# Module Guide

Construction Planning

EBB_5_150

School of the Built Environment and Architecture

Level 5

**Become what you want to be**

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# 1. MODULE DETAILS

| | |
|---|---|
| **Module Title:** | Construction Planning |
| **Module Level:** | 5 |
| **Module Reference Number:** | EBB_5_150 |
| **Credit Value:** | 20 |
| **Student Study Hours:** | 200 |
| **Contact Hours:** | 33 – Combination of lectures and tutorials |
| **Private Study Hours:** | 167 |
| **Pre-requisite Learning (If applicable):** | Production Management<br>Construction Technology & Materials<br>Construction Technology & Structures |
| **Co-requisite Modules (If applicable):** | None |
| **Course(s):** | BSc (Hons) Construction Management |
| **Year and Semester** | 2019-2020 Semester 2 |
| **Module Coordinator:** | Dr. Yuting Chen |
| **MC Contact Details (Tel, Email, Room,<br>Surgery hours):** | Tel: +44 (0)20 7815 7103, Room: Tower Block T510, Email: cheny22@lsbu.ac.uk<br>Surgery hours: Monday 15:00-16:00 & Wednesday 15:00-16:00 |
| **Teaching Team & Contact Details<br>(If applicable):** | N/A |
| **Subject Area:** | Construction, Property & Surveying |
| **Summary of Assessment Method:** | Coursework |
| **External Examiner appointed for module:** | Bill Martin – Head of Construction and Engineering School - Colchester Institute |

# 2. SHORT DESCRIPTION

This module will introduce how to plan construction project mainly in terms of time, quality, and cost. Other nD planning would also be introduced at the end. Planning, as one part of management, will be presented together with control, which is one other part of management. The role of contract in planning will be explained as well. This module also includes some basic BIM content from a construction-planning viewpoint. It develops a working knowledge of the classical planning / time programming techniques and the associated analytical skills to develop strategies that fulfill these requirements. Microsoft Project will be used to summate the above classical time – resource -cost programme. Advances on critical path may be developed to include the principles of Project Cash Flow, Pert Time and Pert Cost.

# 3. AIMS OF THE MODULE

- To develop and apply the knowledge gained in Production Management.
- To develop competence in the formulation of appropriate production strategies for the safe and efficient erection of a range of buildings.
- To develop competence in the selection and application of a range of planning and programming techniques both by hand and using IT.
- To understand the production process in the current BIM context and to use software to manipulate and interrogate 3D information.
- To provide an awareness of the many diverse forces acting upon the production process (by students own reading).

# 4. LEARNING OUTCOMES

## 4.1 Knowledge and Understanding

- To further develop and apply traditional techniques and approaches to plan and programme construction projects in order to control time, cost and valuation of work, all within a rigorous safety system.
- Use specialist software for accepting design information; integrating, adding to and reporting on that information; to prepare time-resource-cost programs; understand and use new Location Based Management approaches.
- To understand how the legal profession may view the contract programme in the event of cost and time applications.
- Further develop an awareness of the issues of Modern Methods of Construction, Prefabrication, Buildability, Supply Chain Management, Partnering and Lean Construction.

## 4.2 Intellectual Skills

- Assemble information and data from a variety of sources and discern and establish connections to develop optimum answers to production problems and generate practical and reliable solutions involving time, cost and quality.
- To build, analyze, manipulate arithmetic and visual models of the production process using logic and graphics.
- Evaluate current procedures and approaches, investigate routine and unfamiliar problems and apply professional judgment in order to devise solutions and/or recommend appropriate actions
- To view the production process in a holistic view as a system, using a number of sub-systems, concerned with motivation; human skill and knowledge; human and material resource; money; with broad concerns in terms of quality, health, safety and the environmental protection.

## 4.3 Practical Skills

- Use & interpret maps, plans & drawings; carry out measurement; record

information; prepare plans and information; find, assess, synthesis and refine information as an aid to answering problems.

