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|  | Construction Industry Council | | |
| For official use only |
| Application No.: A-BMR-\_\_\_\_ |

PN02-F-01-Part II

**Application Form for Accreditation of Building Information Modelling (BIM) Manager Courses**

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| **Important Notes to Course Providers**   1. Please read carefully the “Application Guide for Accreditation of Building Information Modelling (BIM) Manager Courses” BEFORE completing this application form. 2. It is the responsibility of the Course Providers to provide adequate and sufficient evidence to demonstrate that they meet the assessment criteria. The Course Providers should provide all relevant documents required for assessment by CIC throughout the accreditation process. In preparing evidence, the emphasis should be on quality and relevance, not the quantity. 3. This Application Form together with all necessary supporting documents (either softcopies or hardcopies) shall be submitted by mail to BIM Department - Construction Industry Council, 38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon, or by email to bimcas@cic.hk. Please state “Private and Confidential - Application for Accreditation of BIM Manager Course” on the envelope or email subject. This application form must be submitted together with the documents, if applicable, listed in the Document Checklist. Please provide other relevant supporting documents where necessary. Original diploma, certificate, degree transcript or other important documents should **NOT** be sent to CIC by mail. 4. Upon submission, this Application Form and all other attached documents become part of CIC records and are not returnable. |

**Part II (Information on the BIM Manager Course)**

\*Mandatory fields # Delete as appropriate

Input “N.A.” if it is not applicable.

|  |  |  |
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| **Section 1 Course Information** | | |
| **1.1 Name of Course Provider\*** | | |
| (English) |  | |
| (Chinese) |  | |
| **1.2 Name of Award/Certificate Granting Body\*** | | |
| (English) |  | |
| (Chinese) |  | |
| **1.3 Course Title\*** | | |
| (English) |  | |
| (Chinese) |  | |
| **1.4 Qualification Title (Exit Award)\*** | | |
| (English) |  | |
| (Chinese) |  | |
| **1.5 Target Students \*** | | |
| General public  In-house training | | |
| **1.6 Notional Learning Hours\*** | | Contact hours:  Self-study hours:  Total (Contact hours + Self-study hours):  Others (please specify): |
| **1.7 Mode(s) of Delivery & Course Duration\*** | | Full-time: (hour/day/month#)  Part-time: (hour/day/month#)  Workplace attachment / on-the-job training/in-house training#: (hour/day/ month#)  Others (please specify): |
| **1.8 Start Date** | | Estimated commencement date: |

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| --- | --- |
| **Section 2 Information on the Department Providing the Course\*** | |
| **2.1 Structure of the department offering the course** | |
| Organisation chart to show the organisational structure of the department, including the major academic and administrative components. | |
| **2.2 Teaching and Administrative Responsibilities** | |
| Describe the authority of the Dean/Vice-Principal/Academic Director# and others within the department who holds the responsibility of the BIM Manager Course to be accredited. | |
| **2.3 Other Departments/Supporting Units#** | |
| Describe the relationship with other departments/supporting units that provide the BIM Manager Course. | |
| **Section 3 Course Objectives and Learning Outcomes\*** | |
| **3.1 Course Objectives** | |
| List the course objectives. | |
| **3.2 Course Learning Outcomes** | |
| List the course learning outcomes. | |
| **Note:** As a minimum, students must be able to achieve the following generic learning outcomes upon completion of the course: | **Please mark each box to confirm\*** |

|  |  |
| --- | --- |
| 1. An ability to describe BIM concept definitions and scope, BIM standards and guidelines in the Hong Kong and global contexts. | Yes |
| 1. An ability to explain BIM software, the modelling process, and current and upcoming technologies. | Yes |
| 1. An ability to understand BIM uses and BIM software applications, and to design and manage the overall process of a BIM project. | Yes |
| 1. An ability to plan and execute the setting-up of a common data environment and data quality control system for effective use and sharing of digital information in a BIM project. | Yes |
| 1. An ability to describe commercial and financial issues of BIM as well as BIM-related contractual issues. | Yes |
| Mark “X” in appropriate box(es) in Table 1 to indicate the relationship between course learning outcomes and generic learning outcomes for BIM Manager Courses.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Generic Learning Outcomes for a BIM Manager Courses | | | | | | Course Learning Outcomes | (I) | (II) | (III) | (IV) | (V) | | 1) |  |  |  |  |  | | 2) |  |  |  |  |  | | 3) |  |  |  |  |  | | 4) |  |  |  |  |  | | 5) |  |  |  |  |  | | 6) |  |  |  |  |  | | 7) |  |  |  |  |  |   Table 1 – Mapping of Course Learning Outcomes and Generic Learning Outcomes for  a BIM Manager Course | |

