

BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH  
HONOURS



# WORK-BASED LEARNING

2021 / 2022 SESSION

**POLITEKNIK UNGKU OMAR**

"INFORMATION IS NOT KNOWLEDGE. THE ONLY SOURCE OF KNOWLEDGE IS EXPERIENCE. YOU NEED  
EXPERIENCE TO GAIN WISDOM"

- ALBERT EINSTEIN -

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<b>FOREWORD</b>		vi
<b>CHAPTER 1 INTRODUCTION TO BCT WORK-BASED LEARNING</b>		
1.1	Introduction	1
1.2	Glossary of Terms	2
1.3	Objectives	3
1.4	Programme Learning Outcome (PLO)	3
1.5	Programme Education Outcome (PEO)	4
1.6	Programme Aims	4
1.7	Advantages of Work-Based Learning to the Polytechnic, the Student, the Industry and the Community	5
	1.7.1 Advantages to the Polytechnic	5
	1.7.2 Advantages to the Student	5
	1.7.3 Advantages to the Industry	6
	1.7.4 Advantages to the Community	6
<b>CHAPTER 2 BCT WORK BASED-LEARNING IMPLEMENTATION</b>		
2.1	Introduction	7
2.2	Duration	7
2.2.1	Eligibility for WBL	8
2.3	Examination Rules & Regulations and Evaluation Methods	8
	2.3.1 WBL Examination Rules and regulation	8
	2.3.2 WBL Principles and Evaluation Methods	8
	2.3.2 WBL Evaluation	8
	2.3.3 Student Observation	8
2.4	Roles of the Polytechnic, the Student and the Industry	9
	2.4.1 Polytechnic Roles	9
	2.4.2 Student Roles	12
	2.4.3 Industry Roles	13
2.5	Implementation of WBL	18
	2.5.1 Rules to be followed before undergoing WBL	19
	2.5.2 Rules to be followed while undergoing WBL	19
	2.5.3 Rules to be followed after undergoing WBL	20
	2.5.4 Gantt Chart for WBL Implementation	21

**CHAPTER 3 RELATED MATTERS**

3.1	Code of Conduct and Discipline for WBL Students	23
	3.1.1. Polytechnic Rules	23
	3.1.2. Industry Rules	23
3.2	Student Insurance	24
3.3	Allowances and Facilities during WBL	24
3.4	Changes in Student Placement	24
3.5	Leave	24
3.6	Violation of Rules and Disciplinary Action	25
3.7	Punishment Act	25

**CHAPTER 4 QUALITY ASSURANCE**

4.1	Introduction	26
4.2	Quality Assurance of Work based Learning	26

**APPENDICES**

APPENDIX A (Appraisal WBL Industrial)		24
Appendix A1	Company Appraisal 1 - BCT 7	25
Appendix A2	Company Appraisal 2 - BCT 7	27
Appendix A3	Company Appraisal 1 - BCT 8	29
Appendix A4	Company Appraisal 2 - BCT 8	31
APPENDIX B (Academic Calendar)		33
Appendix B1	Academic Calendar BCT 7	34
Appendix B2	Academic Calendar BCT 8	41
APPENDIX C (Rubric Courses)		46
Appendix C1	Rubric Assessment BCT 7275	47
Appendix C2	Rubric Assessment BCT 7288	54
Appendix C3	Rubric Assessment BCT 7264	65
Appendix C4	Rubric Assessment BCT 8297	81
Appendix C5	Rubric Assessment BCT 83010	85

APPENDIX D (WBL Form)		101
Appendix D1	WBL Placement (Location)	102
Appendix D2	WBL Registration Form	104
Appendix D3	<i>Borang Akujanji Pelajar</i>	104
Appendix D4	<i>Borang Lepas Tanggung</i>	104
Appendix D5	Student Information Form	104

**LIST OF TABLES**

2.1	Qualification Criteria for Industrial Supervisors	13
2.2	Scheduled activities before undergoing WBL	19
2.3	Scheduled activities for BCT Semester 7 while undergoing WBL	19
2.4	Scheduled activities for BCT Semester 8 students while undergoing WBL	20

**LIST OF FIGURES**

1.1	BCT WBL Implementation Model	1
2.1	BCT WBL Organisational Chart (Polytechnic)	15
2.2	BCT WBL Organisational Chart (Industry)	16
2.3	Pre-WBL Activities	17
2.4	While-WBL Activities	18

## **FOREWORD**

This manual aims to provide guidelines on the implementation of Work-Based Learning (WBL) as part of the Bachelor in Civil Engineering Technology with Honours (BCT) programme structure at Politeknik Ungku Omar (PUO). The use of this manual is aligned with the Work-Based Learning Book: Implementation in Malaysian Polytechnic - Introduction Edition by Department of Polytechnic Education, Ministry of Higher Education, Malaysia. This manual provides the introduction to WBL which highlights the objectives and advantages of the WBL to the polytechnic, the student, the industry and the community. This manual also details the WBL implementation on its duration, roles of the polytechnic, the student and the industry; evaluation methods and the WBL implementation gantt chart. In addition, this manual also explains the matters related to rules, insurance coverage, allowances, and facilities offered while undergoing WBL.