- To use number and equations to solve routine and non-routine problems.
- Use software and related technologies to solve problems.
- Present quantitative and qualitative information; produce professional reports; proposals; professional documentation in accordance with published conventions;

### 4.4 Transferable Skills

- Use of verbal and written English to discuss problems and presenting answers.
- Time management, work under pressure.
- Learn effectively and independently by both reading and observation in the real world.

# 5. ASSESSMENT OF THE MODULE

## 5.1 Assessment Strategy

There will be two elements to the assessment of this Module:

Coursework 1: A portfolio of completed exercises – 50% of the final mark
Coursework 2: A case study project - 50% of the final mark.

Both courseworks are individual assignments and will be completed individually by each student. To successfully complete the Module you must achieve:

- A minimum of 35% for each of the coursework; and
- An overall module mark of 40%

Submission deadline for Coursework 1 is on Friday, the 3th of April 2020 at

15:00. These dates and times can also be found in the teaching schedule provided in Section 8.

Submission deadline for Coursework 2 is on Friday, the 29th of May 2020 at 15:00. These dates and times can also be found in the teaching schedule provided in Section 8.

## 5.2 General Instructions Regarding Coursework Submissions

Please adhere to the following requirements regarding the submission of Coursework 1 and 2:

- This module requires you to do electronic (i.e. through Moodle) submissions for the Coursework (both 1 and 2) introduced above.
- The submission link may include a **Turnitin** originality check feature. When this feature is enabled, all the submissions that you do through the link go through an originality check. When this feature is enabled you can also use the same submission link for self- assessment of the originality of your work by submitting it as a 'DRAFT' (before your final submission for grading). Based on the results of the originality report of your draft, you can revise your work and do an improved final submission for grading. **If you would like to use this self-originality-check function, you can submit different versions of your work as a 'draft' until you are happy to submit it for marking (i.e. definite/final submission). Please beware that generation of the originality reports for any resubmissions are subject to delays that are not less than 24hrs. Therefore, to benefit from this checking service you must submit your work early.**
- No resubmissions will be accepted after the submission deadlines stated for Coursework 1 and 2 (unless off course you are registered with DDS and entitled to extra time). Submissions made through e-mails will not be accepted.
- Ensure that your submissions for Coursework 1 and 2 comply with any word limits stated in the coursework briefs and that the text is word

processed, single sided A4, and using 1.5 line spacing and Times New Roman 12 font.

- ‘References’ and ‘Appendices’ sections can be included at the end of your submissions if you think they are required. These sections will not be a part of word count, and therefore you can make them as long as you wish.
- Your name should be on every page (easily done if you include it in the header or footer)

Please note: The Module Leader will follow up any suspected plagiarism and unfair practice found after the submission date as per University policy. Late penalties will apply as per University regulations (if in doubt please refer to the Academic and Students Regulations).

**Late Submission**

If you are unable to submit your coursework by the deadline you must notify the course director prior to the submission date using the **Notification of Late Submission form** from the Faculty Office or myLSBU. You should then submit the work, either completed or incomplete, no more than two weeks later than the deadline date. You may submit extenuating circumstances claim for your late submission if you meet the criteria. See Extenuating Circumstances at https://my.lsbu.ac.uk/page/regulations

If your claim is supported, no capping of marks will be applied, and where the submitted work is incomplete the Examination Board may grant a deferral and allow you to attempt the referral with mark uncapped.

If your claim is not supported, the work will be capped to 40% of the component mark given that you submitted it no later than 14 days following the submission deadline.

**If you fail to submit work within two weeks of the deadline, a 0% will be recorded and you will not be permitted to refer in the assignment.** In this instance, you must inform the Course Director of the non-submission and make an Extenuating Circumstances claim where appropriate.

# 6. FEEDBACK

Return of Coursework with feedback will be 4 weeks maximum from the submission deadlines.

