

Module Information

2022.01, Approved

Summary Information

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| Module Code | 4533NCCG |
| Formal Module Title | Science and Materials for Sustainable Construction |
| Owning School | Civil Engineering and Built Environment |
| Career | Undergraduate |
| Credits | 20 |
| Academic level | FHEQ Level 4 |
| Grading Schema | 40 |

Teaching Responsibility

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| LJMU Schools involved in Delivery |
| LJMU Partner Taught |

Partner Teaching Institution

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| Institution Name |
| Nelson and Colne College Group |

Learning Methods

| Learning Method Type | Hours |
|----------------------|-------|
| Lecture | 48 |

Module Offering(s)

| Display Name | Location | Start Month | Duration Number Duration Unit |
|--------------|----------|-------------|-------------------------------|
| JAN-PAR | PAR | January | 12 Weeks |
| SEP-PAR | PAR | September | 12 Weeks |

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|------------|-----|-------------------------------------|----------|
| SEP_NS-PAR | PAR | September (Non-standard start date) | 12 Weeks |
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Aims and Outcomes

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| Aims | The aim of this module is to support students to identify material choices to meet a brief. This includes identifying materials that are fit for purpose, as defined by testing standards whilst also considering the environmental impact and sustainability. Topics covered include: Health and Safety, storage and handling of materials and the problems associated with misuse. On successful completion of this module students will have the skills and knowledge to make informed decisions regarding material choice and perform calculations to establish anticipated performance of the chosen materials. |
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After completing the module the student should be able to:

Learning Outcomes

| Code | Number | Description |
|------|--------|--|
| MLO1 | 1 | Analyse health and safety legislation associated with the storage, handling and use of materials on a construction site. |
| MLO2 | 2 | Examine the environmental and sustainability factors which influence the material choices for a construction project. |
| MLO3 | 3 | Identify materials for a given building using appropriate methodology and techniques. |
| MLO4 | 4 | Review the performance of a given building in respect of its human comfort requirements. |

Module Content

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| Outline Syllabus | Regulations including health and safety, design management and control and management of hazardous materials. Handling and installation of materials including risk assessments and method statements, safely moving materials. Health risks associated with materials including asbestos related and respiratory related disease, skin and musculoskeletal disorders. Sustainability: renewable and non renewable materials, reusing and recycling construction waste. The use of Environmental Assessment Method such as Building Research Establishment Environmental Assessment Method. Consideration of embedded energy in construction. Testing methods and the interpretation of test data. Structural behaviours focusing on inherent material properties, their behaviour and use. Human comfort focusing on indoor environmental quality, thermal loss and gain, environmental benefit vs implementation cost. |
| Module Overview | |
| Additional Information | |

Assessments

| Assignment Category | Assessment Name | Weight | Exam/Test Length (hours) | Module Learning Outcome Mapping |
|---------------------|-----------------|--------|--------------------------|---------------------------------|
| Test | Online Test | 50 | 0 | MLO1, MLO2 |
| Report | Assignment | 50 | 0 | MLO3, MLO4 |

Module Contacts

Module Leader

| Contact Name | Applies to all offerings | Offerings |
|-----------------|--------------------------|-----------|
| Fiona Borthwick | Yes | N/A |

Partner Module Team

| Contact Name | Applies to all offerings | Offerings |
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