REPUBLIC OF SOUTH AFRICA

ADMINISTRATION: HOUSE OF ASSEMBLY

DEPARTMENT OF EDUCATION AND CULTURE

POST-SCHOOL EDUCATION IN TECHNICAL COLLEGES

NATIONAL EXAMINATIONS

S Y L L A B U S

FOR

VENTILATION, GASES AND DUST AND REGULATIONS

N1

DATE OF IMPLEMENTATION:
SEPTEMBER 1989

DATE OF FIRST EXAMINATION:
NOVEMBER 1989

1. GENERAL AIMS IN VENTILATION, GASES AND DUST AND REGULATIONS N1

1.1 The direction of study at Technical Colleges requires, inter alia, that students obtain a comprehensive insight into the following:

1.1.1 meaningful participation in, experience of and the giving of meaning to that which is embodied in a Christian-National lifestyle;

1.1.2 industry as part of society in its totality;

1.1.3 the extension of vocational education within the bounds of existing technological and cultural programmes.

1.2 The teaching of this subject should provide bridging possibilities between general preparatory academic education and post-school education.

1.3 Pupils who leave the formal education system too soon, should be admitted to Technical Colleges until they have achieved the academic standard required for entrance to the specific examination.

1.4 The course will be directed at students who have already been exposed to the practical component, and who wish to improve their academic background through the adult education system.

2. SPECIFIC AIMS IN VENTILATION, GASES AND DUST AND REGULATIONS N1

2.1 Knowledge, application and insight are important aspects in this subject and the approximate allocation in each paper should be:

KNOWLEDGE	APPLICATION	INSIGHT
60 %	30 %	10 %

2.2 The subject will realistically prepare the student for entrance to the Blasting Certificate examination.

2.3 The lecturer should utilise the practical experience of his students to create a better understanding of the academic work.

2.4 Evaluation of the students must be done on a continuous basis and wherever possible, practical tests should be written.

2.5 Students must be encouraged to think logically and to work neatly, accurately and systematically.

3. SUBJECT AIMS IN VENTILATION, GASES AND DUST AND REGULATIONS N1

On completion of the subject Ventilation, Gases and Dust and Regulations, the student should:

3.1 have a thorough understanding of some definitions from the Mines and Works Act and Regulations pertaining to ventilation, gases and dust and regulations and be familiar with the most important ventilation concepts and terminology,

3.2 be able to do basic mathematical calculations to determine the velocity and quantity of ventilation,

3.3 be able to describe four ventilation instruments as well as the proper use thereof,

3.4 be competent to draw a basic ventilation layout on a simple mine plan,

3.5 be aware of the origin, detection method and dangers of the most dangerous gases that may be found underground,

3.6 know the main causes and prevention of dust underground,

3.7 be able to identify a situation and apply the specific regulation.

4. SYLLABUS FOR VENTILATION, GASES AND DUST AND REGULATIONS N1

4.1 There must be an understanding of the following basic ventilation concepts:

Intake
Return
Ventilation Doors
Ventilation Brattices
Ventilation Regulators
Fans

4.2 Basic ventilation formulae must be used to calculate velocity and quantity.

4.3 The use of the following ventilation instruments must be demonstrated and their purpose explained:

Whirling Hygrometer
Kata Thermometer
Methanometer
Konimeter

4.4 A basic ventilation layout which involves the following must be drawn:

Downcast Shaft
Upcast Shaft
Haulage
Return Airway
Development end
Stope

4.5 The origin, method of detection and dangers of the following gases must be known:

Carbon Monoxide
Carbon Dioxide
Methane
Nitrous fumes
Hydrogen Sulphide

4.6 Students must be conversant with the main causes of dust underground such as drilling, blasting and cleaning and should also know how the formation of dust is prevented during these activities.

4.7 MINES AND WORKS REGULATIONS

4.7.1 Regulation 8. 5. 1 Flammable gas - no work.

8. 5. 2 Exception.

8. 6	use of electrical apparatus where flammable gas is found.
8. 9. 4	Examination and making safe by miner.
8. 9. 9	Test for flammable gas.
8. 9.10	Test for flammable gas.
8.10.41	No entry until fumes dissipated.
8.10.42	Water blast.
8.10.43	Re-entry in metalliferous mine or diamond mine.
8.10.44	Blasting at a time to be fired by manager.
8.11	Gassing to be reported.

REPUBLIEK VAN SUID-AFRIKA

ADMINISTRASIE: VOLKSRAAD

DEPARTEMENT VAN ONDERWYS EN KULTUUR

NASKOOLSE ONDERWYS IN TEGNIESE KOLLEGES

NASIONALE EKSAMENS

S I L L A B U S

VIR

VENTILASIE, GASSE EN STOF EN REGULASIES

N1

IMPLEMENTERINGSDATUM:
SEPTEMBER 1989

EERSTE EKSAMENDATUM:
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1. ALGEMENE DOELSTELLINGS IN VENTILASIE, GASSE EN STOF EN REGULASIES N1

1.1 Die studierigting aan Tegniese Kolleges vereis onder andere ook dat studente 'n omvattende insig verkry in:

1.1.1 sinvolle betrokkenheid, belewenis en betekenisgewing wat in 'n Christelik-Nasionaal genormeerde lewenswyse gestalte kry;

1.1.2 die nywerheid as deelversameling van die samelewing in totaliteit; en

1.1.3 die uitbouing van beroepsonderwys binne die eise van die hedendaagse tegnologiese kultuurpatroon.

