

# Degree of Bachelor of Science (Honours) in Built Environment Studies

Faculty for the Built Environment

Course Programme

## Background

- 1.0 The B.Sc. (Hons) in Built Environment Studies is a first tier qualification offered by the Faculty for the Built Environment. The primary objectives of this qualification are (i) to introduce students to the breadth of the issues of relevance to the built environment, particularly in Malta, but with a perspective which takes into account contemporary international, and particularly European, concerns; (ii) to prepare students wishing to follow a second tier degree in the Faculty, which would then qualify them to achieve professional status, at national and, where applicable, at European level, after any relative statutory periods of practical training prescribed by law; (iii) to ensure that, even if there is no intention to proceed with second tier studies, successful graduates acquire skills which can be productively employed, in the industry associated with the built environment.
  
- 2.0 The successful completion of this first tier qualification is a pre-requisite for admittance to the main professional second tier degrees currently envisaged, namely the Masters degree in Architecture, or in Architecture and Urban Design, the Masters degree in Civil and in Structural Engineering, and the Masters degree in Spatial Planning and Infrastructure, and any professional hybrid degrees, such as Masters in Urban Design & Planning, or Masters in Structural Engineering & Architecture. This first tier degree is also envisaged as part of a potential route to other related disciplines, such as of Project Management, Conservation, or Environmental Science. The two tiers of academic preparation, taken together, and mapped out appropriately, are required to respect the relative requirements of mutual recognition of professional qualifications, as defined in the relevant European legislation, and namely the 11 points in Article 46 of EU Directive 2005/36/EC, in the case of Architects, and also of FEANI, in the case of Engineers.
  
- 3.0 The philosophy under-pinning the suite of first-tier and second-tier degrees, offered by the Faculty for the Built Environment, is informed by the Recommendation, made by the Committee of Ministers of the Council of Europe, in 1981, that, as far as is feasible, a *common core of studies* be established for the four disciplines, architects, town planners, civil engineers and landscape designers, without prejudice to the specific character of studies in each discipline, “so as:
  - to make clear that any action involving one of those disciplines is but partial and belongs to a general pattern;

- to foster the adoption of a common language for the various participants, in order to create an atmosphere of interdisciplinarity, and clarity, which is often lacking at present.”

It was recommended that educational objectives would be defined that:

- inculcated a new philosophy of the environment, with particular reference to the architectural, cultural, social and natural heritage of a place;
- created an understanding of, and respect for, the various scientific disciplines relating to the environment, and the importance of the environment, as a framework for living conditions;
- prepared professionals for co-operation, notably by means of joint exercises throughout the training period.

The same report further suggested that this could be achieved by arranging the basic educational subjects into three families, i.e.:

- modes of perception of space;
- the history of the heritage and of civilizations;
- the relationship between man and his environment ;

It was proposed that “in the whole series of study projects, a preferential place should be given to the reshaping of landscapes and built-up areas, without prejudice to the values of the architectural heritage”.

### **Pre-Requisites**

Admission to the B.Sc. (Hons) in Built Environment Studies is conditional to a successful completion of the Diploma in Design Foundation Studies, and the Special Entry Requirements defined in the relative Regulations.

