

Module Information

2022.01, Approved

Summary Information

| | |
|---------------------|--|
| Module Code | 5305BEUG |
| Formal Module Title | Design Economics and Project Lifecycle Value |
| Owning School | Civil Engineering and Built Environment |
| Career | Undergraduate |
| Credits | 20 |
| Academic level | FHEQ Level 5 |
| Grading Schema | 40 |

Teaching Responsibility

| |
|---|
| LJMU Schools involved in Delivery |
| Civil Engineering and Built Environment |

Learning Methods

| Learning Method Type | Hours |
|----------------------|-------|
| Lecture | 22 |
| Workshop | 22 |

Module Offering(s)

| Display Name | Location | Start Month | Duration Number Duration Unit |
|--------------|----------|-------------|-------------------------------|
| JAN-CTY | CTY | January | 12 Weeks |

Aims and Outcomes

| | |
|------|---|
| Aims | To analyse, and evaluate the influence of changes in design parameters on the life cycle value of a project considering multiple performance metrics and commercial targets |
|------|---|

After completing the module the student should be able to:

Learning Outcomes

| Code | Number | Description |
|------|--------|---|
| MLO1 | 1 | Calculate and interpret the impact of design decisions on the life cycle value of the construction projects using several metrics. |
| MLO2 | 2 | Quantify environmental impact of a given building using IT tools and evaluate life cycle value with the aim of reducing environmental impact. |
| MLO3 | 3 | Propose design solutions that optimises the trade-off between multiple performance metrics. |
| MLO4 | 4 | Demonstrate skills in collaborative team working and leadership. |

Module Content

| | |
|------------------------|---|
| Outline Syllabus | - Introduction to building lifecycle: Cost vs Value- Discounted cash flow: Net Present Value- Building morphology and design parameters and their impact on construction cost, energy, CO2 emissions - Software implementation, BIM Insight - Multi - Objective Optimisation: Maximisation of Net Present Value while minimising Energy Demand and CO2 emission |
| Module Overview | |
| Additional Information | This module aims to analyse, and evaluate the influence of changes in design parameters on the life cycle value of a project considering multiple performance metrics and commercial targets. |

Assessments

| Assignment Category | Assessment Name | Weight | Exam/Test Length (hours) | Module Learning Outcome Mapping |
|---------------------|-------------------------------|--------|--------------------------|---------------------------------|
| Technology | Software Exercise | 40 | 0 | MLO1, MLO2 |
| Presentation | Group Presentation and Report | 60 | 0 | MLO1, MLO2, MLO3, MLO4 |

Module Contacts

Module Leader

| Contact Name | Applies to all offerings | Offerings |
|--------------|--------------------------|-----------|
| Onur Dursun | Yes | N/A |

Partner Module Team

| Contact Name | Applies to all offerings | Offerings |
|--------------|--------------------------|-----------|
|--------------|--------------------------|-----------|