# CHAPTER 1

## INTRODUCTION TO BCT WORK-BASED LEARNING

### 1.1 INTRODUCTION

The teaching and learning process is not only implemented through lectures but can also be carried out via *Work-Based Learning* (WBL). Besides that, this programme is enhanced by a planned training session which is called *On Job Training* (OJT). The WBL implementation model used by Politeknik Ungku Omar (PUO) is shown in Figure 1.1.

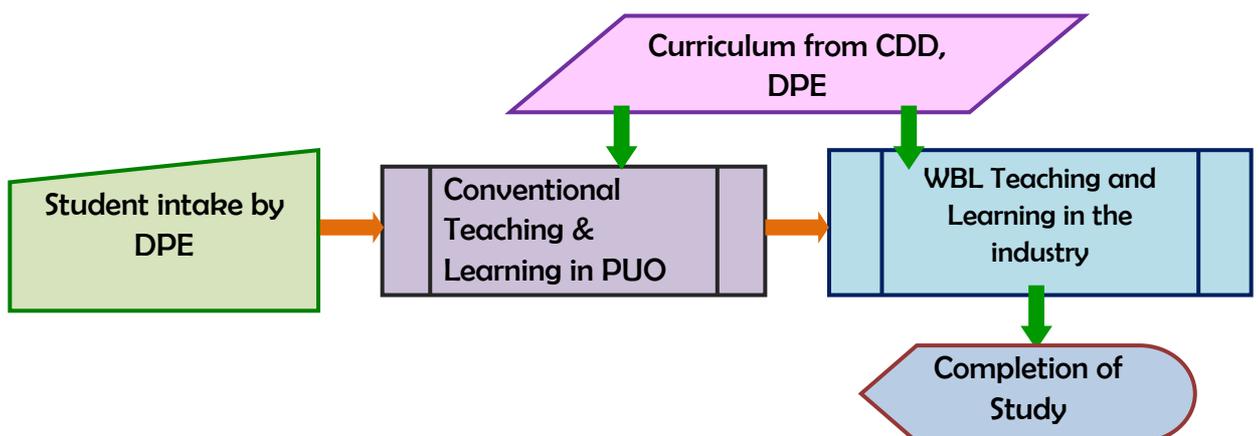


Figure 1.1: WBL Implementation Model for BCT

**Note:**  
CDD – Curriculum Development Division  
DPE – Department of Polytechnic Education

## 1.2 GLOSSARY OF TERMS

The following terminologies are used in the context of WBL implementation manual.

**“Deputy Director (Academic)”** refers to an officer who is responsible for the academic affairs of an institution.

**“Head of Department”** refers to an officer who is responsible for leading a specific department in an institution.

**“Head of BCT Programme”** refers to an officer who is responsible for leading a specific unit of an institution.

**“WBL Coordinator”** refers to a lecturer who is appointed by the head of department to be responsible for assisting the head of department on WBL affairs.

**“WBL Committee”** refers to a polytechnic lecturer who is appointed by the head of department to be responsible for monitoring the observations and assessments of WBL students.

**“Student”** refers to an individual who has officially registered for a WBL course in the institution.

**“Industry Regulatory Body”** refers to a body or an organisation which is responsible for managing the affairs related to the management and development of the registered industries.

**“Industry”** refers to a firm where a student undergoes his or her WBL.

**“Industry Management”** refers to a group of individuals who are in the top management of a firm.

**“WBL Industrial Coordinator”** refers to an officer or a representative appointed by the management of a firm who acts as the Industrial Relation Officer.

**“Mentor/Industrial Supervisor”** refers to an officer or a representative appointed by the management of a firm to be responsible for guiding the students in the industry.

### 1.3 OBJECTIVES

Generally, the objectives of BCT WBL are as follows:

- i. enable the students to undergo WBL,
- ii. expose the students to real-life work environment,
- iii. enable the students to relate their theoretical knowledge to practical aspects and vice versa,
- iv. train the students to work in teams, and
- v. improve the students' communication skills.