## Objectives

- 4.0 The Course Programme is designed to:
- (a) offer as much choice to students as resources allow, and the least number of **mandatory** study-units as can be managed;
  - (b) allow as late as possible a decision about which second tier Masters a particular candidate wishes to eventually follow, to ensure that they have become aware of the range of possibilities, and also of their own aptitudes, before they make a choice.
- 5.0 The Programme study-units have grouped under generic headings, including **History and Theory Studies, Heritage Conservation, Construction Technology, Materials, Environmental Design, Structural Engineering, Geotechnical Engineering, Spatial Planning, Sustainable Development, Water and Mineral Resources, Road Transport, Landscape Design, Construction Management and Law, Visual Arts, Mathematics and Computing**, which will be taught via formal lectures/seminars, and, most importantly, via **Design Workshops**.
- 6.0 Each semester includes a series of practical, and thematic, design exercises, which will, in general, be carried out in a studio, or workshop, environment. The design workshops of each semester will carry a credit value of 6 ECTS, on the assumption that formal contact time with workshop tutors will not be less than 42hrs per semester per student. This will obviously need to be supplemented by considerable private or group work, generally in a studio environment. In order to ensure that the formal contact time is meaningful, it may be necessary for the number of students in each workshop to be limited to ca. 30 students. For this purpose, in each semester, a number of parallel workshop sessions will be offered, each led by one or two tutors.
- 7.0 Taught study-units will be of 3 or 4 ECTS rating, corresponding to 21 or 28 formal contact time (lecturing), not including tutorials, site visits, practical sessions and laboratory work, as is appropriate for the respective study-unit. In order to address as wide a spectrum of issues as possible, the study-units of the first semester will be of 3 ECTS rating, whilst in the second semester, there will be three study-units of 4 ECTS rating, and four study-units of 3 ECTS rating. From second year onwards, taught study-units will generally all be of 4 ECTS rating.
- 8.0 The study-units of the first three semesters will be mandatory for all students, but, in the last three semesters, an increasing number of “targeted” electives will be offered. The study-units of the first three semesters aim at emphasizing the basic common concerns of all disciplines, within the built environment, namely the impact, of all that is

built, on, firstly, the natural environment and natural landscape, and, secondly, on the social (the community) and cultural fabric (the built heritage); and the importance of resource and energy efficiency in the building process. At the same time, students will be offered an introduction to the linkages between forms of construction, structure, material science, and fabric performance, in order to create the basis for a sound technological preparation.

- 9.0 In the second half of the course, students will be offered a wider range of electives. The selection of study-units, however, will not be without guidance, (unless a candidate wishes to follow a route other than a professional Masters degree). For each professional masters degree, pre-requisites to admission, (a form of preferred road-map), will be identified, indicating the minimum range of disciplines that have to be successfully followed. The study-units, offered in the second half of the course, are grouped in **themes**, and students will be required to obtain established amounts of credits, from each theme, as required by the respective Masters degree programme. Ideally, students will find choice, even within the same theme, so that the possibilities of study are widened beyond the limitations of a completely mandatory programme, within as efficient use of resources as possible.
- 10.0 In order for students, including those who spend a semester abroad, to make informed elective choices in the latter half of the course, the pre-requisites to admission that will be adopted for each of the currently envisaged professional Masters courses that will follow the BSc.(Hons) degree, are outlined in this document.
- 11.0 At the moment, three professional routes will be offered, even if others may be developed at a later stage, namely the M.Arch, (Architecture, and Urban Design), the M.Eng. (Structural Engineering, and Civil Engineering), and the M.Plan. (Spatial Planning and Infrastructure). At this stage, no *numerus clausus* will be applied to any of these routes. Nevertheless, admission is conditional on the student demonstrating the right aptitude and skill, through the academic performance during his Bachelor degree studies, and through a portfolio of his own work. The portfolio should broadly present the student's skills, in the particular discipline, and his creativity and commitment. The following road-maps are advised:

## M.Arch Programme

12.0 In order to be admitted into the M.Arch programme, a student would have to successfully complete the minimum number credits in the relative study-units, as indicated below. On the assumption that the student will have followed the mandatory study-units of the first three semesters, (shown in brackets), over the last three semesters, students are required to choose study-units from the themes, and with the credit values, as indicated below:

|          |  |         |      |
|----------|--|---------|------|
| xxx.x10x | Design Workshops:                        | 18 ECTS | (18) |
| xxx.x21x | Historical Studies:                      | 4 ECTS  | (10) |
| xxx.x22x | Architectural/Design Theory:             | 8 ECTS  |      |
| xxx.x30x | Conservation and Heritage Studies:       | 4 ECTS  | (3)  |
| xxx.x41x | Construction Technology Studies:         | 0 ECTS  | (11) |
| xxx.x42x | Materials in Construction:               | 0 ECTS  | (10) |
| xxx.x50x | Environmental Science:                   | 0 ECTS  | (11) |
| xxx.x61x | Structural Behaviour and Design:         | 4 ECTS  | (11) |
| xxx.x62x | Geotechnical and Foundation Studies:     | 4 ECTS  |      |
| xxx.x63x | Mathematics and Computing:               | 0 ECTS  | (6)  |
| xxx.x71x | Urban Design Studies:                    | 8 ECTS  |      |
| xxx.x72x | Spatial Planning Studies:                | 8 ECTS  |      |
| xxx.x73x | Infrastructural Systems and Development: | 0 ECTS  | (3)  |
| xxx.x74x | Landscape Studies:                       | 0 ECTS  | (3)  |
| xxx.x80x | Management Studies:                      | 4 ECTS  | (4)  |
| xxx.x90x | Visual Arts:                             | 4 ECTS  |      |
|          | Optional:                                | 24 ECTS |      |

