Product Management:

Consideration given to product management will help to support the completion of a design task within the available time frame. Planning of this nature may be divided into two main areas:

- the sequence in which manufacturing needs to take place i.e. manufacturing plan
- time allocated to each sequence

Manufacturing plan:

All possible aspects of manufacturing need to be considered. A manufacturing plan may include the following:

- parts and components to be used
- size shape and form
- materials to be used
- processes, tools, equipment and machinery to be used
- the sequence of manufacture
- how quality will be checked
- health and safety factors

The manufacturing plan needs to identify both the processes that need to happen and the order in which they need to happen.

Time management:

Having identified the manufacturing sequence, a time plan can be drawn up. Allocating a specific time to each stage will require consideration of the following:

- the date by which the completed project must be handed in
- time scale available for completing each section of the work
- the need for the production of clear and detailed production drawings
- are materials or components readily available
- will equipment / machines be available
- what skills will I need
- is the design too demanding within the given time frame
- what progress is being made
- what needs to be addressed in the next class

Activity:

Develop the table below to provide a production plan for your task. The table should identify the way you intend to make your product and also how much time it will take.

			Week Number													
No.	Process	Materials/Tools/Skills	1	2	2	3	4	5	6	7	8	9	10	11	12	
1	Design Circuit	PCB, components, software	X													
2	Solder components	Soldering iron, soldering kits		X												
3	Test circuit	Multimeter, fault finding		X												

Quality Control: -

The quality of a product is a measure of fitness for purpose and includes accuracy, finish, function, form, safety, strength and reliability. In order to ensure that your final product matches your design brief the quality needs to be checked during the production. Identifying your quality requirements will help to clarify inspection techniques which can be applied. Checks will have to be performed on individual components as well as on the final product.

Important features in quality control specifications include:

- dimensions
- finish
- function

Activity:

Write down the stages involved in making your circuit. List the quality control checks you think will be needed and when they should happen. Draw up a quality control chart and include space to fill in what happens when the test takes place.

Overall Quality: -

Overall quality is a combination of all the other factors listed. In order for a final product to be considered a quality object, all individual quality standards must be met. Relevant regulations and legislation together with consumer requirements will influence the degree of quality to be achieved. Although quality must be checked during the production the final evaluation will provide a sense of the overall quality. The overall quality of a product may be broken down into two main areas:

- quality of manufacture to include finish and function
- quality of design to include form, safety, ergonomics and aesthetics

Ouestions:

- (i) Outline how you intend to monitor quality during the production of your task.
- (ii) Explain two ways in which your final product could fail to meet agreed control standards.
- (iii) Describe how the consumer influences quality control specifications.
- (iv) Explain why quality control might sometimes fail.
- (v) What does a 'CE' marking signify?

Further areas of study:

Investigate the following scales of production and detail how developments in new technology can help maintain the quality control standards within each area.

(i) Once off, (ii) Batch, (iii) Mass, (iv) Just in Time (JIT).