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| **Module Code** | CE7J04 |
| **Module Name** | J4: Energy Policy and Energy Storage |
| **ECTS Weighting**[1] | 5 ECTS |
| **Semester taught** | Semester 1 |
| **Module Coordinator/s** | Prof. Sarah McCormack<br>**Other lecturer(s):**<br>Prof. Brian Caulfield<br>Asst. Prof Mohammad Reza Ghaani |
| **Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline** | On successful completion of this module, students should be able to:<br><br>LO1. Develop and discuss the main areas of energy policy.<br>LO2. Understand requirements for LEED/Zero Energy and Net Passive buildings.<br>LO3. Evaluate energy projects using economic analysis tools.<br>LO4. Compare and evaluate various energy storage technologies in terms of their strengths, limitations, and cost-effectiveness for different energy systems and applications.<br>LO5. Design energy storage systems to support grid stability, integrate renewable energy sources, and optimize energy dispatch and management.<br>LO6. Evaluate the environmental sustainability of energy storage technologies, considering factors like resource utilization, emissions, and end-of-life management.<br><br>**Graduate Attributes: levels of attainment**<br>To act responsibly - Introduced<br>To think independently - Attained<br>To develop continuously - Enhanced<br>To communicate effectively - Enhanced |
| **Module Content** | This module is an optional module which runs in the first semester. The module will develop knowledge in current energy policy and our energy storage options. It will include topics in energy economics, policy, energy storage options and circular economy and sustainability in storage systems will be addressed. |

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| **Teaching and Learning Methods** | Core content via lectures<br>Individual assignments |

**Assessment Details**[2]
**Please include the following:**

- **Assessment Component**
- **Assessment description**
- **Learning Outcome(s) addressed**
- **% of total**
- **Assessment due date**

| Assessment Component | Assessment Description | LO Addressed | % of total | Week due |
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| Examination | 3 hours examination | ALL | 75% | N/a |
| Continuous Assessment | Energy Storage Project | LO4-6 | 25% | 12 |

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| **Reassessment Requirements** | 100% Examination (3 hours), weighted at 50% to pass. |

**Contact Hours and Indicative Student Workload**[2]

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| **Contact hours: 30 hours** |
| **Independent Study (preparation for course and review of materials): 20 hours** |
| **Independent Study (preparation for assessment, incl. completion of assessment): 75 hours** |

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| **Recommended Reading List** | Sustainable energy systems engineering; P Gevorkian (2007)<br>Storing Energy - with Special Reference to Renewable Energy Sources; Trevor Letcher (2022) |
| **Module Pre-requisite** | None |
| **Module Co-requisite** | None |
| **Module Website** | https://www.tcd.ie/courses/postgraduate/az/course.php?id=DPTEG-ENSE-1F09 |
| **Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.** | No |
| **Module Approval Date** | |

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| **Approved by** | |
| **Academic Start Year** | 9th September 2024 |
| **Academic Year of Date** | 2024/2025 |