MMAN1130 – Design and Manufacture

Engineering Standards & Engineering Drawings Test

Date:25/06/2021, Weighting 20%

IMPORTANT: Part A and Part B are each worth 10% of your course mark. You have two hours to complete the test and upload your files. The submission boxes will lock at exactly 5pm. Ensure you leave enough time to submit, this is your responsibility. Late submissions under 5 minutes will be penalised 50%. Late submissions after 5 minutes will receive a zero grade.

What to do if you have trouble submitting your files?

Immediately let us know in the test chat on Teams. This provides us a timestamp of your intent to submit. You must then immediately email your files to d.eggler@unsw.edu.au.

What to do if you have a question during the test?

Simply type "I have a question" into the test chat on Teams and one of our invigilators will video call you to answer.

INSTRUCTIONS

Short Answers

1. Download the document titled "Engineering Standards and Engineering Drawings Test".
2. Answer the questions in the provided word document template (download from Moodle) titled "zID_ShortAnswers_template.docx".
3. Save as a PDF file and rename the file "zID_ShortAnswers". E.g. z5734996_ShortAnswers
4. Upload to "Turnitin Submission Box".

Engineering Drawings

1. Download the 3D Cad part titled "Week 4 Test CAD Part".
2. Carefully read the instruction in Part B: Engineering Drawings in the Word document titled "Engineering Standards and Engineering Drawings Test".
3. Create an engineering drawing from this part file.
4. Save the drawing as a .pdf file.**
5. Rename the drawing file as "zID_EngDrawings". E.g. z5734996_EngDrawings
6. Upload to "Drawings File Submission Box

**** If you are using myAccess, please check out the "MMAN1130 - myAccess Solidworks Drawing Instructions" document for detailed instructions.**

Part A: Short Answer (30 marks)

Answer the following questions on Engineering Standards and Engineering Drawings.

Q1. One of your brilliant engineering friends has an amazing idea that they want to use to create a start up to make all the money. However, they are frustrated because they need to comply with various Australian Standards. They feel such stringent rules stifle innovation and make it difficult to be truly competitive. You couldn't disagree more! What are the reasons you give to convince your friend to the importance and/or benefits of complying with various Australian Standards? (12 marks)

Q2. Your Australian company has a partner company from Europe. The European company has sent some engineers across to help with the design process of a new product. However, when they show you some engineering drawings they have made, you realise that they are in 1st angle projection. Your European colleague explains to you that this isn't a big deal. However, the products will be manufactured in Australia.

a) What is the difference between 1st and 3rd angle projection? (2 marks)
b) Given the fact the product will be made in Australia, will this cause a problem? (1 mark)
c) What must be done to correct this issue? Provide justifications to help your European colleagues understand. (3 marks)

Q3. A fellow engineer working on a large "portal friendly" vehicle contract with GLaDOS Industries has approached you with a plan to prove compliance to the following requirement.

66.2.5.4. A '*Seat*' with no other '*Seat*' behind it is required to withstand a horizontal longitudinal force of 10 times the weight of the '*Seat*' together with the loads of any seat belts mounted on the '*Seat*'.

He reveals that his plan is to build a prototype and then do crash testing. Celebratory cake will be eaten later. What do you think of his plan? (4 marks)

Q4. Your friend is a fan of the Fast and Furious movies and is looking to do some interior modification to her 1965 Ford GT40. She has read the relevant standards and to comply is thinking of mounting a mini TV into the front dashboard, well below eye view to be safe. Read the following standard for displaying television and visual display units in vehicles.

"All television receivers or visual display units and their associated equipment must be securely mounted in a position which is unlikely to increase the risk of occupant injury."

a) Do you think this is a well written standard? Why or why not? (2 marks)
b) If you have concerns with this standard, explain what you think the issue is? Give an example of how it may cause a problem. (4 marks)
c) In your opinion, will your friend be compliant if she proceeds as planned? Why? (2 marks)

Part B: Engineering Drawings (10 marks)

Create an engineering drawing from the CAD part in the Moodle section “Test - Engineering Standards and Engineering Drawings”. The component is made from vibranium and the surface finish required is a Roughness Grade Number of N7. The general tolerance to be applied to linear dimensions is ± 0.73 mm. Use an A4 size drawing sheet. Unless specified otherwise all fillets are 5mm.

p.s. Please feel free to be imaginative when creating the Title of the drawing.