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| **Section 4 Syllabuses and Curriculum\*** | |
| **4.1 For each subject within the course, provide the following:**   * Name of subject * Subject number * Syllabus * Statement of objectives * List of essential and reference text-books * Relationship of subject to course learning outcomes * Assessment details | |
| **4.2 Provide details in Table 2 for each subject.**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Subject number | Subject Name | Contact hours per week | No. of teaching weeks | Total contact hours | Assessment components and weightings | Responsible teaching staff | | Subject 1 |  |  |  |  |  |  | | Subject 2 |  |  |  |  |  |  | | Subject 3 |  |  |  |  |  |  | | Subject 4 |  |  |  |  |  |  | | Subject 5 |  |  |  |  |  |  | | Subject 6 |  |  |  |  |  |  | | Subject 7 |  |  |  |  |  |  |   Table 2 - Subject Details | |
| **4.3 Subject Learning Outcomes** | |
| List the learning outcomes of each subject | |
| **Note:** As a minimum, students must be able to achieve the following learning outcomes upon completion of all subjects: | **Please mark each box to confirm\*** |

|  |  |
| --- | --- |
| 1. An ability to describe the BIM concept definitions and scope, BIM standards and guidelines in the Hong Kong and global contexts. | Yes |
| 1. An ability to explain BIM software, the modelling process, and current and upcoming technologies. | Yes |
| 1. An ability to understand BIM uses and BIM software applications, and to design and manage the overall process of a BIM project. | Yes |
| 1. An ability to plan and execute the setting-up of a common data environment and data quality control system for effective use and sharing of digital information in a BIM project. | Yes |
| 1. An ability to describe commercial and financial issues of BIM and BIM related contractual issues. | Yes |
| Mark “X” in appropriate box(es) in Table 3 to indicate the relationship between subject learning outcomes and generic learning outcomes for BIM Manager Courses   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Generic Learning Outcomes for a BIM Manager Course | | | | | | Subject Learning Outcomes | (I) | (II) | (III) | (IV) | (V) | | Subject 1 |  |  |  |  |  | | Subject 2 |  |  |  |  |  | | Subject 3 |  |  |  |  |  | | Subject 4 |  |  |  |  |  | | Subject 5 |  |  |  |  |  | | Subject 6 |  |  |  |  |  | | Subject 7 |  |  |  |  |  |   Table 3 - Mapping of Subject Learning Outcomes and Generic  Learning Outcomes for a BIM Manager Course | |
| **4.4 Mapping of Subjects offered against the Core Subjects of a CIC-accredited BIM Manager Course. Please complete Part II-4E.** | |

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| **Section 5 Student Admission Requirements\*** |
| **5.1 Admission requirements** |
| List the admission requirements. |
| **5.2 Policies and procedures for admission** |
| List the policies and procedures for admission. |
| **5.3 Methods and procedures for checking documents submitted for admission** |
| Explain the methods and procedures for checking documents submitted for admission. |

