Design for Manufacture

7. Technical Report

Technical Report

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The technical report will consist of an introduction, a series of chapters describing the new product, including how the design decisions were reached, and finishing with conclusions and recommendations.

Each team will organise its own technical work, each chapter will be concerned with a distinct aspect of the development of the product.

The author of each chapter should be made identifiable. In the case that a chapter is written by more than one person, the author of each section should be made identifiable.

Report Topics

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-Specifications with technical calculations, including power, torque, energy source;
-Design process that leads to the selection of final concept,
-Engine unit design with lubrication and fuel supply,
-Cutting blades, transmission to wheels,
-Casing with push handles, wheels with adjustable height levels, grass bag,
-Manufacture, packaging and environment issues,
-Project management methods, FMEA, critical evaluation of activities,
-Costs, market, branding,
-Others: Background introduction, conclusion, references, etc.

-Other ways of dividing chapters are welcome.
-Cover all aspects of design, and each piece of work must be made accountable for member's contributions.
-A critical evaluation: PDES students do a critical evaluation of the mechanical design process, and the ME & AUTO students do critical evaluation of the specification of the branding and design process.

Report Assessment Criteria

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- Demonstration of design process that leads to the selection of final concept /20
- Detailed design description, supporting technical calculations /20
- Parts and assembly drawings, selection of materials /20
- Report structure, layout, referencing; use of language, figures and tables /20
- Manufacture process, risk analysis, costing /10
- Performance evaluation of project management and team work /10

Technical Report Structure – some clues

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Design of An Petrol Lawnmower

Title page
Time (Academic year), Names of group member, department affiliation

Summary
1 page

Table of contents

Main body

Chapter 1. Introduction （*Name of team member*） **…… ……. 1**
1.1 Type of Petrol Lawnmowers …….……..1

1.2 History and Market …….…….....3

1.3 Our mission and objectives …….…… 6
…

Chapter 2. Concept and specifications *（Name of team member）*
2.1 Selection of concept
2.2 Selection of target performance and structures
….

Chapter 3. Power, torque, fuel consumption *（Name of team member）*

Chapter 4. Configuration, c**utting blades, transmission, walking speed** *（Name of team member）*

Chapter 5. Parts and materials selection, lubrication and maintenance *（Name of team member）*

Chapter 6. Assembly, manufacturing, packaging, environment issues *（Name of team member）*

Chapter 7. Risk analysis and project management *（Name of team member）*
7.1 FMEA
7.2 Costs
7.3 Evaluation
…

Chapter X. Conclusions *（Name of team member）*
X.1 Targets and achievements
X.2 Recommendations

References
Books
Papers
Websites

Parts and Assembly drawings

Appendi(x)ces
A1**. P**rogrammes
A2. Consultant sources
A3. Key manufacturer's literatures
…

A4, single sided, double spaced, single copy.

Management Matters

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- Team manager must give equal contribution opportunity to all members when allocating tasks

- Take over the some tasks from less contributing members based on agreement

- Group with particularly fewer people may set relatively lower targets.

- Marking system based on accountable effort and contribution breakdown is a relatively fair one.

- Time sheets must be singed by the manager, the manager's can be signed by a team member.