### 1.4 PROGRAMME LEARNING OUTCOME (PLO)

At the end of the WBL programme, students should:

PLO1: apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to defined and applied engineering procedures, processes, systems or methodologies

PLO2: identify, formulate, research literature and analyze broadly-defined engineering problems reaching substantiated conclusions using analytical tools appropriate to their discipline or area of specialization

PLO3: design solutions for broadly-defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations

PLO4: conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions

PLO5: select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to broadly-defined engineering activities, with an understanding of the limitations;

PLO6: demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice

PLO7: understand the impact of engineering technology solutions in societal and environmental context and demonstrate knowledge of and need for sustainable development

PLO8: understand and commit to professional ethics and responsibilities and norms of engineering technology practice

PLO9: function effectively as an individual, and as a member or leader in diverse technical teams.

PLO10: communicate effectively on broadly-defined engineering activities with the engineering community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

PLO11: demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member and leader in a team and to manage projects in multidisciplinary environments

PLO12: recognize the need for, and have the ability to engage in independent and life-long learning in specialist technologies.

### **1.5 PROGRAMME EDUCATION OUTCOMES (PEO)**

The Bachelor of Civil Engineering Technology with Honours shall produce graduate who are:

PEO1 :Technically competent and engaged responsibly in activities in line with the technological challenges of civil engineering industrial development.

PEO2 : Committed to practice the profession and act on the basis of professional conduct to promote sustainable development for the advancement of society and nation.

PEO3 : Possess skills in communication and leadership and recognize the need for life-long learning for successful career development

### **1.6 PROGRAMME AIMS**

The programme aims to produce Technologist who are adaptable with changes of technologies, capable to fulfill their professional demands in highly competitive global markets, outstanding ethical and moral values for supporting the national agenda in creating sustainable development of civil engineering industry.

## **1.7 ADVANTAGES OF WORK-BASED LEARNING TO THE POLYTECHNIC, THE STUDENT, THE INDUSTRY AND THE COMMUNITY**

WBL is designed to produce human capital that meets the needs of the industry. Learning in a real-life work environment offers many advantages to the polytechnic, the student, the industry and the community.

The advantages are as follows:

### **1.7.1 Advantages to the Polytechnic**

- i. Expands the implementation of the curriculum with the real-life learning environment in the industry.
- ii. Expands the access of the latest technology in the polytechnic education system.
- iii. Enables technical education to be more relevant and valuable in the teaching and learning process.
- iv. Increases the capacity of the institution to meet the various needs of the industry as well as the students.
- v. Provides opportunities to the lecturers to gain knowledge and technology mastery
- vi. Improves the collaboration and synergy between the polytechnic, the industry and the community.
- vii. Contributes to the social and economic development of the country as well as the individuals.

### **1.7.2 Advantages to the Student**

- i. Enriches the teaching and learning process from the classroom to the industry.
- ii. Sets a clear direction between education and career application within the industrial sector.
- iii. Creates optimum opportunities in career exploration.
- iv. Increases students' motivation level towards a more relevant education.
- v. Enhances their career understanding through the required skills.
- vi. Boosts soft skills at the workplace such as communication, team work and project planning.
- vii. Provides exposure on professional work ethics at the work place.
- viii. Widens professional networking for future career prospects.

### 1.7.3 Advantages to the Industry

- i. Produces quality products.
- ii. Reduces production defects.
- iii. Establishes collaboration between the industry and the educational institution.
- iv. Reduces tax.
- v. Improves the internal training system.
- vi. Reduces the cost of recruiting semi-skilled workforce.
- vii. Provides a systematic teaching experience to the staff.
- viii. Preserves, generates and transfers the expertise to the new generation.
- ix. Reduces the cost of training new staff.
- x. Contributes to the development of the Construction Industrial Sector of the nation.
- xi. Provides opportunities to carry out Community Service Responsibility (CSR) programmes.
- xii. Helps promote the firm.

### 1.7.4 Advantages to the Community

- i. Establishes collaboration programmes with the local community.
- ii. Offers career opportunities and technology mastery.
- iii. Builds the community's confidence in the polytechnic education system.
- iv. Builds a foundation of productive economy for the community.
- v. Advances the industrial technology for the development of the nation.