# 7. INTRODUCTION TO STUDYING THE MODULE

## 7.1 Overview of the Main Content

**LEGAL IMPLICATIONS**

How the legal profession views the time based programme in settling disputes.

**PROGRAMMING, PLANNING, RESOURCING AND CONTROL**

Lectures will include the followings.

An introduction to planning as a managerial function.

The origin and current use of Gantt Chart.

Derivation of idle or non-productive time when using leads and lags.

Comment only on the Activity on Arrow method and the generation of Free Float, Independent Float, Interfering Float.

The calculation of Total Float in Precedence.

The alternative calculation of Total and Free Float method in Precedence.

Work Break Down Structure; Cost Break Down Structure; Responsibility.

Matrix. Resource allocation, Histogram.

The origin of Line-of Balance for manufacturing; Development of Line of Balance into BRE Elemental trend analysis for construction.

Demonstration of integrated cost, time, Location Based Management and Flow in Production Programmes.

The S-Curve in use for Project Budget, Project Cash Flow, and cost control.

Understand the relationship between Direct and Indirect Cost and Optimisation of the program.

Understanding the role of contract in planning construction project.

Comparing the planning stage of construction with other stages, for example control, and completing them together.

***QUALITY, HEALTH, SAFETY and ENVIRONMENT (mainly student directed)***

The quality culture of the industry.

Systems to apply Quality Control / Quality Assurance / Total Quality Management Fostering Teamwork in the construction process.

Embedding Health, Safety, Sustainability and Environmental systems within the construction process.

***PRODUCTIVITY (mainly student directed)***

Productivity in construction. Keeping record of past performance. Industrialisation in construction. Off-site manufacture

Use of site fitters, assembly operatives verses high skill tradesmen. Buildability / Constructability / Fast Build / Fast Track

Supply Chain Management

***MODERN INITIATIVES (mainly student directed)***

Modern Methods of Construction (MMC)

Supply Chain Management, Lean Construction, Just in Time, Partnering

## 7.2 Overview of Types of Classes

There will be three principal sources of learning:

- Lecture / Tutorial contact time
- Tutor Directed Student Learning
- Student Self - Managed Learning

**Lecture / Tutorial contact time**

For the first three weeks, there will be 3 hours long lectures in the classroom. For the following weeks, there will lectures & in-class tutorials (i.e. exercises similar to Coursework 1) and computer lab tutorials to apply the lecture content using Microsoft Project software. An invited speaker is planned to give a lecture about the most common problems happening in the construction industry after all the lectures and tutorials. See teaching schedule provided in Section 8 for a more detailed explanation of the breakdown of the module delivery.

**IT IS ESSENTIAL THAT YOU DO NOT MISS THE TUTORIALS IN THE COMPUTER LAB BECAUSE THE CLASS HAS NOT GOT TIME TO REPEAT THE PREVIOUS WEEKS' WORK. SEE YOUR TIMETABLE FOR THE COMPUTER ROOMS THAT WILL BE USED DURING THIS MODULE.**

**Tutor directed student learning**

Students will be directed to read notes provided on Moodle and to undertake the exercises provided in preparation for assessment. This is essential learning being part of the syllabus and assessment.

The reading is part of both the Tutor Directed Student Learning and the Student-Self Managed Time.

## 7.3 Importance of Student Self-Managed Learning Time

Lectures and the Tutor Directed Student Learning will give the principles of syllabus topics, but you will be expected to consolidate and expand this process, by undertaking your own reading around the subject area, searching out examples, and hence expanding upon the topics.

## 7.4 Employability

Employers expect of graduates a sound theoretical technical knowledge upon which the employer's organization may start to build the in-depth experience and knowledge expected by their clients. Students displaying this knowledge will prove more employable than those whose knowledge and understanding is thin, even though they may have passed assessment.

The application skills taught and assessed in this Module are aimed at providing both the academic insight needed to structure the knowledge and understanding of the part time student and the application skills needed by the full time student in order to obtain meaningful employment.

