Dear Grade 12 Mechanical Technology learner

To succeed at the end of the year it is very important to keep on learning and applying the prescribed key concepts of Mechanical Technology in the different themes and applying the theory in the making of the PAT.

**Basic requirements for the subject**
- Textbook, calculator, drawing instruments, dust coat.

**Content Checklist**
- (Generic sections to be covered by all specialisations)
  - Safety (Generic)
    - First Aid HIV/AIDS Awareness
    - OHS act Machine specific safety Measures
  - Materials (Generic)
    - Properties and Uses
    - Methods of enhancing the properties of steel

**Fitting and Machining**

**Terminology**
- Indexing
- Dovetail slides
- DRO programming
- Irregular work pieces
- Manufacturing a spur gear

**Tools**
- Principles and functions of engineering equipment
- Calculations on depth and screw thread micrometres

**Forces**
- Basic calculations on forces,
- moments and stress and strain

**Maintenance**
- Suitable preventative maintenance
- Coefficient of friction

**Joining Methods**
- Calculations on size of drills for bolts and nuts ISO metric
- Calculations on size of drills for bolts and nuts Square thread

**Systems and control**
- Mechanical components
- Velocity calculations
- Transfer of movement
- Hydraulics/Pneumatics

**Automotive**

**Tools**
- Application of diagnostic equipment

**Engines**
- Crankshafts
- Construction and operation of turbo chargers

**Forces**
- Automotive calculations

**Maintenance**
- Use test equipment to diagnose faults

**Systems and control**
- Operation and function of the Automatic gearbox, steering geometry
- Electricity

**Welding and Metalwork**

**Tools**
- Purpose-made tooling and equipment

**Terminology**
- Templates

- Calculations sheet metal
- Welding symbols application, Developments

**Forces**
- Forces and moments
- Steel frameworks
- Stress and strain

**Maintenance**
- Maintenance on various operating systems

**Joining Methods**
- Inspection of welds, Destructive tests
- Non-destructive tests, Distortion and stresses
- Effect of temperature

**ASSESSMENT**

**School Based Assessment 25% (Automotive, Fitting and Machining and Welding and Metalwork)**

- Term 1: Assignment 50 marks
- Term 2: Practical Simulation Task 200 marks
- Term 3: Preparatory examination 200 marks
- Total 450 converted to 100 marks

**Practical Assessment Task (PAT) 25% (Automotive)**

- Term 1: Simulation 1 50 marks
- Term 2: Simulation 2 & 3 2 x 50 marks = 100 marks
- Term 3: Simulation 4 & 5 2 x 50 marks = 100 marks
- Total 250 converted to 100 marks

**Practical Assessment Task (PAT) 25% (Fitting and Machining and Welding and Metalwork)**

- Term 1: Phase 1 50 marks
- Term 2: Phase 2 & 3 50 + 50 = 100 marks
- Term 3: Phase 4 100 marks
- Total 250 converted to 100 marks

**Tips for Success**
- Ask your teacher for the content framework for Grade 12 Mechanical Technology. This will give you the detailed content of Mechanical Technology. Paste it in your exercise book.
- Tick off every topic as it is taught in class, and write the relevant textbook page numbers next to the topic.
- Make sure you can manipulate formulas every week to solve problems.
- The school based assessment tasks and PATs prepare you for your final examinations.
- Make sure that you hand in all your tasks on time with attention to accuracy, detail and neatness.

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Engines:
Construction and operation of Turbo Chargers
https://qrgo.page.link/FtfFv