## CHAPTER 2

### **BCT WORK-BASED LEARNING IMPLEMENTATION**

#### **2.1 INTRODUCTION**

WBL is a teaching and learning activity that is conducted in the industry or at any identified agency that has signed a Certificate of Collaboration (CoC). The success of WBL implementation to meet its objectives depends on the cooperation and commitments from both parties namely Politeknik Ungku Omar (PUO) and the related industry. It provides structured exposure and experience for students in terms of technological advancement, effective communication, teamwork, policies, procedures and regulations, professional perspectives and reporting. Besides that, it builds the students' spirit and develops their proactive attitude, and as a result, boosts their confidence to become successful trainees.

#### **2.2 DURATION**

Students are placed in the industry in their seventh and eight semesters according to the BCT programme structure. The minimum duration of WBL implementation is 20 weeks each semester according to the Polytechnic Academic Calendar of the current session.

### 2.2.1 Eligibility for WBL

- i. Students **MUST** pass all courses as required in the BCT program structure before undergoing WBL.
- ii. Students who have failed any course(s) are required to repeat the particular course(s) prior to undergoing WBL.
- iii. Students have already registered for WBL.
- iv. Fulfil all other instructions given by the polytechnic.

## 2.3 EXAMINATION RULES, REGULATIONS AND EVALUATION METHODS

### 2.3.1 WBL Examination Rules and Regulations

- a) Implementation of the assessment and evaluation of the WBL is accordance to *Buku Arah-an-arah-an Peperiksaan dan Kaedah Penilaian (Sarjana Muda)* issue by *Bahagian Peperiksaan dan Penilaian, Jabatan Pendidikan Politeknik dan Kolej Komuniti*.
- b) Students who are found **FAILED WBL** course(s) need to repeat all WBL Courses of the semester in the next Academic Session at a new industry.

### 2.3.2 WBL Principles and Evaluation Methods

Each student who undergoes WBL is subject to the current Examination Rules & Regulations and Evaluation Methods of the Polytechnic Degree Programme, which are in force with reference to the Polytechnic Quality Procedure Manual.

### 2.3.3 WBL Evaluation

Evaluation is carried out based on the Curriculum Documents of the BCT courses. The details of BCT WBL courses and the evaluation methods are as in Appendix A and C.

### 2.3.4 Student Observation

The student observation is carried out for a minimum of 2 times in the industry and 1 time in Politeknik Ungku Omar per semester. The aim of this observation is to ensure that the planned curriculum is implemented and the evaluation of students' achievement is carried out accordingly.

## **2.4 ROLES OF THE POLYTECHNIC, THE STUDENT AND THE INDUSTRY**

The roles and responsibilities of various parties involved in the WBL implementation are as follows:

### 2.4.1 Polytechnic Roles

#### 2.4.1.1 Deputy Director (Academic)/Deputy Director

- i. Chairs the WBL Working Committee.
- ii. Plans and monitors the WBL implementation.
- iii. Conducts briefings to industrial supervisors prior to the commencement of each session.
- iv. Identifies solutions to issues within the department/unit.
- v. Monitors the implementation of action plans and Continuous Quality Improvement (CQI).
- vi. Selects and appoints the Polytechnic WBL Coordinator.

#### 2.4.1.2 Head of Department

- i. Monitors the implementation and evaluation of WBL based on the curriculum.
- ii. Briefs on the requirements of WBL implementation as a condition to be fulfilled in order for the students to graduate.
- iii. Selects and appoints
  - WBL Programme Coordinator.
  - Course Lecturer/Observer (heads team-teaching sessions together with the Industrial Supervisor).
- iv. Plans the management of estimated expenditure for the WBL programme implementation.
- v. Plans, coordinates and monitors the WBL implementation.
- vi. Obtains feedback on the WBL implementation and evaluation for CQI purposes.

#### 2.4.1.3 BCT Programme Head

- i. Assists in the planning, coordinating and monitoring of the WBL implementation.
- ii. Facilitates the industry in understanding the teaching and learning process, curriculum, assessments, quality procedures and Malaysian Qualifications Agency (MQA).
- iii. Coordinates the implementation of Teaching & Learning observation.
- iv. Analyses the learning outcome achievement of the programme for each semester.
- v. Liaises with the industry in conducting the curriculum reviews for continuous improvement purposes.
- vi. Verifies assessment items and marking schemes of WBL evaluation, which are developed by the lecturers and mentors/WBL supervisors.

