ELECTRICAL TECHNOLOGY

Dear grade 12 Electrical Technology learner

To succeed at the end of the year it is very important to keep on learning and applying the prescribed key concepts in Electrical Technology in the different themes and apply the theory in the making of the Practical Assessment Task (PAT)

Basic requirements for the subject
Textbook, calculator, drawing instruments, dustcoat.

Content Checklist
Below is a checklist you should use to ensure that you have covered the Grade 12 Electrical Technology content in full.

Electrical Technology (Power Systems)

- **Occupational Health and Safety**
  The consequences of the OHS Act, risk assessments, human rights in the workplace, work ethics and emergencies
- **RLC**
  The effect of AC on series and parallel RLC Circuits
- **Three Phase AC Generation**
  Power in three phase systems, measurements and calculations
- **Three Phase Transformers**
  Principle of operation, calculations and applications
- **Three Phase Motors & Starters**
  Principle of operation, testing and commissioning and starters
- **Programmable Logic Controllers (PLC)**
  Motor control using the PLC and Variable Speed Drives (VSD)

Electrical Technology (Electronics)

- **Occupational Health and Safety**
  The consequences of the OHS Act, risk assessments, human rights in the workplace, work ethics and emergencies
- **RLC**
  The effect of AC on series and parallel RLC Circuits
- **Semiconductor Devices**
  Introduction to the FET, UJT, Darlington, 741 op – Amp and 555 Timer
- **Switching Circuits**
  Electronic Switching circuits using the 555 Timer and the 741 Op – Amp
- **Amplifiers**
  Principle of operation and application of discrete component amplifiers and oscillators.

Electrical Technology (Digital Electronics)

- **Occupational Health and Safety**
  The consequences of the OHS Act, risk assessments, human rights in the workplace, work ethics and emergencies
- **Semiconductor Devices**
  Introduction to the 741 Op–Amp and 555 Timer.
- **Switching Circuits**
  Electronic Switching circuits using the 555 Timer and the 741 Op – Amp.
- **Digital and Sequential Devices**
  Elementary principle of memory elements, counters and registers.
- **Introduction to Microcontrollers**
  The basic structure of microcontrollers, communication protocols, algorithms and flowcharts.

Assessment

School Base Assessment	**(25%)**
Term 1: Assignment	50 marks
Term 2: Examination	200 marks
Term 3: Preparatory examination	200 marks
Total	**450 converted to 100 marks**

Practical assessment Task (PAT)	**(25%)**
Term 1: Simulation 1	50 marks
Term 2: Simulation 2	50 marks
Term (1-3): Project	150 marks
Total	**250 converted to 100marks**

External examination (50%) 3 hours	**200 marks**

Power Systems:

Topic	**Grade 12**	
	Percentage	Marks (+/-4)
Multiple Choice – choose correct answer	7.5%	15
Occupational Health and Safety	5%	10
RLC	17.5%	35
Three Phase AC Generation	17.5%	35
Three Phase Transformers	15%	30
Motors and Starters	17.5%	35
Programmable Logic Controllers	20%	40
Total	**100%**	**200 Marks**

Electronics:

Topic	**Grade 12**	
	Percentage	Marks (+/-4)
Multiple Choice – choose correct answer	7.5%	15
Occupational Health and Safety	5%	10
RLC	17.5%	35
Semiconductor Devices	22.5%	45
Digital and Sequential Devices	25%	50
Microcontrollers	22.5%	45
Total	**100%**	**200 Marks**

Digital Electronics:

Topic	**Grade 12**	
	Percentage	Marks (+/-4)
Multiple Choice – choose correct answer	7.5%	15
Occupational Health and Safety	5%	10
Switching Circuits	25%	50
Semiconductor Devices	10%	20
Digital and Sequential Devices	27.5%	55
Microcontrollers	25%	50
Total	**100%**	**200 Marks**

The school base assessment tasks and PAT's prepare you for your final examinations. Make sure that you hand in all your tasks. This will give you a god chance of passing and doing well.

Tips for Success

- Ask your teacher for the content framework for Grade 12 Electrical Technology. This will give you the detailed content. Paste it in your exercise book.
- Tick off every topic as it is taught in class, and write the relevant text book page numbers next to the topic.
- Make sure you can manipulate formula and solve problems.
- Systematically work through your Electrical Technology text book and your prescribed Practical Assessment Tasks

WCED eportal:
https://wcedeportal.co.za/grade12-subject-support