| • Electrical draughtsperson | • PLC programming expert |
| • Electrical or electronic technician | • Electronics programming engineer |
| • Electrical or electronic technologist | • Computer technician |
| • Digital / software engineer | • Robotics engineer |
| | • Mechatronics technician |

Curriculum



SPECIFIC AIMS

Electrical Technology as a whole aims to equip the learner with a firm foundation in electronic and electrical principles which has been translated from a knowledge base into practical skills by the end of Grade 12. Through the integrated completion of theoretical work, practical assessment tasks (PAT) and simulations the following skills are developed:

- safe work practices
- good housekeeping
- first aid practices
- interpreting circuit diagrams
- sourcing components
- constructing circuits
- installation, testing and troubleshooting of circuits
- taking measurements
- workshop practice

Knowledge of subject principles combined with applied electrical skills equips the electrical Technology learner with a unique set of skills, placing her/him apart from other learners and in a category much desired by industry, tertiary institutions and entrepreneurs. Learners with electrical Technology markedly fare better, during the first two years at tertiary level when studying engineering, than learners without this background, giving them the advantage when studying engineering. The need for skilled workers in South Africa has been outlined numerous times in national strategies such as the National Skills Fund (NSF), ASGISA and more.

The aim is to develop the skills levels of learners from Grade 10-12 to such an extent that they are able to enter a career pathway as soon as possible. Despite portability issues into NCV courses, learners with electrical Technology are able to enter the world of work as an apprentice or enter into a learnership following matriculation.



Curriculum

CIVIL TECHNOLOGY WOODWORKING / CONSTRUCTION

CAREER OPPORTUNITIES

Learners offering Civil Technology will opt for one of the following career opportunities:

- apprenticeship to become an artisan;
- continued studies at a college in the NC(V) in a vocational career pathway;
- higher education at a university of technology;
- higher education at a university (to study engineering);
- working as an entrepreneur or working with an entrepreneur; or
- Higher education to study technical education in order to become a teacher of technology.

Career and life experience opportunities for learners with a foundation in Civil Technology include those of:

- carpenter and joiner;
- bricklayer;
- tiler;
- painter;
- plumber;
- drain layer;
- roof specialist;
- cabinet maker;
- shutter hand;
- building inspector;
- quantity surveyor;
- architect;
- draughtsman;
- building surveyor;
- building technician;
- civil engineer;
- structural engineer; or
- civil technology teacher

SPECIFIC AIMS

The aim of the subject Civil Technology is to develop the skills levels of learners from Grade 10-12 to such an extent that they will be able to enter a career pathway at a Further Education and Training College or a university immediately after obtaining the National Senior Certificate. Learners will be ready to enter into learnerships or apprenticeships that will prepare them for a trade test.



Curriculum

WHAT IS CIVIL TECHNOLOGY?

Civil Technology focuses on concepts and principles in the built environment and on the technological process. It embraces practical skills and the application of scientific principles. This subject aims to create and improve the built environment to enhance the quality of life of the individual and society and to ensure the sustainable use of the natural environment. The subject focuses on three main areas, namely:

- civil services.
- construction; and
- woodworking.

TOPICS TO BE STUDIED IN CIVIL TECHNOLOGY

- Methods of construction of joinery
- Methods of installation of joinery
- Designing of wooden structures for buildings
- Methods of sustaining wooden installations in a building
- Tools and equipment used in the building industry
- Woodwork joints
- Roof construction
- Materials: properties and uses
- Construction: from foundation to wall plate level
- Applied mechanics
- Steel structures
- Quantity surveying
- Graphics and communication
- Sewage and storm-water disposal
- Water supply
- Sanitary fittings and fitments
- Hot water systems
- Reticulation systems



Sport

We at Rhodesfield believe that integrating sports into the educational system is crucial for fostering a well-rounded Learner prepared for both academic and life challenges. Sports provide opportunities to develop essential skills such as Communication, cooperation, discipline, perseverance and goal setting. Here at Rhodesfield, we offer the following sports disciplines **Soccer; Netball; Rugby and Athletics.**



Culture

SOS FESTIVAL

Every year the Gauteng Department of Education (GDE) host the annual Schools of Specialisation festival to showcase the talents and innovation of learners from all its 36 SoS school. The aim of the festival is to celebrate and the excellence through creativity, and skills of the learners through their best projects, or demonstrations of their skills.



Industry Field Trips

We at Rhodesfield strive to expose our learners to the industry environment by partnering with companies in the aviation and engineering field. We as a school try to regularly send our learners on trips, where learners are offered practical real – world learning experiences that complement classroom knowledge. These initiatives bridge the gap between theory and practice, allowing learners to observe, interact with professionals, and gain insight into their chosen fields.



Contact us

Please contact us for more information about our school. Also feel free to contact us to tell us what you liked about us and how we could improve it.

CONTACT NUMBERS

Switchboard 011 970 1229
011 970 1236
011 970 1287

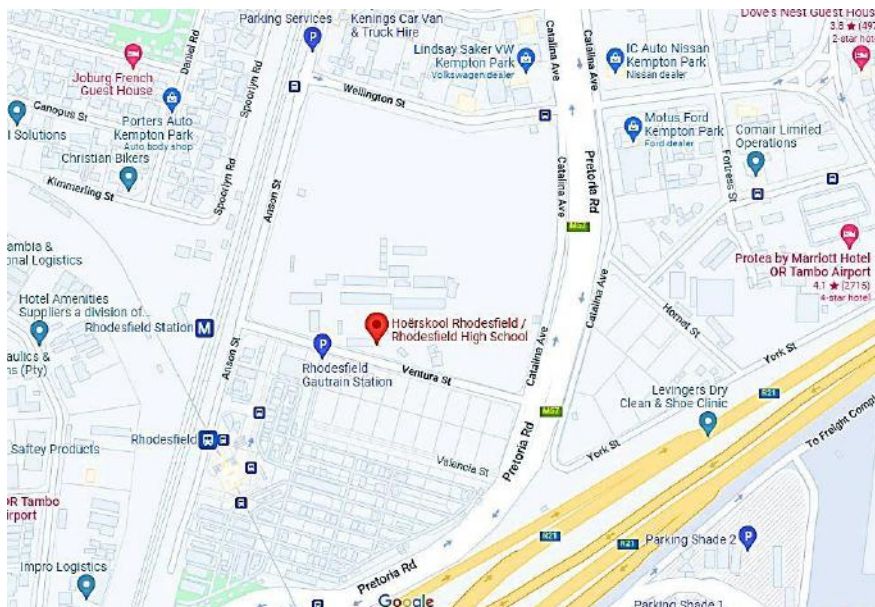
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Finance finance@rhodesfield.co.za
Orders orders@rhodesfield.co.za
Admissions meeting@rhodesfield.co.za
Enquiries enquiries@rhodesfield.co.za

ADDRESS



Ventura Street, Rhodesfield, Kempton Park, 1619

ENGINEERING IS NOT A SUBJECT,
IT'S A MINDSET.