## M.Eng Programme

- 13.0 In order to be admitted into the M.Eng. programme, a student would have to successfully complete the minimum number credits in the relative study-units, as indicated below. On the assumption that the student will have followed the mandatory study-units of the first three semesters, (shown in brackets), over the last three semesters, students are required to choose study-units from the themes, and with the credit values, as indicated below:

|          |  |         |      |
|----------|--|---------|------|
| xxx.x10x | Design Workshops:                        | 18 ECTS | (18) |
| xxx.x21x | Historical Studies:                      | 0 ECTS  | (10) |
| xxx.x22x | Architectural/Design Theory:             | 0 ECTS  |      |
| xxx.x30x | Conservation and Heritage Studies:       | 0 ECTS  | (3)  |
| xxx.x41x | Construction Technology Studies:         | 4 ECTS  | (11) |
| xxx.x42x | Materials in Construction:               | 4 ECTS  | (10) |
| xxx.x50x | Environmental Science:                   | 0 ECTS  | (11) |
| xxx.x61x | Structural Behaviour and Design:         | 12 ECTS | (11) |
| xxx.x62x | Geotechnical and Foundation Studies:     | 12 ECTS |      |
| xxx.x63x | Mathematics and Computing:               | 4 ECTS  | (6)  |
| xxx.x71x | Urban Design Studies:                    | 0 ECTS  |      |
| xxx.x72x | Spatial Planning Studies:                | 0 ECTS  |      |
| xxx.x73x | Infrastructural Systems and Development: | 8 ECTS  | (3)  |
| xxx.x74x | Landscape Studies:                       | 0 ECTS  | (3)  |
| xxx.x80x | Management Studies:                      | 4 ECTS  | (4)  |
| xxx.x90x | Visual Arts:                             | 0 ECTS  |      |
|          | Optional:                                | 24 ECTS |      |

## M.Plan. Programme

- 14.0 At this moment in time, there is no specific road-map for admission into the M.Plan., although students would be expected to have successfully completed the following credits:

|          |  |        |     |
|----------|--|--------|-----|
| xxx.x71x | Urban Design Studies:                    | 8 ECTS |     |
| xxx.x72x | Spatial Planning Studies:                | 8 ECTS |     |
| xxx.x73x | Infrastructural Systems and Development: | 8 ECTS | (3) |

- 15.0 It is emphasized that the study-unit road maps indicated above are to be considered as minima, and that students ought to select optional study-units judiciously, to ensure they obtain as rounded a preparation as is appropriate.
- 16.0 If too many students subscribe to a particular Design Workshop than can be properly handled by the number of tutors available, the right is reserved to limit the number, and to select the participants, on the basis of their previous portfolio, and aptitudes, as evidenced by their performance in other, previously taken, study-units.

Note 1: The reference system used throughout this document has the following meaning.

The first three characters indicate the Department, Unit or Faculty offering the study unit:

BEN: Faculty for the Built Environment; AUD: Department of Architecture and Urban Design; CVE: Department of Civil and Structural Engineering; CNM: Construction and Management Unit; EVD: Environmental Design Unit; SPI: Spatial Planning and Infrastructural Unit; BLH: Department of the Built Heritage; VSA: Department of the Visual Arts; MAT: Department of Mathematics; MME: Department of Metallurgy and Materials Engineering.

In the numeric code, the first numeral normally refers to the Year or Level at which the study-unit is being offered. The next two numerals indicate the thematic classification of the study-unit, as indicated above, and the last number is a progressive identification number.

