



# BRIDGING THE GAP

## DESIGN ENGINEERING

Course Title	Examination Board & Web Address				
A-Level Design Engineering	OCR <a href="http://www.ocr.org.uk">www.ocr.org.uk</a>				
<b>Units/Topics Studied:</b>					
<p>Analysis of existing products, applied mathematical skills, technical knowledge of materials, product functionality, manufacturing processes and techniques, understanding of wider social, moral and environmental issues that impact on the design and manufacturing industries. Problem Solving in design engineering and a substantial iterative design project.</p>					
<b>Bridging Task</b>					
<p><b>Part One:</b> Find out the answers to the following questions</p> <ol style="list-style-type: none"> <li>1. What is an entrepreneur?</li> <li>2. What is a Venture Capitalist?</li> <li>3. How would a designer use anthropometric data?</li> <li>4. What is planned obsolescence?</li> <li>5. What is intellectual property?</li> <li>6. What is the difference between ferrous and non-ferrous metals?</li> <li>7. What is a smart material?</li> <li>8. What is triangulation?</li> <li>9. What is meant by oscillating motion?</li> <li>10. Do you know what career options will be available to you by taking this A level?</li> </ol>					
<p><b>Part Two:</b> Choose <b>TWO</b> of the following tasks to complete</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <p style="text-align: center;"><b>Electrical and Electronic</b></p> <p>Research the following components, providing an image, circuit symbol and explanation for each component Light dependent resistor, thermistor, resistor, light emitting diode, DC motor, Stepper motor and piezo.</p> </td> <td style="width: 50%; padding: 5px;"> <p style="text-align: center;"><b>Health and Safety</b></p> <p>Research the following legislation and state what the duties of employers and employees are.</p> <ul style="list-style-type: none"> <li>• Control of Substances Hazardous to health (COSHH)</li> <li>• Personal Protective Equipment at work regulations (PPE)</li> </ul> </td> </tr> <tr> <td style="padding: 5px;"> <p style="text-align: center;"><b>Mechanical</b></p> <p>Research the following devices and systems that are used to change the magnitude and direction of motion Simple gear trains, Compound Gear trains, Worm wheel, Bevel Gears, Epicyclic Gears, and Sprocket and Chain</p> <p>Ensure you have a diagram and explanation for each system.</p> </td> <td style="padding: 5px;"> <p><b>Energy:</b> Alternative Energy Sources Choose two of the following alternative energies and research how it is used to generate electricity</p> <p>Wind Turbines Solar Energy Tidal Barrages Biomass Wave Energy</p> </td> </tr> </table>		<p style="text-align: center;"><b>Electrical and Electronic</b></p> <p>Research the following components, providing an image, circuit symbol and explanation for each component Light dependent resistor, thermistor, resistor, light emitting diode, DC motor, Stepper motor and piezo.</p>	<p style="text-align: center;"><b>Health and Safety</b></p> <p>Research the following legislation and state what the duties of employers and employees are.</p> <ul style="list-style-type: none"> <li>• Control of Substances Hazardous to health (COSHH)</li> <li>• Personal Protective Equipment at work regulations (PPE)</li> </ul>	<p style="text-align: center;"><b>Mechanical</b></p> <p>Research the following devices and systems that are used to change the magnitude and direction of motion Simple gear trains, Compound Gear trains, Worm wheel, Bevel Gears, Epicyclic Gears, and Sprocket and Chain</p> <p>Ensure you have a diagram and explanation for each system.</p>	<p><b>Energy:</b> Alternative Energy Sources Choose two of the following alternative energies and research how it is used to generate electricity</p> <p>Wind Turbines Solar Energy Tidal Barrages Biomass Wave Energy</p>
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