#### 2.4.1.4 BCT WBL Coordinator

- i. Acts as the Polytechnic Public Relations Officer between the polytechnic and the industry pertaining to WBL implementation.
- ii. Prepares and coordinates the:
  - Implementation Schedule and WBL Observation Schedule.
  - assessments which fulfil the needs of the industry and in accordance to the curriculum
  - Main File to be submitted to the related industry
  - Student Folio
  - WBL Implementation Report, Observation and Evaluation Report (comprehensive) together with proposed CQI actions.
- iii. Conducts a briefing on the WBL implementation in accordance to the curriculum for the:
  - Students.
  - Observers (Lecturers).
  - Management (Industry), WBL Industrial Coordinators and Industrial Supervisors.
- iv. Obtains students' finalized marks and submits them to the Examination Unit for assessment purposes.

- v. Prepares the estimated expenditure for the management of WBL implementation which includes:
  - Claims (mileage, lodging, meals & miscellaneous) for the Polytechnic Lecturers and Industrial Supervisors (if relevant).
  - Speaker's allowances for the Industrial Supervisor (if relevant).
  - Other related financial matters.
- vi. Carries out the WBL observations to ensure the effectiveness of BCT WBL implementation towards students' development.

#### 2.4.1.5 WBL Committee/BCT WBL Lecturer

- i. Prepares the Lecturer Observation File and Lecturer e-File (e-FRP)
- ii. Prepares the Course Outline.
- iii. Carries out teaching and learning sessions and assessments (based on theoretical lectures conducted at the polytechnic).
- iv. Implements WBL observational activities based on the academic calendar to monitor students' progress and achievement of the learning outcomes that have been set.
- v. Assesses and records students' coursework marks in the Coursework Marks Record and the Lecturer e-File (e-FRP).
- vi. Updates the WBL evaluation marks in the iPUO system.
- vii. Prepares assessment items and marking scheme of the Coursework Assessment.
- viii. Provides related academic input to the party involved in WBL in the industry.
- ix. Ensures students are assigned with appropriate tasks by the industry.
- x. Guides and counsels the students.
- xi. Carries out discussions with the Industrial Supervisors to gather information for WBL CQI purposes.
- xii. Prepares Observation Report as well as CQI actions.
- xiii. Be concerned of students' welfare throughout WBL implementation.
- xiv. Coordinates activities pertaining to students' needs prior to undergoing WBL.

- xv. Checks and signs Log Books during observation visits.
- xvi. Prepares related forms that will be used during observations.
- xvii. Prepares the log book, manual and student folio.
- xviii. Ensures that the WBL evaluation is in accordance to the curriculum and carried out within the stipulated time.
- xix. Acts as a facilitator between the students and the Industrial Supervisor.
- xx. Prepares the Course Learning Outcomes Review Report (CLORR) analysis and the Continuous Quality Improvement (CQI) to be submitted to the Head of BCT Programme.
- xxi. Collects the students' marks, which include the evaluation by the Course Lecturer and the Industrial Supervisor and submits them to the Polytechnic WBL Coordinators.
- xxii. Issues the Course Attendance Warning Letter if the percentage of students' attendance is below 90%.

#### 2.4.2 Student Roles

- i. Strives to achieve the learning outcomes that have been set.
- ii. Attends all briefing sessions, participates in teaching and learning activities and be present for evaluation carried out by the polytechnic or the industry as scheduled.
- iii. Interacts professionally with all parties at all times.
- iv. Hands in all the assignments/reports as scheduled.
- v. Provides input to the Course Lecturer/Observer on WBL implementation for improvement purposes.
- vi. Adheres to all rules and regulations set by the polytechnic and the industry.
- vii. Be accountable to the organisation where the students are placed. Students are fully responsible in ensuring that the organisation's property is well taken care or not being misused at all times.
- viii. Has to obtain the CIDB Green Card certification prior to undergoing WBL.
- ix. Records the daily work/activities in the Log Book.
- x. Has to bring the Log Book to the training place on a daily basis and ensures that the Log Book is signed periodically by the Mentor as agreed by the industry and the polytechnic.

### 2.4.3 Industry Roles

#### 2.4.3.1 Industry Regulatory Body

- i. Proposes and appoints the industry for the placement of students to undergo WBL.
- ii. Coordinates the teaching and learning process as well as the evaluation of WBL students.
- iii. Provides consultation for the improvement of the curriculum and suitable evaluation method for BCT Programme. This is to ensure that the offered programme fulfils the needs of the industry.

#### 2.4.3.2 Industrial Management

- i. Sets up a working committee.
- ii. Appoints the WBL Coordinators in the industry.
- iii. Appoints a qualified Industrial Supervisor based on the qualification criteria stated in Table 2.1.
- iv. Prepares assessments for the students by collaborating with the polytechnic lecturers.
- v. Grants permission to the polytechnic observer (lecturer) to carry out observations.
- vi. Grants permission for the use of the organisation's facilities (as restricted by the organisation).
- vii. Considers giving allowances to students as a financial support while undergoing WBL in the industry.
- viii. Provides considerable care towards students' welfare.
- ix. Issues a confirmation letter for the completion of WBL to the students at the end of the WBL programme.