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| **Section 6 Learning and Teaching Activities\*** |
| **6.1 Summary of the learning and teaching activities (module, contact hours, self-study hours, etc.)** |
| Provide a summary of the learning and teaching activities. |
| **6.2 Medium of Instruction** |
| Class delivery:  Learning and teaching material: |
| **6.3 Instructor-Student Ratio** |
| Provide the information regarding Instructor-Student ratio. |
| **6.4 Assessment** |
| **6.4.1 Describe the mechanism for receiving feedback from students and checking their progress.** |
| **6.4.2 Describe the passing requirement of individual modules and the full course.** |
| **6.4.3 Describe the graduation requirements.** |
| **6.4.4 Provide details about workplace attachment (if any).** |
| **6.4.5 Describe the policies and the mechanism to ensure the integrity, validity and reliability of assessments.** |
| **6.4.6 List the external examiners or reviewers appointed for the course.** |
| **Section 7 Course Staff\*** |
| **7.1 Academic/Teaching Staff** |
| **7.1.1 Responsibilities of Course Director/Leader:** |
| **7.1.2 Provide numbers in Table 4 of staff involved in delivering the BIM Manager Course**   |  |  |  |  | | --- | --- | --- | --- | |  | **Last 3 Academic Years** | | | | Year: |  |  |  | | **Teaching Staff** | | | | | Teaching Staff (full-time) |  |  |  | | Teaching Staff (part-time) |  |  |  | | Teaching Assistant |  |  |  | | **Administrative Staff** | | | | | Administrative Staff (full-time) |  |  |  | | Administrative Staff (part-time) |  |  |  | | **Technical Staff (e.g. IT support, Facility support, etc.)** | | | | | Technical Staff (full-time) |  |  |  | | Technical Staff (part-time) |  |  |  | | **Other Staff** | | | | | Other Supporting Staff  Please specify :( ) |  |  |  | | **TOTAL** | | | | | Total Staff establishment |  |  |  | | No. of Staff vacancies |  |  |  |   Table 4 - Number of Staff Involved in Delivery of the Course  *Full-time – normally refers to appointment of service for not less than 40 hours a week* |
| **7.1.3 For each teaching staff, complete a copy of the form below^. Alternatively, a Curriculum Vitae may be submitted, provided it supplies all the information requested in the form.**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Name | | | Present Position | | | Date joining the Course Provider | | | | Date of present appointment | | Degree | University/Institution | | | Date of award | | Member of HKIA/HKIE/HKIS\* | | Other Professional Qualifications | | | | Subjects taught in the past three years | | | | | | Current teaching subjects | | Student contact hours per subject per year | | | | 1. | |  | | | | 2. | |  | | | | No. of Publications (last 5 years) | | No. of Publications (total) | | | | No. of Consultancy Projects (in progress) | | No. of Consultancy Projects (total) | | | | No. of years of experience in Construction Industry | | No. of years of experience in Teaching BIM | | | | Summary of Industrial and Related Experience (provide a brief resume) | | | | |   **^ Copy the form as many times as needed for additional teaching staff.** |
| **7.2 Technical Staff** |
| **Provide details of technical staff supporting the course in Table 5.**   |  |  |  |  | | --- | --- | --- | --- | | Name | Qualifications | Experience | Duties | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |   Table 5 - Details of Technical Staff Supporting the Course |
| **7.3 Staff Training and Development** |
| List the staff development plans (future) and activities (past 2 years). |
| **Section 8 Financial Resources for the Course\*** |
| Provide information on the financial resources and the budget for the course on a yearly basis (Income and Expense). |

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| **Section 9 Facilities for the Course\*** | | | | | |
| Mark the Box if the information in this Section is the same as information provided in Section 6 of Application Form PN02-F-01-Part I, in which case skip this section. Otherwise, fill in 9.1 - 9.3. | | | | | |
| **9.1 Address of the training venues for the Course** | | | | | |
| (English) |  | | | | |
| (Chinese) |  | | | | |
| **9.2 Facilities and Equipment for the Course** | | | | | |
| Type of Room | No. of Rooms | Seating Capacity per room | Facilities/Equipment | Computer Hardware Specification | BIM Software |
| **a.** |  |  |  |  |  |
| **b.** |  |  |  |  |  |
| **c.** |  |  |  |  |  |
| **d.** |  |  |  |  |  |
| **e.** |  |  |  |  |  |
| **9.3 Guidelines for regular review of the adequacy and appropriateness of the training facilities, venues and equipment for conducting the course with supporting documents, e.g. Safety Requirement Specification, Certificate of Insurance, Emergency Exit Routes, etc.** | | | | | |
|  | | | | | |
| **Section 10 Support to Students on the Course** | | | | | |
| **10.1 List the support services provided to the students, e.g. career planning and counselling services (if any).** | | | | | |
| **10.2 Channels for students to receive training and teaching information from the Course Provider.** | | | | | |
| **10.3 Channels for students to provide feedback to the course provider.** | | | | | |

