1. **Title of the module**

EENG3230 (EL323) Introduction to Mechanical Engineering and Design

1. **School or partner institution which will be responsible for management of the module**

EDA

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 4

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Term 1

1. **Prerequisite and co-requisite modules**

EL318 ENGINEERING MATHEMATICS

1. **The programmes of study to which the module contributes**

BEng/MEng Electronic and Communications Engineering

BEng/MEng Electronic and Communications Engineering with a year in industry

BEng/MEng Computer Systems Engineering

BEng/MEng Computer Systems Engineering with a year in industry

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will have knowledge and understanding of:**
   1. the fundamental principles of statics and dynamics.
   2. the mathematical description of mechanical systems
   3. the method of solving problems involving particles and extended bodies
   4. the principles of design processes
   5. the principles of CAD based drawings and models
   6. product manufacturing tools
2. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**
   1. generate, analyse, present and interpret data
   2. communicate more effectively in writing
   3. learn effectively for the purpose of continuing professional development
   4. think critically
   5. manage their time and resources within a task.
3. **A synopsis of the curriculum**

**Mechanics:**

Forces, moments and Equilibrium of rigid bodies

Dynamics of linear and rotary motion

Angular momentum, work and energy

Elementary stress-strain analysis

**Engineering Design:**

Transformation of a client requirement into an engineering design statement

Decomposition and evaluation of design requirements

Consideration of the human and ergonomic factors in the design process

CAD based drawings and models via CAD tools

Realisation of CAD models using computer numerical control manufacturing machines

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Engineering Mechanics: Statics and Mechanics – Costanza, Plesha and Gray, Mc Graw Hill, 2012

Mechanical Engineering Design: Principles and Concepts, by Siraj Ahmed, PHI Learning, 2014

1. **Learning and teaching methods**

34 contact hours comprising lectures, laboratory classes and example classes  
116 hours of private study  
Total hours for the module 150

1. **Assessment methods**
   1. Main assessment methods

Exam, 2 hours (60%)  
Assignment, 5 A4 pages (15%)  
Presentation, 15 minutes (25%)

* 1. Reassessment methods

Like for like

1. **Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** |  | *8.1* | *8.2* | *8.3* | *8.4* | *8.5* | *8.6* | *9.1* | *9.2* | *9.3* | *9.4* | *9.5* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Private Study** |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Lectures |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Example classes |  | **x** | **x** | **x** |  |  |  | **x** | **x** | **x** | **x** | **x** |
| Labs |  | **x** | **x** | **x** | **x** | **x** | **x** |  |  | **x** | **x** | **x** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |  |  |
| Exam |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Homework |  | **x** | **x** | **x** |  |  |  | **x** | **x** | **x** | **x** | **x** |
| Presentation |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |  | **x** |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/ declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

Internationally recognised books are used as reading material for this course.

The module will use internationally developed and recognised notation and mathematics models of mechanical systems.

**FACULTIES SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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