Note 2: With reference to the minimum number of credits in specific themes, as defined by the respective road-map for admission into a particular Masters degree programme, the Board of Studies may be asked to determine equivalence of study-units offered by institutions outside the Faculty, or by foreign Universities, to those required by such road-map.

Note 3: Although every effort will be made to set up time-tables which allow students to choose study-units freely, it cannot be guaranteed that no clashes will occur, and that as a result some choices may be prescribed.

Note 4: The Faculty Board reserves the right not to offer an elective study-unit, if less than 5 students register to take such study-unit.

## Study-Unit Catalogue

### Semester 1

|         |   |        |           |
|---------|---|--------|-----------|
| BEN1101 | Design Workshop 1                               | 6 ECTS | mandatory |
| AUD1201 | History and Theory Studies 1 (Modern Movements) | 3 ECTS | mandatory |
| CNM1411 | Introduction to Forms of Construction           | 3 ECTS | mandatory |
| CNM1421 | Materials and the Environment                   | 3 ECTS | mandatory |
| EVD1501 | Fundamentals of Environmental Science           | 3 ECTS | mandatory |
| CVE1611 | Introduction to Structure Systems               | 3 ECTS | mandatory |
| SPI1711 | Landscape and Human Impact                      | 3 ECTS | mandatory |
| SPI1721 | Introduction to Sustainable Development         | 3 ECTS | mandatory |
| MAT1801 | Mathematics for Engineers 1                     | 4 ECTS | mandatory |
|         |   |        |           |
| BEN2101 | Design Workshop 3                               | 6 ECTS | mandatory |
| AUD2211 | Studies in Maltese Architecture                 | 4 ECTS | mandatory |
| CNM2411 | Building Elements 2                             | 4 ECTS | mandatory |
| CNM2421 | Materials for Construction 1                    | 4 ECTS | mandatory |
| EVD2501 | Environmental Control Systems                   | 4 ECTS | mandatory |
| CVE2611 | Structural Design 1                             | 4 ECTS | mandatory |
| CNM2801 | Introduction to Project Management              | 4 ECTS | mandatory |

*(new from October 2013)*

|          |   |        |  |
|----------|---|--------|--|
| AUD3101  | Themed Design Workshop  | 3 ECTS |  |
| CNM3101  | Themed Design Workshop  | 3 ECTS |  |
| EVD3101  | Themed Design Workshop  | 3 ECTS |  |
| CVE3101  | Themed Design Workshop  | 3 ECTS |  |
| AUD3211  | The Architecture of Medieval Europe                           | 4 ECTS |  |
| AUD3221  | Theory of Digital Design                                      | 4 ECTS |  |
| BLH 3301 | Philosophy of Conservation                                    | 4 ECTS |  |
| CNM3411  | Concrete Construction Technology                              | 4 ECTS |  |
| CNM3421  | Degradation of Building Materials 1 (concrete, timber, stone) |        |  |
| EVD3501  | Advanced Lighting Design                                      | 4 ECTS |  |
| CVE3611  | Theory of Structures 1  | 4 ECTS |  |
| CVE3612  | Structural Design 3 (steel)                                   | 4 ECTS |  |
| CVE3621  | Geotechnical Engineering 1                                    | 4 ECTS |  |
| MAT1802  | Mathematics for Engineers 2                                   | 4 ECTS |  |
| SPI3721  | Introduction to Maltese Spatial Planning Systems              | 4 ECTS |  |
| SPI3731  | Civil Engineering Hydraulics                                  | 4 ECTS |  |
| SPI3732  | Road Infrastructure 1   | 4 ECTS |  |



|         |   |        |  |
|---------|---|--------|--|
| SPI3733 | Geomatics 1                                   | 4 ECTS |  |
| SPI3741 | Landscape Construction Elements               | 4 ECTS |  |
| CNM3801 | Contract Administration/Production Management | 4 ECTS |  |
| CVL     | Law (Civil, Property, Liability)              | 4 ECTS |  |