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| **Section 11 Quality Assurance Mechanism for the Course** |
| Mark the Box if the information in this Section is the same as information in Section 8 of Application Form PN02-F-01-Part I, in which case skip this section. Otherwise, fill in 11.1 – 11.5. |
| **11.1 Quality Assurance Mechanism** |
| Details of the quality assurance mechanism for the development, approval, monitoring, review and modification of the course, including reference to the quality assurance standards used, if applicable. |
| **11.2 Responsible Units** |
| Provide details in Table 6 of the responsible personnel/committees/external members for course development, approval, monitoring, review and modification   |  |  | | --- | --- | | **Responsible Staff/Committees/ External Members (Positions & Names)** | **Major Responsibilities** | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  |   Table 6 – Responsible Staff/Committees/External Members and their major responsibilities |
| **11.3 Course Development and Approval** |
| 11.3.1 Mechanism/methods, with relevant supporting documents, used to ensure that the course can address the industry’s/community’s needs.  11.3.2 Course vetting/validation/approval procedures and associated approval criteria (the standards of quality) at course and/or organisational levels that guide review and approval of the course to ensure that the educational/training and course objectives are met. |
| **11.4 Course Management and Monitoring** |
| 11.4.1 Approach used to monitor course delivery with responsible units/persons, the frequency of monitoring, the review focus, tools and the follow-up procedures: |
| **11.5 Course Review and Continuous Improvement Measures** |
| Course review process and continuous improvement measures with the course review activities, responsible unit/person, the frequency of monitoring, the review focus, tools and the follow-up procedures: |

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| **Section 12 Applicant Declaration**  I,  (name in full), on behalf of (name of Course Provider) being an applicant for accreditation of a Building Information Modelling (BIM) Manager Course do hereby DECLARE that the above is a true statement of the course particulars, that I have read and understood the RULES as stipulated by Construction Industry Council (CIC) and do hereby accept the final decision of the BIM Certification and Accreditation Board of CIC.  I undertake that, in the event of any change in the above particulars, I will make known the changes, within 30 days, in writing to the BIM Certification and Accreditation Board.  I have read the following and hereby undertake:   * To comply and act in accordance with the Regulations and Rules of CIC as they now exist, or as they may in the future be amended * To pay promptly any monies due to CIC, including but not limited to any fee, subscription, levy, arrears, fine or other penalty, or re-imbursement in accordance with any scheme of compensation, or in respect of any goods or services commissioned by me or the relevant Course Provider from CIC * To declare any criminal conviction related to me or employees of the relevant Course Provider within 30 days   I understand and authorise CIC to make any reasonable enquiries and check all information in relation to this application for accreditation of a Building Information Modelling (BIM) Manager Course.  I acknowledge that CIC has the right to withdraw approval of application status if I and the relevant Course Provider do not meet the requirements. I understand and agree that CIC may investigate the statements I have made with respect to this application, and that I and relevant Course Providers may be subject to disciplinary actions for any misrepresentation (whether fraudulent and otherwise) in this application.  If at any time CIC discovers that I have failed to disclose any of the pertinent information in this form or that I have provided false information it will have the right to terminate my application with immediate effect (with no further obligation to refund any subscription or other fees).  I understand that the fees paid are non-refundable and non-transferable.  For access and correction of data, please address enquiries to:  BIM Department - Construction Industry Council  38/F, COS Centre, 56 Tsun Yip Street  Kwun Tong  Kowloon  Tel: 2100 9000  Fax: 2100 9090  E-mail: bimcas@cic.hk  I have read and agreed to comply with the “Application Guide for Accreditation of Building Information Modelling (BIM) Manager Courses” BEFORE completing this application form.  I declare that the content of this form is true and correct. I understand and accept that I am accountable for the truth of this declaration  Date:  Authorised Signature with Company Chop  Date:  Name & Title of Authorised Representative  *Please scan this page if this Application Form is submitted via email.* |
| **Section 13** **Document Checklist**  To facilitate the application process, check the following items before submission to CIC. We suggest that you keep a copy of all relevant documents for your own records, before submission.  \*\* Please write the Appendix Number at the top of the document to be submitted. | |

