PLYMOUTH UNIVERSITY MODULE RECORD

SECTION A: DEFINITIVE MODULE RECORD. Proposed changes must be submitted via Faculty Quality Procedures for approval and issue of new module code.

MODULE CODE: MATS348
MODULE TITLE: Composites Engineering

CREDITS: 20 FHEQ LEVEL: 6 JACS CODE:
H150 (50%), J510 (50%)

PRE-REQUISITES: CO-REQUISITES: COMPENSATABLE: Y

SHORT MODULE DESCRIPTOR: (max 425 characters)
This module introduces stress analysis and appropriate numerical methods and integrates the learning from the parallel module MATS347 in a practical assignment to produce a prototype composite component. MATS 347, MATS 348, and MFRG311 are the specific components of the Mechanical Engineering with Composites pathway.

<table>
<thead>
<tr>
<th>ELEMENTS OF ASSESSMENT</th>
<th>[Use HESA KIS definitions]</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 (Examination)</td>
<td>xx%</td>
</tr>
<tr>
<td>C1 (Coursework)</td>
<td>100%</td>
</tr>
<tr>
<td>P1 (Practical)</td>
<td>xx% or Pass/Fail</td>
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<tr>
<td>E2 (Clinical Examination)</td>
<td>xx% or Pass/Fail</td>
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<tr>
<td>A1 (Generic assessment)</td>
<td>xx</td>
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<tr>
<td>T1 (Test)</td>
<td>xx%</td>
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</tbody>
</table>

SUBJECT ASSESSMENT PANEL Group to which module should be linked: MECHA

Professional body minimum pass mark requirement:

MODULE AIMS:
- To integrate the learning from the Composites Design and Manufacture module and the Quality Management module.
- To produce a prototype composite component.
- To extend the theoretical basis to more advanced topics and broader philosophical considerations.

ASSESSED LEARNING OUTCOMES: (additional guidance below)
At the end of the module the learner will be expected to be able to:
1. Integrate the learning from the Composites Design and Composites Manufacture modules.
2. Produce a prototype composite component.
3. Extend the theoretical basis to more advanced topics and broader philosophical considerations.
4. To develop the ability to use appropriate design and analysis tools and techniques for laminated, anisotropic structures.
5. Written communication, teamwork, numeracy, IT, independent learning, practical work and professional skills.

DATE OF APPROVAL: 07/11/2014
DATE OF IMPLEMENTATION: 01/09/2015
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX

FACULTY/OFFICE: SciEng
SCHOOL/PARTNER: SoMSE
SEASON: Semester 2
Additional Guidance for Learning Outcomes:

To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards

- Framework for Higher Education Qualifications
  http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf
- Subject benchmark statements
  http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx
- SEEC level descriptors
  http://www.seec.org.uk/academic-credit/seec-credit-level-descriptors-2010 (scroll to pdf link at bottom of page)
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g. health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code
  http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx
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SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process. Some parts of this page may be used in the KIS return and published on the extranet as a guide for prospective students. Further details for current students should be provided in module guidance notes.

ACADEMIC YEAR: 2015-2016
NATIONAL COST CENTRE: 120

MODULE LEADER:
Dr John Summerscales

OTHER MODULE STAFF:
Dr Stephen Grove
Dr Richard Cullen

Summary of Module Content

A prototype composite component should be designed, manufactured and tested in a manner appropriate to the application.
Practise of the full design cycle from design through manufacture to testing and, where appropriate, analysis of failure modes and effects.
Identify basic design principles and procedures which are appropriate for composite structures.
Calculate structural properties of typical composite laminates by Laminate theory.
Finite element analysis principles and practice.
Practical laminate analysis. Use of commercial laminate and structural analysis software.
Coursework assignments:
  - Laminate analysis exercises (formative).
  - Report on prototype component (summative).

<table>
<thead>
<tr>
<th>SUMMARY OF TEACHING AND LEARNING [Use HESA KIS definitions]</th>
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</thead>
<tbody>
<tr>
<td>Scheduled Activities</td>
</tr>
<tr>
<td>Laboratory classes</td>
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<tr>
<td>(26x3.5)</td>
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<tr>
<td>Guided independent</td>
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<td>study</td>
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<td>Written exam</td>
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<tr>
<td>Coursework</td>
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<tr>
<td>Practice</td>
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</tbody>
</table>

**Updated by:** John Summerscales  
**Date:** 11/07/2014  
**Approved by:** Approval  
**Date:** 07/11/2014