Table 2.1: Qualification Criteria for Industrial Supervisors

Diploma Level	Advanced Diploma Level	Degree Level
<ol style="list-style-type: none"> <li>1. Degree/Advanced Diploma in the related field of study, or</li> <li>2. Diploma with three (3) years of experience in the related field of study, or</li> <li>3. Any qualification certificate fully recognised by the organisation with five (5) years of experience in the related field of study.</li> </ol>	<ol style="list-style-type: none"> <li>1. Degree in the related field of study, or</li> <li>2. Advanced Diploma/ Diploma with three (3) years of experience in the related field of study, or</li> <li>3. Any qualification certificate fully recognised by the organisation with five (5) years of experience in the related field of study.</li> </ol>	<ol style="list-style-type: none"> <li>1. Post-graduate in the related field of study, or</li> <li>2. Degree with three (3) years of experience in the related field of study, or</li> <li>3. Advanced Diploma/ Diploma with five (5) years of experience in the related field of study, or</li> <li>4. Any certificate or qualification fully recognised by the organisation with seven (7) years of experience in the related field of study, or</li> <li>5. Above five (5) years of experience with special expertise/ course specialization recognised professionally/ with international recognition / with high commercial value.</li> </ol>

#### 2.4.3.3 WBL Industrial Coordinator

- i. Acts as the Industrial Relations Officer in the implementation of WBL between the industry and the polytechnic.
- ii. Provides a safe environment to students besides giving a work-related briefing on:
  - Occupational Safety and Health Administration 1994 (OSHA 1994)
  - matters related to Human Resources, rules and regulations of the industry (if relevant)
  - implementation process of WBL in the industry.
- iii. Coordinates the teaching & learning implementation and evaluation of the students in the industry.

- iv. Ensures that the assessment marks are sent to the WBL Polytechnic/ Programme Coordinator.
- v. Prepares a time table for the implementation of WBL in the industry.
- vi. Provides input/guidance continually to the WBL Polytechnic/ Programme Coordinator during the implementation of WBL.
- vii. Approves students' leave applications which have been supported by the Industrial Supervisor.

#### 2.4.3.4 Mentor/Industrial Supervisor

- i. Interacts and guides the students in their own their specialisation based on the lesson plan (course outline) prepared by the polytechnic.
- ii. Inculcates the students' interest towards their learning as well as clarifies their career prospects.
- iii. Ensures that the students have completed their assessments to measure their learning outcomes according to the curriculum requirements.
- iv. Monitors the students' attendance.
- v. Handles matters related to the students' welfare throughout the WBL implementation by liaising with the WBL Polytechnic/ Programme Coordinator.
- vi. Provides guidance to the students in the preparation of reports/assignments.
- vii. Carry out consultation sessions with the students as scheduled by both the mentor and the students.
- viii. Records every consultation session with the students in the Mentor Consultation Record Form.
- ix. Informs the PUO WBL lecturer on the students' absences.
- x. Monitors the students' welfare during WBL sessions.
- xi. Provides consultation on the curriculum improvement and appropriate evaluation methods for the BCT programme to ensure that the offered programme meets the needs of the industry.

BCT WBL Organisational Chart for the polytechnic and the industry (Figure 2.1 and 2.2)