| Document Attached | Not Applicable | Document Same As Part I | Document | Appendix Number\*\* |
| --- | --- | --- | --- | --- |
|  |  | - | Completed and signed application form PN02-F-01-Part II |  |
|  |  | - | Proof of recognition of the course by other accreditation bodies or professional bodies | Part II-1A |
|  |  | - | Sample of Certificate(s) of the course | Part II-1B |
|  |  |  | Section 2 Information on the Department Providing the Course | |
|  |  | - | Organisation chart to indicate details of the organisational structure of the Department hosting the course | Part II-2A |
|  |  |  | Section 4 Syllabuses and Curriculum | |
|  |  | - | Course outline/syllabus about individual subject/topic | Part II-4A |
|  |  | - | Templates/records for conducting course review, e.g. questionnaire, review report | Part II-4B |
|  |  | - | Records for follow-up actions taken, e.g. meeting minutes | Part II-4C |
|  |  | - | Sample teaching/training materials | Part II-4D |
|  |  | - | Mapping of subjects offered against the Core Subjects of a BIM Manager Course | Part II-4E |
|  |  |  | Section 5 Student Admission Requirements | |
|  |  | - | Sample application form and record | Part II-5A |
|  |  | - | Sample admission test paper (if applicable) | Part II-5B |
|  |  | - | Sample interview questions (if applicable) | Part II-5C |
|  |  | - | Students’ handbook showing the admission requirements and special admission policy | Part II-5D |
|  |  |  | Section 6 Learning and Teaching Activities | |
|  |  | - | Sample lesson plans | Part II-6A |
|  |  | - | Sample assessment papers, the associated assessment criteria and relevant documents | Part II-6B |
|  |  | - | List of appointment criteria and term of appointment for external examiners/ moderators/reviewers | Part II-6C |
|  |  | - | Guidelines to external examiners/moderators/reviewers | Part II-6D |
|  |  | - | Sample external examiners/moderators/reviewers reports | Part II-6E |
|  |  | - | Documents outlining student support services, e.g. handbook, brochure and website | Part II-6F |
|  |  | - | List of (potential) placement employers | Part II-6G |
|  |  | - | Workplace attachment policy and/or guidelines (to students, supervisors, employers, etc.) | Part II-6H |
|  |  | - | Workplace attachment course outline and/or class schedule | Part II-6I |
|  |  | - | Sample assessment for workplace attachment | Part II-6J |
|  |  | - | Sample templates for keeping records of students’ activities | Part II-6K |
|  |  | - | Sample agreement with (potential) placement employers | Part II-6L |
|  |  | - | Insurance coverage for students during placement | Part II-6M |
|  |  |  | Section 7 Course Staff | |
|  |  | - | Profiles and/or curriculum vitae of teaching staff | Part II-7A |
|  |  | - | Staff development plans | Part II-7B |
|  |  |  | Section 8 Financial Resources for the Course | |
|  |  | - | Financial statements / proof of the past two years’ operation of the course (if applicable) | Part II-8A |
|  |  | - | Financial projections and business plans for the course showing the operator’s sustainability for meeting the teaching/ training responsibilities | Part II-8B |
|  |  |  | Section 9 Facilities for the Course | |
|  |  |  | Floor plan and photos of training facilities/venue | Part II-9A |
|  |  |  | Guidelines on using training facilities, venues and equipment | Part II-9B |
|  |  |  | Safety Requirement Specification, Certificate of Insurance, Emergency Exit Routes, etc. | Part II-9C |
|  |  |  | Section 10 Support to Students on the course | |
|  |  | - | Policies/sample tools for support to students | Part II-10A |
|  |  |  | Section 11 Quality Assurance Mechanism | |
|  |  |  | Sample templates/tools for collecting external inputs | Part II-11A |
|  |  |  | Records showing the external inputs collected for the existing course(s), e.g. meeting minutes | Part II-11B |
|  |  |  | Records showing course(s) has gone through the internal development process (including vetting and approval) | Part II-11C |
|  |  |  | Flowchart showing the process for course development and approval with responsible personnel/committees | Part II-11D |
|  |  |  | Sample course proposals/plans | Part II-11E |
|  |  |  | Sample tools and records for monitoring course delivery, e.g. class observation form | Part II-11F |
|  |  |  | Sample tools and records for course review, e.g. questionnaires and summary statistics | Part II-11G |
|  |  |  | Sample course review template/report/ meeting minutes | Part II-11H |
|  |  |  | Summary of changes made to the course and follow up actions taken | Part II-11I |
|  |  |  | Students’ handbook or relevant guidelines for complaint handling | Part II-11J |
|  |  |  | Flow chart showing the interrelationship of the personnel and/or committees for course development, management and review | Part II-11K |
|  |  |  | Terms of reference of the committees responsible for course development, management and review | Part II-11L |
|  |  |  | List of appointment criteria and roles and responsibilities of external advisors | Part II-11M |
|  |  |  | List of external committees or advisory bodies consulted | Part II-11N |
|  |  |  | Sample records of consultation | Part II-11O |
|  |  |  | Brief profiles of external advisors or external examiners / moderators / reviewers | Part II-11P |
|  |  |  | Terms of agreement with third parties, if any | Part II-11Q |
|  |  |  | Section 12 Payment Method |  |
|  | - | - | Cheque for the application fee |  |

