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## Definitive Module Document (DMD)

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**Module Code:** 3AAD0022

### Title of Module

**Full Title:** Vehicle Engineering Design

**Short Title:** Vehicle Eng Des

## MODULE

3AAD0022 (A 05/6)

Vehicle Engineering ...

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**Version:** 1

**Credit Points:** 15

**Level / ECTS Level:** 3

**First Offered:** 1/9/2004 00-00-00

### 6. Home Department:

AAD

### 7. Departments(s) contributing to teaching:

### 9. Module Aims:

- \* participate in a group-based major design project (related to degree option).
- \* further their understanding of the complete design process from issue through concepts to realisation.
- \* further develop creative skills, written and oral communication skills and produce supporting information.

### 10a. Learning Outcomes: Knowledge and Understanding:

- \* demonstrate a detailed understanding of design process.
- \* define appropriate analytical/modelling tools in order to support the design process.

### 10b. Learning Outcomes: Skills and Attributes:

- \* identify requirements and develop appropriate solutions within a design.
- \* demonstrate an effective and sustained contribution to the working of a design team.
- \* select appropriate materials, processes and bought-out components and systems appropriate to automotive or motorsport design.
- \* show an ability to work within constraints such as cost, weight and performance.

### 11. Module Content

#### 11a Module Content:

This module aims to (i) provide experience of automotive or motorsport design and the interactive requirements of engineering products, (ii) extend the student's experience in the detail design and validation of vehicle components,

units and systems, and (iii) encourage a professional attitude to the application of engineering knowledge and skill, with specific reference to market/customer requirements, aesthetics, performance, cost, safety, legal requirements, standards and regulations..

It will also address the human issues relating to automotive or motorsport design and promote the innovative element of the design process.

It encompasses various individual assignments (addressing specific areas of vehicle engineering technology) and group projects (in groups of 4-5 students, including planning, monitoring and reviewing work done, management of manufacture, testing and presenting the result in written, graphical and oral forms). To an extent group members will be taking on a specialist role within group project work.

#### **11b. Further details on how the learning outcomes of the module will be achieved:**

There is no fixed syllabus for this course.

The individual assignments will address specific areas of vehicle engineering technology which may not be covered by the group project. Detailed design schemes with supporting evidence confirming the validity of decisions made will be required.

The Group Projects will be handled by groups of 4-5 students. Each group will base it's design on an issue in the automotive or motorsport industry today. The design will develop from this general idea and therefore each group will follow a unique path to their design.

The project will include planning, monitoring and reviewing work done by the group, including the management of manufacture, the test and presenting the result in written, graphical and oral forms.

Groups will be required to meet regularly and discuss progress with tutors. Each member of the group will have specific tasks but will be involved in other tasks as necessary for the efficient fulfilment of the project.

#### **Examples of Projects & Assignments**

Where possible projects and supporting material will be obtained from industry. Assignments would normally be college-based. Typical examples are-

- Major vehicle design study, including concept generation for any chosen issue relating to road transportation or motorsport.
- Vehicle component modeling using IDEAS CAD or any CAE package appropriate to the particular design.
- Analysis of the designed component/system using an appropriate CAE technique (CFD, FEA, Crash testing etc).
- External lectures including vehicle styling and application of CFD, law and the environment.
- Application of experimental design within the design process and possible lab-based verification studies.

#### **12. Language of Delivery:**

English

#### **13. Language of Assessment:**

English

#### **14. Assessment Details (Academic):**

Coursework: 100

Exam: 0

Other: Typically, assessment will consist of-

Presentation of product design issues

PDS generation and project planning

Review presentations

Vehicle Styling assignment

Research assignment

Design report

#### **Assessment Notes:**

#### **15. Locations(s):**

UH HATFIELD

#### **16. Pre and Co-Requisite:**

##### **Pre-Requisite**

##### **Co-Req**

**Prohibited**

**17. Subject Board of Examiner/s:**  
AERO/CIVIL/MECH ENG L2/3

**18. Comments**

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