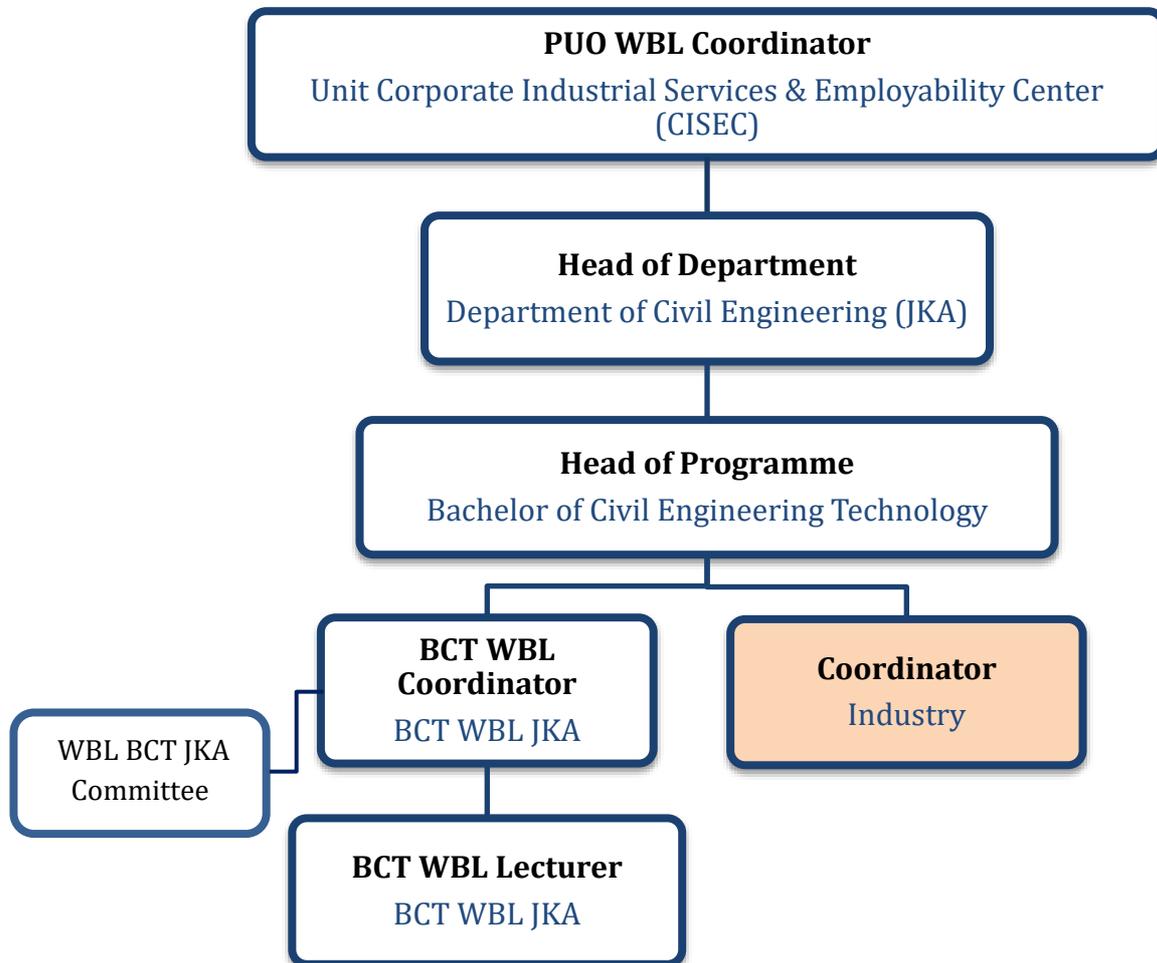


Figure 2.1: BCT WBL Organisational Chart (Polytechnic)

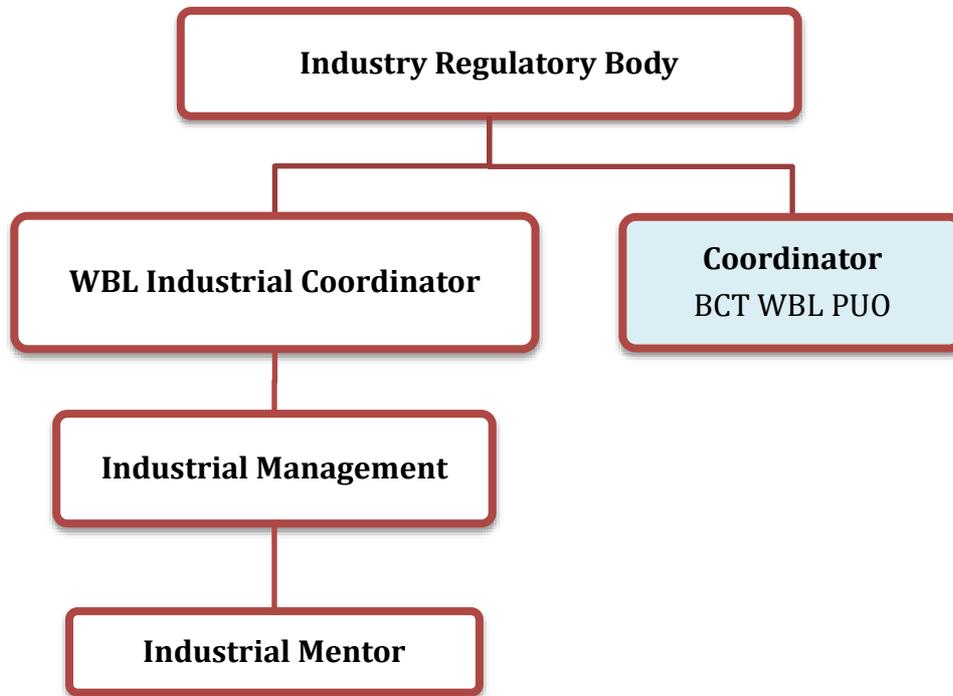


Figure 2.2: BCT WBL Organizational Chart (Industry)