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| **Section 14 Payment Method\***  All payments received are non-refundable, non-endorsable and non-transferable.  Please mail to the BIM Department - Construction Industry Council, 38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon. |
| A cheque made payable to “Construction Industry Council”  Cheque no. \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name of the bank \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **For official use only** | | | | | |
|  | **Date** | **Officer** |  | **Date** | **Officer** |
| Form Received^ |  |  | Acknowledgement of application form |  |  |
| Fee Received |  |  | Receipt of application fees |  |  |
| Particulars verified |  |  | Additional information required |  |  |
| Additional information received |  |  | Recommended |  |  |
| Interviewed on |  |  | Not Recommended (With reason) |  |  |
| Remarks : |  |  | Certificate No. |  |  |

^ First vetting to be completed within one month of the date of receipt of the application.

**Part II-4E**

Please put the subjects offered/to be offered against the core subjects. A subject can be mapped against multiple core subjects.

|  | **Core Subjects of a BIM Manager Course under the BIM Certification and Accreditation Schemes** | | | | | **Subjects offered/to be offered** |
| --- | --- | --- | --- | --- | --- | --- |
| **1. BIM Initiation** | **1.1 BIM Concept** | | | | | |
| 1.1.1 | BIM definitions and terminology | | | |  |
| 1.1.2 | The difference between 2D CAD, 3D CAD and BIM | | | |  |
| 1.1.3 | Concept of BIM as whole project and whole estate perspective | | | |  |
| 1.1.4 | Value and benefits of adopting BIM | | | |  |
| 1.1.5 | Value of BIM for AM and FM | | | |  |
| 1.1.6 | Collaborative working in BIM | | | |  |
| 1.1.7 | Limitations of BIM | | | |  |
| 1.1.8 | Challenges within existing working practices and how BIM addresses these | | | |  |
| 1.1.9 | How BIM affects the current practice in AECO industry | | | |  |
| **1.2 Local & Global Contexts, BIM standards and guidelines** | | | | | |
| 1.2.1 | Local BIM standards and resources | | | |  |
|  | 1.2.1.1 | CIC BIM Standards | | |  |
|  | 1.2.1.2 | Government BIM standards and resources | | |  |
| 1.2.2 | Global context of BIM development | | | |  |
| 1.2.3 | Global BIM standards and resources | | | |  |
|  | 1.2.3.1 | ISO 19650 | | |  |
|  | 1.2.3.2 | BIM FORUM LOD Specification | | |  |
|  | 1.2.3.3 | OpenBIM | | |  |
|  | | | | | | |
| **2. BIM Software and Technologies** | **2.1 BIM Software** | | | | | |
| 2.1.1 | Overview of industry leading BIM software / applications | | | |  |
| 2.1.2 | Characteristic, strength and limitation of industry leading BIM software | | | |  |
| 2.1.3 | Versions and file formats | | | |  |
| 2.1.4 | Interoperability across industry leading BIM software | | | |  |
| **2.2 Technologies** | | | | | |
| 2.2.1 | Cloud platform | | | |  |
| 2.2.2 | Laser scanning | | | |  |
| 2.2.3 | Photogrammetry | | | |  |
| 2.2.4 | GIS | | | |  |
| 2.2.5 | Application of smart devices | | | |  |
| 2.2.6 | VR/AR/MR | | | |  |
| 2.2.7 | VDC | | | |  |
