

TEST PROJECT

Mechanical Engineering Design – CAD-Day1



TEST PROJECT – Sterling Engine

CONTENTS

This Test project proposal consists of the following documentation/files :

INTRODUCTION

You have been asked to work on the design projects. To create a full design.

DESCRIPTION OF PROJECT AND TASKS

PROJECT

After you have reviewed the Design Brief and the supplied parts, all parts according to the above list. You must also create 3D printed parts of all parts, some drawings and an animation.

You have **5 hours** to complete the projects.

INSTRUCTIONS TO THE COMPETITOR

1. Examine the parts provided: Note the design and the parts. DO NOT lose or break parts!
2. Assemble a product using the partial parts provided.

CREATE DRAWINGS FOR PROJECT:

1. Complete the drawings for all parts. The drawings should include:
 - a. On an A2 sheet, create necessary unshaded orthographic views of all parts to fully-describe. Show critical dimensions. Create two isometric shaded views to clearly show the details of all part. Use actual scaling.
 - b. On an A3 sheet, create necessary unshaded orthographic views of all parts to fully-describe it. Show critical dimensions. Create one isometric shaded view to clearly the Base part. Use actual scaling.

SUBMIT PARTS FOR 3D PRINTING

1. Save the parts using the competition file naming convention.
2. After producing the 3D models, generate STL files and generate the G-code programs from CURA. Save all files to your ESNC-2018 Day 1 folder. The printing is not part of the competition time.

CREATE AN ANIMATION FOR PROJECT

Output:

1. Create new project named Sterling Engine.
2. 3D shaded drawing for each model and 2D drawings with all the necessary dimensions required to draw the solid models printed in one sheet (size A4, A3, A2 and A1).
3. 3D shaded assembly drawing of the whole parts with two selected 2D views to fully describe the assembly including the main dimensions of the assembled parts printable in one sheet (size A1).
4. Set a proper scale.
5. Select proper materials and colour for the different objects
6. Complete the title block for all the drawings
7. Create presentation file for the objects.
8. Create balloon and part list on the Exploded assembly drawing details.
9. All dimensions should be placed without decimal place.

Instructions:

1. Complete the title block for all the drawings.
2. Save your drawing on the folder named Day1 with the names indicated in the table below.
3. Chamfer 1x45° if missing.

No.	Items
1	Plug
2	Connecting rod
3	Spacers
4	End crank
5	Flywheel
6	Flywheel support
7	Flywheel gear
8	Base
9	Cylinder mount support
10	Piston mount -1
11	Piston mount -2
12	Cylinder mount