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**Course:** BTEC Higher National Certificate / Diploma (Engineering)

**Year: 2019/20**

**Unit Number and Title: Unit 1 Engineering Design**

**Assignment No:** 1

**Assignment Title: Produce a Product Design Specification based on a Customer Requirement**

**Covers Learning Outcome: LO1 Plan a design solution and prepare an engineering design specification in response to a stakeholder’s design brief and requirements.**

**Student name: …………………………………………………………**

**Issue date: 10th October 2019**

**Due date: 14th November 2019**

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| **Submission date:** |  | **Marking date:** |  |
| **Student name:** |  | **Lecturer name:** | **J Kupper**  |
| **Student signature:** |  | **Lecturer signature:** |  |

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| --- | --- | --- | --- | --- |
| Criteria  | Assessment Grading Criteria | Achieved | Evidence | Assessor comment / feedback |
| **P1** | Produce a design specification from a given design brief | *Yes / No* | *Task 1*  |  |
| **P2** | Explain the influence of the stakeholder’s design brief and requirements in the preparation of the design specification | *Yes / No* | *Task 1* |  |
| **P3** | Produce a design project schedule with a graphical illustration of the planned activities | *Yes / No* | *Task 2* |  |
| **M1** | Evaluate potential planning techniques, presenting a case for the method chosen | *Yes / No* | *Task 2* |  |
| **M2** | Demonstrate critical path analysis techniques in design project scheduling/planning and explain its use | *Yes / No* | *Task 2* |  |
| **D1** | Compare and contrast the completed design specification against the relevant industry standard specification | *Yes / No* | *Task 3* |  |

**Lecturer general feedback:**

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**How your work will be assessed:**

To provide evidence that you have mastered the essential concepts of Learning Outcome 1 you must make a valid attempt at all the questions.

If you complete the ‘P’ questions satisfactorily you have an opportunity to provide more evidence to show that you can work at MERIT and then DISTINCTION level by making a valid attempt at all the questions that have an ‘M’ and then ‘D’ attached to the question number. To meet MERIT and DISTINCTION criteria you will generally be expected to produce not only correct numerical answers but also, to present your strategy/method in a clear and logical way so that you demonstrate your understanding and where appropriate, your ability to adapt the principles and concepts that you are applying.

**Assignment Brief**

* Before you start work on this assignment, read all of the questions and make yourself aware of the learning outcomes addressed by the assignment.
* Note that each question is directly related to a criterion that it, when appropriately answered, provides evidence for PASS, MERIT or DISTINCTION criteria being met.

Set out your responses so that they are easy to read. Number your answer to each question and where appropriate, identify each part-question as (a), (b) etc. Make sure that your answers quote any formulae being used in symbolic form before values are inserted and show the method/strategy you are applying. Don’t forget to underline (or highlight) your final answer(s).

* Write your name on each of your answer sheets, number the answer sheets sequentially, staple the answer sheets together and hand-in them in with this assignment worksheet. Do not put each page of answers into a separate plastic document wallet.
* This assignment must be submitted by the agreed submission date entered on the front page of this worksheet, unless agreed otherwise by the tutor.

**Task1 (P1, P2)**

With reference to the attached Customer Requirement (Marshall Tufflex), create a Product Design Specification (PDS) that meets all aspects of the customer’s requirements.

Indicate how the requirements are met by your PDS.

Consider any aspects of the Customer Requirement that are unclear or missing. Explain how this affects the PDS and how would you go about establishing this further information?

**Task2 (P3, M1, M2)**

Create a list of the activities required to be completed, with anticipated timescales. Undertake a Critical Path Analysis and also show this plan in Gantt chart form. What are the critical activities? Where is there ‘float’ that may be used to speed-up the process when necessary?

Explain how this form of planning will aid both the customer and the designer. Compare CPA to Gantt and give justification of which you feel is more appropriate in this case. How will you manage the process on an ongoing basis as regards timescales and priorities?

**Task3 (D1)**

Identify any industry-standards that apply in this design situation. Justify how these apply to this case. Show how your PDS takes these standards into account in relation to the Customer Requirement.

Do these standards still meet the spec. if the product were used outside of the UK? Identify any additional industry-standards that may be required if this is the case.