| 2.2.8 | RFID | | | |  |
| 2.2.9 | Gaming technology in BIM | | | |  |
| 2.2.10 | Robotics | | | |  |
| 2.2.11 | Automation | | | |  |
| 2.2.12 | API | | | |  |
| 2.2.13 | MiC | | | |  |
| 2.2.14 | Indoor positioning | | | |  |
| 2.2.15 | Upcoming Trend | | | |  |
|  | | | | | | |
| **3. BIM Uses and Processes** | **3.1 Client BIM Strategic Stage** | | | | | |
| 3.1.1 | BIM strategy, BIM uses, BIM processes | | | |  |
| 3.1.2 | Key personnel in relation to BIM | | | |  |
| 3.1.3 | Determine the information management and CDE strategy | | | |  |
| 3.1.4 | Determine the BIM/AIM/GIS strategy | | | |  |
| 3.1.5 | Determine level of development in the context of graphics and information | | | |  |
| 3.1.6 | Determine level of integration of digital information into asset and facility management | | | |  |
| 3.1.7 | Case study | | | |  |
| **3.2 Client Pre-tender Project Stage** | | | | | |
| 3.2.1 | Determine and oversee the development of Client Information Model (CIM) | | | |  |
|  | 3.2.1.1 | Organisational Information Requirements (OIRs) | | |  |
|  | 3.2.1.2 | Asset Information Requirements (AIRs) | | |  |
| 3.2.2 | Employers Information Requirements (EIR) | | | |  |
| 3.2.3 | Determine project technology and systems requirement and integration | | | |  |
| 3.2.4 | Determine project delivery requirements | | | |  |
| 3.2.5 | Determine the soft landings approach | | | |  |
| 3.2.6 | Contract and consultancy requirement | | | |  |
| 3.2.7 | Assessment of supply chain capability and capacity (Tender Assessment) | | | |  |
| 3.2.8 | Case study | | | |  |
| **3.3 Definition & Design Stage** | | | | | |
| 3.3.1 | BIM Execution Plan developed by supply chain | | | |  |
|  | 3.3.1.1 | Pre-contract BIM Project Execution Plan | | |  |
|  | 3.3.1.2 | Post-contract BIM Project Execution Plan | | |  |
| 3.3.2 | Supervision in fulfilling BIM uses in planning and design stages listed in CIC BIM Standards | | | |  |
| 3.3.3 | Project Information Model (PIM) data exchanges and validation | | | |  |
| 3.3.4 | BIM PIM file setup | | | |  |
|  | 3.3.4.1 | BIM origin point and orientation setup | | |  |
|  | 3.3.4.2 | Model division | | |  |
|  | 3.3.4.3 | Modelling methodology | | |  |
|  | 3.3.4.4 | Project-based industry and BIM standards | | |  |
| 3.3.5 | Direct BIM-related meetings | | | |  |
|  | 3.3.5.1 | Meeting with high level | | |  |
|  | 3.3.5.2 | Meeting with supply chain level | | |  |
|  | 3.3.5.3 | Internal meeting | | |  |
|  | 3.3.5.4 | Multidiscipline collaboration meeting | | |  |
| 3.3.6 | Case Study | | | |  |
| **3.4 Construction Stage** | | | | | |
| 3.4.1 | BIM Execution Plan developed by supply chain | | | |  |
|  | 3.4.1.1 | Pre-contract BIM Project Execution Plan | | |  |
|  | 3.4.1.2 | Post-contract BIM Project Execution Plan | | |  |
| 3.4.2 | Supervision in fulfilling BIM uses in construction & handover stage listed in CIC BIM Standards | | | |  |
| 3.4.3 | Project Information Model (PIM) data exchanges and validation | | | |  |
| 3.4.4 | Direct BIM related meetings | | | |  |
| 3.4.5 | Case study | | | |  |
| **3.5 Handover Stage** | | | | | |