# 8. THE PROGRAM OF TEACHING, LEARNING AND ASSESSMENT

| **Teaching Week No** | **Date** | **Activities** | | |
|---|---|---|---|---|
| | | **09:00-10:00** | **10:00-11:00** | **11:00-12:00** |
| 1 | 27-Jan-20 | Lecture: Fundamentals of planning | | |
| 2 | 03-Feb-20 | Lecture: The process of planning | | |
| 3 | 10-Feb-20 | Lecture: Time planning (Part 1)<br>Details of Coursework 1 will be released during the lecture | | |
| 4 | 17-Feb-20 | Lecture: Time planning (Part 2) | Tutorial: Basic Programming with Microsoft Project | |
| 5 | 24-Feb-20 | Lecture: Resource planning<br>Details of Coursework 2 will be | | Tutorial: Resource planning in |

| | | | |
|---|---|---|---|
| | | released during the lecture | Microsoft Project |
| 6 | 02-Mar-20 | Lecture: Cost planning | Tutorial: Cost planning the Microsoft Project |
| 7 | 09-Mar-20 | Lecture: Progress & Earned value analysis | Tutorial: Progress in Microsoft Project |
| 8 | 16-Mar-20 | Lecture: How to plan construction project by contract | |
| 9 | 23-Mar-20 | Lecture: Planning and control | Tutorial: Risk analysis with Microsoft Project |
| 10 | 30-Mar-20 | Lecture: nD planning / Tutorial: Coursework surgery<br>Submission deadline for Coursework 1 on Friday, the 3th of April 2020 at 15:00 | |
| Easter Vacation | 06-Apr-20 | N/A | |
| Easter Vacation | 13-Apr-20 | N/A | |
| Easter Vacation | 20-Apr-20 | N/A | |
| 11 | 27-Apr-20 | Lecture: What are the most common problems in planning construction in the industry (Planning to invite a speaker from industry) | |
| 12 (Bank Holiday) | 04-May-20 | Bank Holiday | |
| 13 | 11-May-20 | Tutorial: Coursework surgery | |
| 14 | 18-May-20 | Examinations | |
| Revision Week | 25-May-20 | Revision week<br>Submission deadline for Coursework 2 on Friday, the 29th of May 2020 at 15:00 | |

# 9. STUDENT EVALUATION

An online student evaluation questionnaire will be made available towards the end of the semester. Your feedback is valuable to us and will help improve the module in the future.

# 10. LEARNING RESOURCES

The reading list can be reached through the link on the Moodle site of the module. The link is also provided below:

https://rl.talis.com/3/lsbu/lists/17BB4A95-3B54-D99C-A76B-3DEF7EE8CE95.html

Alongside those listed in the reading list, please do the additional and/or recommended readings provided and/or instructed on the Moodle site of the module.

**Library and Learning Resources (LLR)**

Finding research materials and referencing them

Students are encouraged to make use of the academic resources to support their research. There is a list of resources including Technical Indexes, British Standards Online, Business Source Complete and ScienceDirect on the Library subject page for your subject area on MyLSBU. They can be accessed 24/7 from any location with an Internet connection.

**Support for students**

- You are encouraged to book our workshops to learn about finding resources and how to reference them: MyLSBU > Library > Event Booking.
- If you need help quickly, visit our drop-in Research Help Desk located on Level 3 Bridge in the Perry Library (open Monday-Friday 11:00-16:00 term time).
- If you would like further help, please contact us at: LLRbea@lsbu.ac.uk.

**Students IT support and the Learning Resources Centre (LRC)**

Students can contact LRC for IT issues such as LSBU account, printing,

and accessing wifi network:  LLRithelpdesk@lsbu.ac.uk.

You are encouraged to book our IT workshops via MyLSBU > Library > Event Booking. If you need further help, please contact LLRittt@lsbu.ac.uk.