

## Principles of Design and Construction

### 22CVP322

Semester 1 2022-23

In-Person Exam paper

This examination is to take place in-person at a central University venue under exam conditions. The standard length of time for this paper is **3 hours**.

You will not be able to leave the exam hall for the first 30 or final 15 minutes of your exam. Your invigilator will collect your exam paper when you have finished.

#### Help during the exam

Invigilators are not able to answer queries about the content of your exam paper. Instead, please make a note of your query in your answer script to be considered during the marking process.

If you feel unwell, please raise your hand so that an invigilator can assist you.

You may **not** use a calculator for this exam.

Answer **THREE** questions.

All questions carry equal marks.

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1. (a) Many contemporary theories conceptualise design as a social or collaborative process. Discuss whether this paradigm of design contradicts earlier paradigms of design: design as a process with clear phases, design as rational problem-solving, or design as a subjective and deeply human experience.  
[17 marks]
- (b) You would like your employer to send you on a design management course in a sunny seaside resort. Make a case to your employer that design management expertise is essential to your work at a large general contractor.  
[16 marks]
2. (a) Inspection of tender documents is a vital step before the contractor makes a final decision to tender. Analyse the main aspects which the estimating team should explore within the tender documents before making the decision to tender and demonstrate the impact which these aspects could make on the estimate.  
[16 marks]
- (b) Deciding on the method statement of the project has a significant influence on the project estimate. Critically discuss what is meant by the method statement and the factors which the contractor should consider when deciding on the construction method to be used during the project.  
[17 marks]
3. You are the Project Manager employed by a leading local construction contractor. Your company intends to form an International Joint Venture with a foreign firm to tender for a major new hospital.
  - (a) Critically analyse and justify four tasks that need to be undertaken leading up to the tender submission. Explain how responsibilities should be allocated between the Joint Venture partners to ensure none of the tasks are omitted.  
[11 marks]
  - (b) As part of the tender submission, explain how your Joint Venture partners will devise a coherent Master Programme and how you will keep track of the key tasks and responsibilities.  
[11 marks]
  - (c) Explain how the Joint Venture partners will share responsibility for the Monitoring and Control of the hospital project. Explain what each partner will need to do and the tools available.  
[11 marks]

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4. (a) Your employer is a construction contractor tendering for the new Ministry of Education multi-storey building. The contractor's Senior Planners are arguing about which planning technique should be used for the Master Programme. The short list consists of Gantt Charts, Precedence Diagrams and Line of Balance Diagrams. Provide arguments on how you would convince them to choose a specific technique. [11 marks]
- (b) Skills shortages are a major challenge for many UK contractors. You are a Project Manager with a project due to start in a few months. Discuss how you would approach the management of your site resources to make sure you have the resources needed in the required quantity, with the right skills and at the right time for your project. [11 marks]
- (c) Delay and Disruption are major challenges for the construction industry. Referring to published literature, identify and discuss three main causes of delay. Explain two techniques to determine the extension of time required for such time overruns. [11 marks]

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