| 3.5.1 | As-built information verification | | | |  |
| 3.5.2 | Oversee data transfer from PIM to Asset Information Model (AIM) | | | |  |
| 3.5.3 | Supervision in fulfilling BIM uses in handover stage listed in CIC BIM Standards | | | |  |
| 3.5.4 | Case study | | | |  |
| **3.6 Operation & Maintenance Stage** | | | | | |
| 3.6.1 | Update Assets Information Model (AIM) | | | |  |
| 3.6.2 | Roles, responsibilities and authorities for maintaining the AIM | | | |  |
| 3.6.3 | Post occupancy evaluation | | | |  |
| 3.6.4 | Case Study | | | |  |
|  | | | | | | |
| **4. Digital Information Management, Collaboration and Integration** | **4.1 Digital Information Management** | | | | | |
| 4.1.1 | Value of data and how it should be managed | | | |  |
| 4.1.2 | Interoperate data/information to facilitate cross-disciplinary and cross-BIM platform collaboration | | | |  |
| 4.1.3 | Limitations of BIM software in relation to information management | | | |  |
| 4.1.4 | Determine level of development in the context of graphics and information in different stages | | | |  |
| 4.1.5 | Determine level of integration of digital information into asset and facility management | | | |  |
| 4.1.6 | Oversee the process and quality of information exchange | | | |  |
|  | 4.1.6.1 | | IFC / BCF / XML…etc. | |  |
|  | 4.1.6.2 | | COBi | |  |
| **4.2 Common Data Environment (CDE)** | | | | |  |
| 4.2.1 | Overview of CDE | | | |  |
| 4.2.2 | Overview of various CDE platforms | | | |  |
| 4.2.3 | Setup of CDE | | | |  |
| 4.2.4 | Assessment of CDE | | | |  |
| 4.2.5 | Management of CDE | | | |  |
| 4.2.6 | Limitations of CDE | | | |  |
| **4.3 Data Quality Control and Assurance across various stages** | | | | | |
| 4.3.1 | System checking | | | |  |
| 4.3.2 | Model audit | | | |  |
| 4.3.3 | Model checking | | | |  |
| 4.3.4 | Audit reporting | | | |  |
|  | | | | | | |
| **5. Commercial and Contractual Aspects** | **5.1 Commercial Issues** | | | | | |
| 5.1.1 | Establishing BIM-ready Environment to support the corporation | | | | |
|  | 5.1.1.1 | BIM strategy at the organisation level | | |  |
|  | 5.1.1.2 | Challenges in BIM implementation | | |  |
|  | 5.1.1.3 | Phases in BIM implementation | | |  |
|  | 5.1.1.4 | Hardware requirement for BIM | | |  |
|  | 5.1.1.5 | Software requirement for BIM | | |  |
|  | 5.1.1.6 | Manpower management for BIM | | |  |
|  |  | 5.1.1.6.1 | | Staff plan |  |
|  |  | 5.1.1.6.2 | | Staff recruitment |  |
|  |  | 5.1.1.6.3 | | Staff training |  |
| 5.1.2 | Promotion of adopting BIM in office/to clients | | | |  |
|  | 5.1.2.1 | Value and benefit of adopting BIM | | |  |
|  | 5.1.2.2 | Value and benefit of data and information from BIM | | |  |
|  | 5.1.2.3 | Evaluating Return on Investments (ROI) in adopting BIM | | |  |
| **5.2. Contract Issues** | | | | | |
| 5.2.1 | Ownership of data | | | |  |
| 5.2.2 | Intellectual property right | | | |  |
| 5.2.3 | Legal implication and potential liability | | | |  |
| 5.2.4 | Professional indemnity | | | |  |
| 5.2.5 | Introducing NEC | | | |  |
| 5.2.6 | Commercial implications for contracts and insurances in relation to BIM | | | |  |