

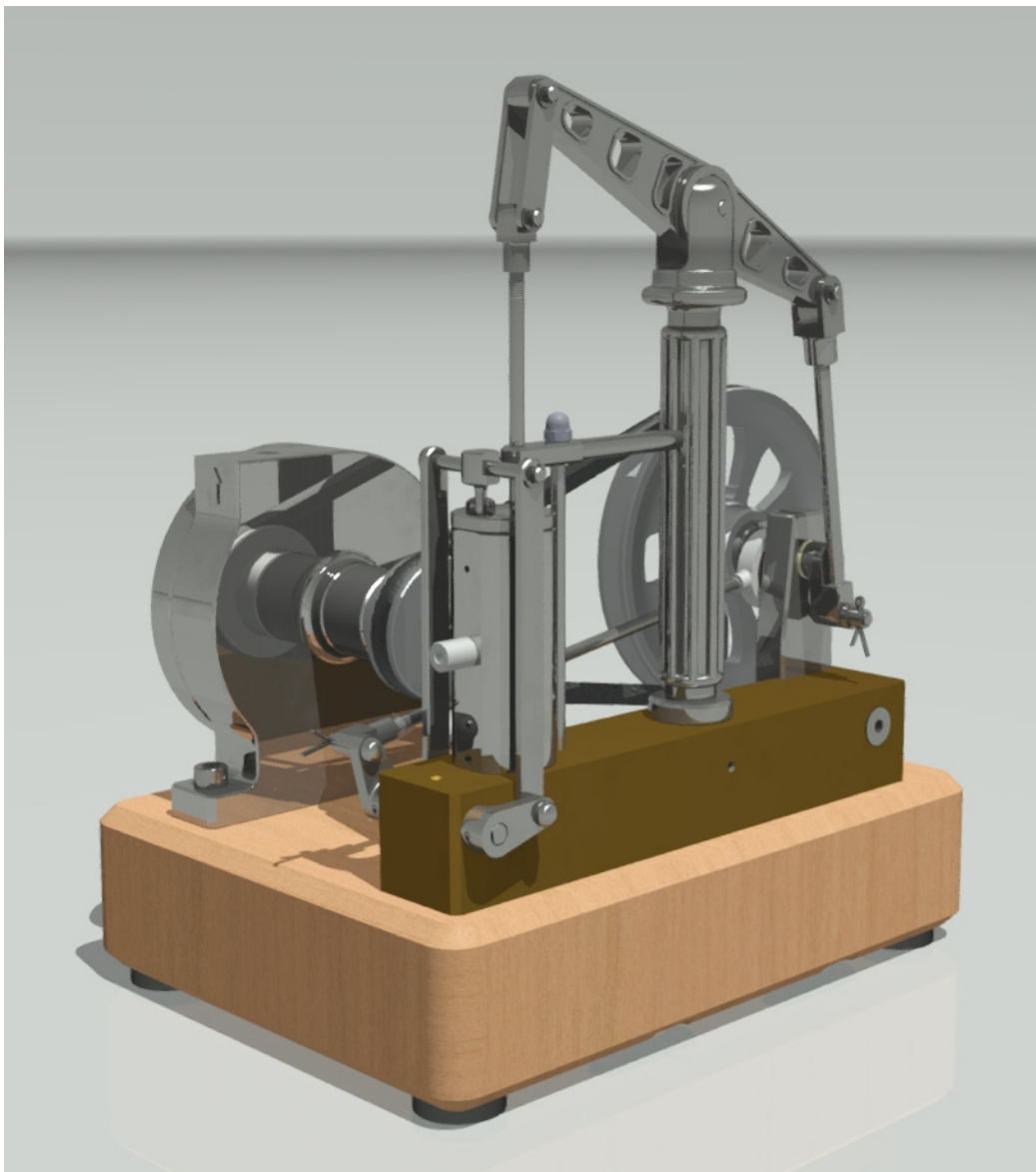


world **skills**uk



# 2015 REGIONAL HEAT MECHANICAL ENGINEERING CAD

Modelling from Detail Drawings & Creating Assemblies



**TASK:** Modelling from detail part drawings to create assemblies, animations and assembly drawings.

**Time:** 6.0 hours

**Given:** 10 Part Drawings, 2 Sub-Assembly Drawings, 1 Assembly Drawing, Given Data Set

**Task:**

1. Create 3D models for all of the parts shown on the part drawings.
2. Create sub-assemblies of the Assembly Base and Crankshaft Assembly.
3. Assemble the Beam Engine in the correct assembly sequence as per parts list.
4. Design the Piston Rod, item 16, to achieve the fully retracted and fully extended piston functionality.
5. Reproduce the given Beam Engine Assembly drawing on one piece of A2 paper. Parts List to be created on separate A4 sheet.
6. Produce an AVI file to demonstrate the Beam Engine exploding then collapsing.
  - a) Parts must not clash and should follow a logical order
  - b) Screw functionality should be shown
  - c) Camera angles should be changed to focus on specific assembly functions.
7. Produce an AVI file of the physical simulation clearly demonstrating the full functionality of the Beam Engine. The simulation should include:
  - a) At least 720° rotation of flywheel shown clearly.
  - b) The functionality of the Piston, Valves and Pump Impeller should be shown.
  - c) Camera angles should be changed to focus on specific assembly functions.

Save all files in a folder called 'Your Name' on the desktop.

**USE OF COMPUTER:**

Use of the computer is allowed from the beginning of the competition time.

**OUTPUT:**

Software Modeled Parts, Assemblies, Animations and Drawing Files.

**NOTES:**

All marks are to be taken from digital files and printing is not required.

All rendering of animations must be completed within the competition time.

## **MARKING**

All Marking is Objective and broken down as follows:

<b>Aspect</b>	<b>Max Mark</b>
Parts	25.00
Assembly	41.00
Assembly Drawing	15.00
Exploded Animation	8.00
Exploded Animation	11.00
<b>Total Marks</b>	<b>100</b>