**Liverpool** John Moores University

| | |
|---|---|
| Title: | DESIGN, STRUCTURES AND SPECIFICATION |
| Status: | Definitive |
| Code: | **4108BEUG** (118093) |
| Version Start Date: | 01-08-2013 |
| Owning School/Faculty: | Built Environment |
| Teaching School/Faculty: | Built Environment |

| Team | Leader |
|---|---|
| Michael Farragher | Y |
| Yue Huang | |

| | | | | | |
|---|---|---|---|---|---|
| **Academic Level:** | FHEQ4 | **Credit Value:** | 24.00 | **Total Delivered Hours:** | 84.00 |
| **Total Learning Hours:** | 240 | **Private Study:** | 156 | | |

**Delivery Options**
Course typically offered: Standard Year Long

| Component | Contact Hours |
|---|---|
| Lecture | 60.000 |
| Tutorial | 24.000 |

**Grading Basis:** 40 %

**Assessment Details**

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|---|---|---|---|---|
| Test | AS1 | | 25.0 | |
| Report | AS2 | | 50.0 | |
| Report | AS3 | | 25.0 | |

**Aims**

*To introduce the roles and responsibilities of the main parties working in the construction industry.*
*To introduce fundamental concepts concerning the design of dwellings in respect of building form, function, historical precedent, specification of materials and impact on the environment.*

*To study elements of structural design along with the properties of materials and the behaviour of structures commonly used in the construction industry.*

## Learning Outcomes

After completing the module the student should be able to:

1 Identify and describe the roles and responsibilities of the main parties throughout the design and construction process.
2 Discuss the significance of historical, social and technological influences on domestic architecture.
3 Discuss the principles of successful design and evaluate their impact on the planning and design of domestic building including the purpose of specifications to achieve quality in design.
4 Evaluate the environmental impact on the planning, design and specification of a domestic dwelling.
5 Apply the concept of structure, loading on structures and the interaction of structural elements with the loading environments.
6 Explain the concepts of structural behaviour relating to the design of a house.
7 Apply standard methods to predict the structural behaviour of materials.
8 Apply basic tools to the analysis and design of structures.

## Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

| | | | | |
|---|---|---|---|---|
| ICA | 7 | 8 | | |
| Report | 1 | 2 | 3 | 4 |
| Report 2 | 5 | 6 | | |

## Outline Syllabus

*Roles and responsibilities of the main parties in the construction industry; the RIBA Plan of Work Stages.*
*Introduction to history of domestic architecture in the UK; architectural historical precedent; influence of social and technological changes; relationship of buildings to their context.*
*Design principles: the design brief, client requirements, user factors. site constraints; design ergonomics ;inclusive environments; project aesthetics; influence of shape, size and proportion; position; location; services and structure integration.*
*Environmental impact; Sustainable approach to house design. Material specification, design layout and technology; renewables*
*Purpose and importance of specifications, relationship to drawings; performance and prescriptive types, quality control of materials and components on-site and off-site, standards, codes of practice, product selection*
*Basic structural principles, calculations for loadings, bending moments, basic structural calculations, beam and column sizes.*

*Basic mathematics as necessary to support the structural calculations: transposition of equations, basic trigonometry.*

**Learning Activities**

Lectures, tutorials.

**References**

| | |
|---|---|
| **Course Material** | Book |
| **Author** | Levitt D. Bernstein L |
| **Publishing Year** | 2010 |
| **Title** | The Housing Design Handbook: A Guide to good practice |
| **Subtitle** | |
| **Edition** | |
| **Publisher** | Routledge |
| **ISBN** | |

| | |
|---|---|
| **Course Material** | Book |
| **Author** | Tunstal, Gavin |
| **Publishing Year** | 2006 |
| **Title** | Managing the Building Design Process |
| **Subtitle** | |
| **Edition** | 2ND |
| **Publisher** | Butterworth Heinemann |
| **ISBN** | |

| | |
|---|---|
| **Course Material** | Book |
| **Author** | Littlefield, David |
| **Publishing Year** | 2008 |
| **Title** | 'Metric Handbook Planning and Design Data' |
| **Subtitle** | |
| **Edition** | 3RD |
| **Publisher** | Architectural Press |
| **ISBN** | |

| | |
|---|---|
| **Course Material** | Journal / Article |
| **Author** | |
| **Publishing Year** | 2009 |
| **Title** | Communities and Local Government |
| **Subtitle** | Code for Sustainable Homes: Technical Guide |
| **Edition** | |
| **Publisher** | |
| **ISBN** | |

| | |
|---|---|
| **Course Material** | Journal / Article |

| | |
|---|---|
| **Author** | |
| **Publishing Year** | 2001 |
| **Title** | By Design: Better Places to Live, A Companion Guide to PPG 3 |
| **Subtitle** | |
| **Edition** | |
| **Publisher** | Thomas Telford Publishing |
| **ISBN** | |

| | |
|---|---|
| **Course Material** | Book |
| **Author** | Al Nageim, H |
| **Publishing Year** | 2003 |
| **Title** | Structural Mechanics, Loads Analysis Design and Materials |
| **Subtitle** | |
| **Edition** | |
| **Publisher** | Pearson Prentice Hall |
| **ISBN** | 0582431654 |

---

**Notes**

This module introduces fundamental concepts concerning the design of dwellings in respect of building form, function, historical precedent and impact on the environment.
It also addresses introductory elements of structural design along with the properties of materials and the behaviour of structures commonly used in the construction industry.