1.2 Die onderrig van hierdie vak behoort oorgangsmoontlikhede tussen algemeenvormende voorbereidende akademiese onderwys en naskoolse onderwys te skep.

1.3 Leerlinge wat die skoolstelsel te vroeg verlaat, behoort in Tegniese Kolleges opgeneem te word totdat hulle die nodige onderwysstandaard bereik het vir toelating tot die spesifieke eksamen.

1.4 Die kursus word geskoei op studente wat alreeds blootgestel is aan die praktiese komponent en wat hulle akademiese agtergrond wil verbeter deur middel van die volwasse opleidingstelsel.

2. SPESIFIEKE DOELSTELLINGS IN VENTILASIE, GASSE EN STOF EN REGULASIES N1

2.1 Kennis, toepassing en insig is belangrike aspekte in hierdie vak en die verdeling hiervan behoort in elke vraestel naastenby soos volg te wees:

KENNIS	TOEPASSING	INSIG
60 %	30 %	10 %

2.2 Die vakke sal die student realisties voorberei vir toelating tot die Skietsertifikaat-eksamen.

2.3 Die lektor moet die praktiese ervaring van sy studente aanwend om 'n beter begrip te bewerkstellig van die akademiese werk.

2.4 Evaluering van die studente moet op 'n gereelde basis gedoen word, waar moontlik, en praktiese toetse moet afgelê word.

2.5 Studente moet aangemoedig word om logies te dink en om netjies, akkuraat en sistematies te werk.

3. VAKDOELWITTE IN VENTILASIE, GASSE EN STOF EN REGULASIES N1

Na afloop van die vak behoort die student:

3.1 'n deeglike kennis te he van sekere definisies vanuit die Wet op Myne en Bedrywe en Regulasies met betrekking tot ventilasie, gasse en stof en regulasies bekend te wees met die belangrikste konsepte en terminologie in ventilasie,

3.2 die basiese wiskundige berekeninge te kan doen om die snelheid en hoeveelheid van ventilasie te kan bepaal,

3.3 die vier ventilasie instrumente sowel as die gebruik daarvan te kan beskryf,

3.4 bevoegd te wees om 'n basiese ventilasie uitleg te teken op 'n eenvoudige plan van 'n myn,

3.5 bewus te wees van die oorsprong, die bespeuringsmetodes en die gevare van die gevaarlikste gasse wat ondergrond gevind kan word,

3.6 die hoofoorsake en voorkoming van stof ondergrond te ken,

3.7 'n situasie te identifiseer en die spesifieke regulasie toe te pas.

4. SILLABUS VIR DIE VAK VENTILASIE, GASSE EN STOF EN REGULASIES N1

4.1 Die volgende basiese ventilasiekonsepte moet verstaan word:

Intrek
Uittrek
Ventilasiedeure
Ventilasie-afskortings
Ventelasiereëlaars
Waaiers

4.2 Basiese ventilasieformules moet gebruik word om snelheid en hoeveelheid te bereken.

4.3 Die gebruik van die volgende ventilasie-instrumente moet gedemonstreer word en die doel daarvan verduidelik word:

Swaaihigrometer
Katatermometer
Metaanmeter
Konimeter

4.4 'n Basiese ventilasie-uitleg wat die volgende bevat moet geteken word:

Aftrekskag
Optrekskag
Vervoerweg
Uittrekluggang
Ontsluitgang
Afbouplek

4.5 Die oorsprong, metode van bespeuring en gevare van die volgende gasse moet bekend wees:

Koolstofmonoksied
Koolstofdioksied
Metaan
Nitrosedampe
Waterstofsulfied

4.6 Studente moet vertroud wees met die hoofredes van stof ondergrond soos boorwerk, skietwerk en skoonmaak en moet weet hoe die formasie van stof gedurende die aktiwiteite voorkom kan word.

4.7 MYNE- EN BEDRYWEREGULASIES

4.7.1 Regulasie 8. 5. 1 Ontvlambare gas - geen werk.

8. 5. 2 Uitsondering.

8. 6 Gebruik van elektriese toestelle waar ontvlambare gas aangetref word.

8. 9. 4 Ondersoek en beveiliging deur die myner.

8. 9. 9 Toets vir ontvlambare gas.

8. 9.10 Toets vir ontvlambare gas.

8.10.41 Binnegaan belet totdat dampe verstrooi is.

8.10.42 Druklugwatersproeier.

8.10.43 Heringang in beheerde metaalhoudende myn of beheerde diamantmyn.

8.10.44 Skietwerk op 'n tyd deur bestuurder bepaal.

8.11 Vergassing moet gerapporteer word.