APPROVED

# ENVI6005: Environmental Materials & Serv

## Module Details

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|---|---|
| **Module Code:** | ENVI6005 |
| **Title:** | Environmental Materials & Serv APPROVED |
| **Long Title:** | Environmental Materials & Services |
| **NFQ Level:** | Fundamental |
| **Valid From:** | Semester 1 - 2019/20 ( September 2019 ) |
| **Duration:** | 1 Semester |
| **Credits:** | 5 |
| **Field of Study:** | 5810 - Architecture & Urban Environment |
| **Module Delivered in:** | 4 programme(s) |
| **Module Description:** | This module introduces the student to the environmental and health effects of typical materials used in the construction industry and provides guidance on alternative materials/treatments, the selection of low-impact building techniques and approaches to achieving sustainability through material specification.<br>Basic hot and cold water, active heating, drainage systems and the Passivhaus approach to domestic design are introduced. |

**Learning Outcomes**

*On successful completion of this module the learner will be able to:*

| # | Learning Outcome Description |
|---|---|
| LO1 | Formulate an approach to selecting materials for a building project that have a low-impact on the environment and human health. |
| LO2 | Select a range of appropriate materials (renewable materials and materials with recycled content) for specific purposes in a building project. |
| LO3 | Apply theoretical information on basic servicing systems as they relate to heating & hot water to comply with current Building Regulations. |
| LO4 | Apply theoretical information on basic drainage systems and sanitation to comply with current Building Regulations. |
| LO5 | Apply the principles of the Passivhaus approach to delivering low-energy dwellings. |

**Dependencies**

***Module Recommendations***

***Incompatible Modules***

No incompatible modules listed

***Co-requisite Modules***

No Co-requisite modules listed

***Requirements***

No requirements listed

**Indicative Content**

**Resources**
Existing reserves of resources, environmental effects of the construction industry on the planet and human health, life cycle of materials, open & closed loop systems and embodied energy /carbon.

**Construction Materials**
Selection of low-impact materials, alternative treatment of materials, eco-labelling and construction methods associated with renewable and recycled materials as they pertain to structure, insulation and finishes (internal & external).

**Breathable Construction**
Breathable materials and movement of moisture vapour through building fabric.

**Active servicing systems**
Hot & cold water supply, basic active heating systems (renewable & non-renewable), drainage and sanitation to comply with Building Regulations Part L, G & H..

**Passivhaus Principles**
The concept and standard of Passivhaus with an introduction to air tightness, ventilation, moisture movement and material/product specification.

## Module Content & Assessment

| Assessment Breakdown | % |
|---|---|
| Coursework | 50.00% |
| End of Module Formal Examination | 50.00% |

### Assessments

**Coursework**

| | | | |
|---|---|---|---|
| **Assessment Type** | Project | **% of Total Mark** | 30 |
| **Timing** | Week 12 | **Learning Outcomes** | 1,2 |

**Assessment Description**
Documented research and annotated scaled drawings highlighting the justification, specification and use of low-impact materials.

| | | | |
|---|---|---|---|
| **Assessment Type** | Project | **% of Total Mark** | 20 |
| **Timing** | Week 8 | **Learning Outcomes** | 3 |

**Assessment Description**
Annotated scaled drawings of a residential building indicating heating & hot water systems to demonstrate compliance with current Building Regulations.

**End of Module Formal Examination**

| | | | |
|---|---|---|---|
| **Assessment Type** | Formal Exam | **% of Total Mark** | 50 |
| **Timing** | End-of-Semester | **Learning Outcomes** | 1,2,3,4,5 |

**Assessment Description**
End of Module Formal Examination

**Reassessment Requirement**

**Repeat examination**
*Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.*

## Module Workload

| Workload: Full Time | | | | | |
|---|---|---|---|---|---|
| *Workload Type* | *Contact Type* | *Workload Description* | *Frequency* | *Average Weekly Learner Workload* | *Hours* |
| Lecture | Contact | Lecture based instruction | Every Week | 3.00 | 3 |
| Independent & Directed Learning (Non-contact) | Non Contact | Completion of assigned project. | Every Week | 4.00 | 4 |
| | | | | Total Hours | 7.00 |
| | | | | Total Weekly Learner Workload | 7.00 |
| | | | | Total Weekly Contact Hours | 3.00 |

| Workload: Part Time | | | | | |
|---|---|---|---|---|---|
| *Workload Type* | *Contact Type* | *Workload Description* | *Frequency* | *Average Weekly Learner Workload* | *Hours* |
| Independent & Directed Learning (Non-contact) | Non Contact | Completion of assigned project. | Every Week | 4.00 | 4 |
| Lecture | Contact | Lecture based instruction | Every Week | 3.00 | 3 |
| | | | | Total Hours | 7.00 |
| | | | | Total Weekly Learner Workload | 7.00 |
| | | | | Total Weekly Contact Hours | 3.00 |

## Module Resources

*Recommended Book Resources*

**Sandy Halliday. (2008), Sustainable Construction, Elsevier Science and Technology, Oxford, England, [ISBN: 9780750663946].**

**Keith Hall (Editor). (2008), Green Building Bible: v. 1, Green Building Press, [ISBN: 9781898130055].**

**Cathy Strongman. (2008), The Sustainable Home, Merrell, [ISBN: 9781858944302].**

**Rob Thompson. (2013), The Manufacturing Guides - Sustainable Materials, Processes & Production, Thames & Hudson, [ISBN: 0500290717].**

**Cotterell, Janet & Dadeby, Adam. (2012), The Passivhaus Handbook. A practical guide to constructing and retrofitting buildings for ultra low-energy performance, 1st. Green Boks, [ISBN: 9780857840196].**

**The Chartered Institute of Building Services Engineers. (2016), CIBSE GUIDE B1 : Heating, [ISBN: 9781906846749].**

**Bruce Young, Alan Shiert, John Hayton and Will Griffiths. (2013), Design of low-temperature domestic heating systems, IHS BRE Press, [ISBN: 9781848063433].**

*This module does not have any article/paper resources*

*Other Resources*

**DVD, Anna Fitch. (2006), Scraphouse: San Francisco..**

**DVD, Ted Owens. (2005), Building with Awareness. The construction of a hybrid home..**

**Building Regulations, Dept. of Housing, Planning & Local Government. TGD Part L, Part G & Part H, Dublin, The Stationary Office.**

## Module Delivered in

| Programme Code | Programme | Semester | Delivery |
|---|---|---|---|
| CR_CARCT_8 | Bachelor of Science (Honours) in Architectural Technology | -1 | Mandatory |
| CR_DINAR_8 | Bachelor of Science (Honours) in Interior Architecture | -1 | Mandatory |
| CR_TARCH_7 | Bachelor of Science in Architectural Technology | -1 | Mandatory |
| CR_DIARC_7 | Bachelor of Science in Interior Architecture | -1 | Mandatory |