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 **Personal Learning Checklist (PLC) Name ……………………………**

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| **Subject WJEC Level 1 / 2** Engineering |
| **Topic** Revision for the Written Exam Unit 3 |

**S = I have Summarised**  **O = I have Organised (RAG or** ☺😐☹**) R = I have Recalled**  **T = I have Tested Myself** 

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **I can explain….** | **S** | **O** | **R** | **T** |
| **Describe engineering developments**• Engineering o Structural o Mechanical o Electronic • Engineers involved o UK o International• Key outputs • Applications • Technologies• Materials |  |  |  |  |
| **Explain effects of engineering achievements**• In the home • In industry• In society |  |  |  |  |
| **Explain how environmental issues affect engineering applications**Environmental issues • Use• Disposal• Recycling• Materials development • Engineering processes• Costs • Transportation• Sustainability Applications• Engineering processes • Engineering products |  |  |  |  |
| **Describe properties required of materials for engineering products**Engineering products• Structural, e.g. buildings, bridges• Mechanical, e.g. gearbox, crane, bicycle• Electronic, e.g. mobile phone, communications, alarm Properties• Tensile strength• Hardness• Toughness • Malleability• Ductility• Conductivity• Corrosive resistance• Environmental degradation • Elasticity |  |  |  |  |
| **Explain how materials are tested for properties**Tests• Destructive tests • Non-destructive tests |  |  |  |  |
| **Select materials for a purpose**• Ferrous• Non-ferrous• Thermoplastics• Thermosetting plastics • Smart • Composite |
| **Describe engineering processes**Processes • Marking out• Cutting• Finishing• Preparing • Shaping • Drilling• Turning • Brazing• Joining o Permanent o Temporary fixings • Filing • Soldering |  |  |  |  |
| **Describe applications of engineering processes**Applications • For material removal• For shaping and manipulation • For joining and assembly • For heat and chemical treatment |  |  |  |  |
| **Use mathematical techniques for solving engineering problems**Mathematical techniques• Use of formulae o Ohms law o Efficiency• Areas and volumes of geometric shapes • Calculation• Measuring • Estimation• Mean• Units of measurement o Metric o Metres, millimetre |  |  |  |  |
| **Convert between isometric sketches and 3rd angle orthographic projections** Convert • Section views• Construction lines• Centre lines • Hidden detail• Standard conventions |  |  |  |  |
| **Analyse situations for engineering problems**Analyse • Filter information• Synthesise information• Identify salient points • Identify requirements |  |  |  |  |
| **Propose solutions in response to engineering problems**Propose solutions• Communication• Logical structure |  |  |  |  |