## Semester 2

|          |  |        |           |
|----------|--|--------|-----------|
| BEN1102  | Design Workshop 2                                  | 6 ECTS | mandatory |
| AUD1202  | History and Theory Studies (19 <sup>th</sup> cent) | 3 ECTS | mandatory |
| BLH 1301 | Our Heritage and Us                                | 3 ECTS | mandatory |
| MME1203  | Introduction to Material Science                   | 3 ECTS | mandatory |
| CVE1632  | Introduction to Data Management                    | 3 ECTS | mandatory |
| EVD1502  | Environmental Design of Interior Spaces            | 4 ECTS | mandatory |
| CNM1412  | Building Elements 1                                | 4 ECTS | mandatory |
| CVE1612  | Structures 1                                       | 4 ECTS | mandatory |

*(new from February 2013)*

|         |                         |        |  |
|---------|-------------------------|--------|--|
| AUD2101 | Digital Design Workshop | 3 ECTS |  |
| AUD2102 | Housing Design Workshop | 3 ECTS |  |
| CVE2101 | Designing in Stone      | 3 ECTS |  |
| EVD2101 | Eco-Design Workshop     | 3 ECTS |  |

|         |  |        |  |
|---------|--|--------|--|
| AUD2212 | The Architecture of the Ancient World    | 4 ECTS |  |
| CVE2211 | History of Construction Technology       | 4 ECTS |  |
| BLH2301 | Introduction to Conservation Studies     | 4 ECTS |  |
| CNM2412 | Stone Masonry Construction               | 4 ECTS |  |
| CNM2802 | Building Costs and Specification         | 4 ECTS |  |
| MME2421 | Materials for Construction 2             | 4 ECTS |  |
| EVD2502 | Energy Efficient Design                  | 4 ECTS |  |
| CVE2612 | Structural Design 2                      | 4 ECTS |  |
| CVE2621 | Introduction to Geotechnical Engineering | 4 ECTS |  |
| MAT2814 | Numerical Analysis with Mathlab          | 4 ECTS |  |
| SPI2711 | Introduction to Urban Design Studies     | 4 ECTS |  |
| SPI2721 | Introduction to Spatial Planning         | 4 ECTS |  |
| SPI2731 | Hydrology and Water Resources            | 4 ECTS |  |
| SPI2732 | Introduction to Road Transport           | 4 ECTS |  |
| SPI2741 | Principles of Landscape Science          | 4 ECTS |  |
| VSA2902 | Understanding Disciplines of Fine Art    | 4 ECTS |  |

*(new from February 2014)*

|         |  |        |
|---------|--|--------|
| AUD3102 | Themed Design Workshop                       | 3 ECTS |
| CNM3103 | Themed Design Workshop                       | 3 ECTS |
| EVD3104 | Themed Design Workshop                       | 3 ECTS |
| CVE3105 | Themed Design Workshop                       | 3 ECTS |
| AUD3212 | The Architecture of the Early Modern World 1 | 4 ECTS |
| AUD3213 | The Architecture of the Early Modern World 2 | 4 ECTS |
| VSA3222 | Sound and Architecture                       | 4 ECTS |
| BLH3302 | Integrated Conservation                      | 4 ECTS |
| CVE3412 | Steel Construction Technology                | 4 ECTS |
| BLH3421 | Traditional Building Materials               | 4 ECTS |
| MME3421 | Degradation of Building Materials 2          | 4 ECTS |
| EVD3502 | Advanced Acoustic Studies                    | 4 ECTS |
| CVE3613 | Theory of Structures 2                       | 4 ECTS |
| CVE3622 | Geotechnical Engineering 2                   | 4 ECTS |
| CVE3632 | Mathematics for Computational Design         | 4 ECTS |
| SPI3712 | Urban Regeneration                           | 4 ECTS |
| SPI3722 | Urban and Regional Development               | 4 ECTS |
| GEO2305 | Geographic Information Systems               | 4 ECTS |
| SPI3734 | Management of Water and Solid Waste          | 4 ECTS |
| SPI3735 | Road Infrastructure 2                        | 4 ECTS |
| SPI3742 | Landscape Technology                         | 4 ECTS |
| CNM3803 | Property Management                          | 4 ECTS |
| CNM3804 | Value and Risk Management                    | 4 ECTS |
| ERL     | Law (Environmental and Planning Law)         | 4 ECTS |
| VSA3902 | Semiotics: A User's Introductory Guide       | 4 ECTS |