## 2.5 IMPLEMENTATION OF WBL

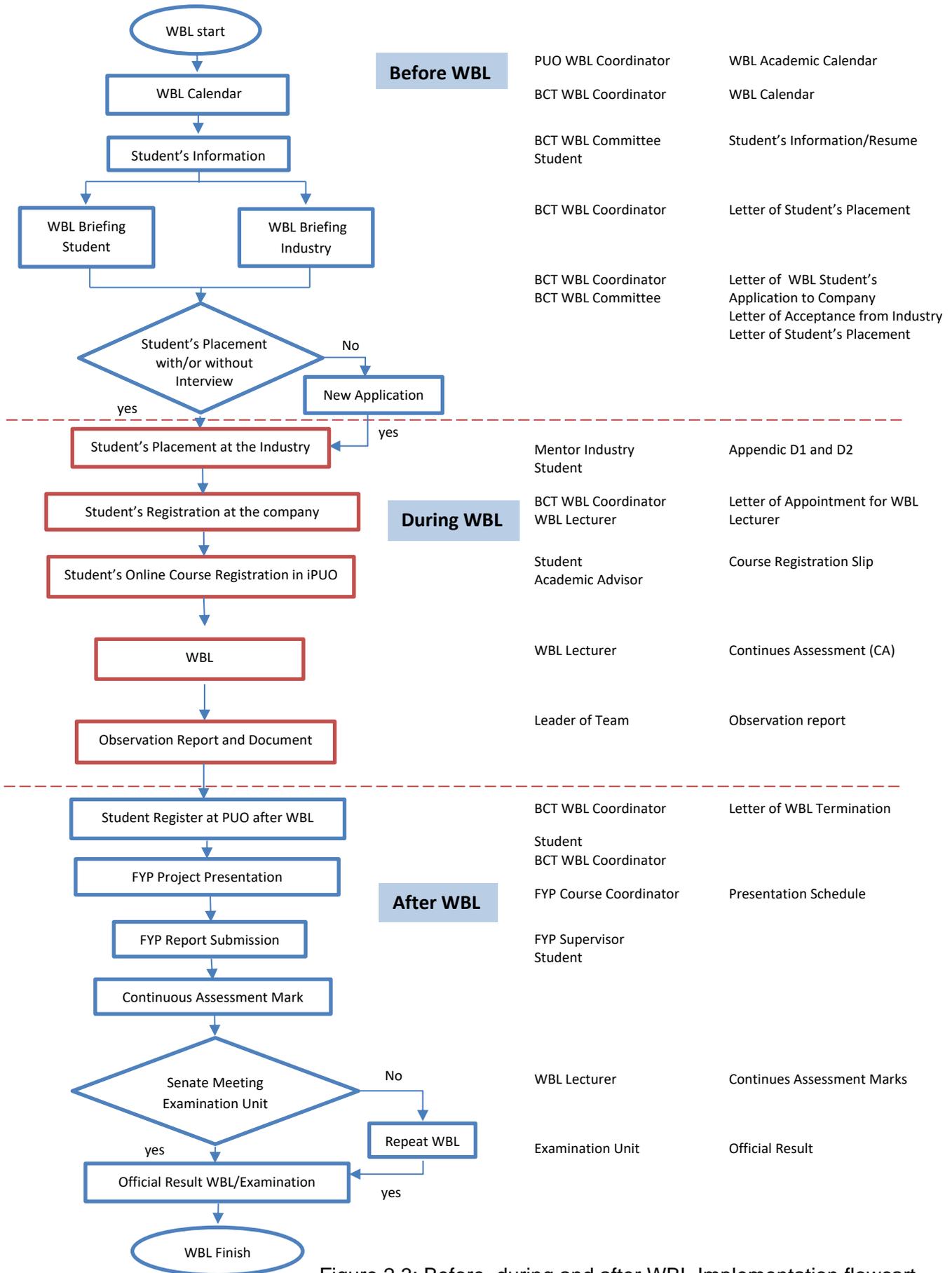


Figure 2.3: Before, during and after WBL Implementation flowcart

In general, the activities carried out before and while implementing WBL are listed in Figure 2.3 and Figure 2.4 as follows:

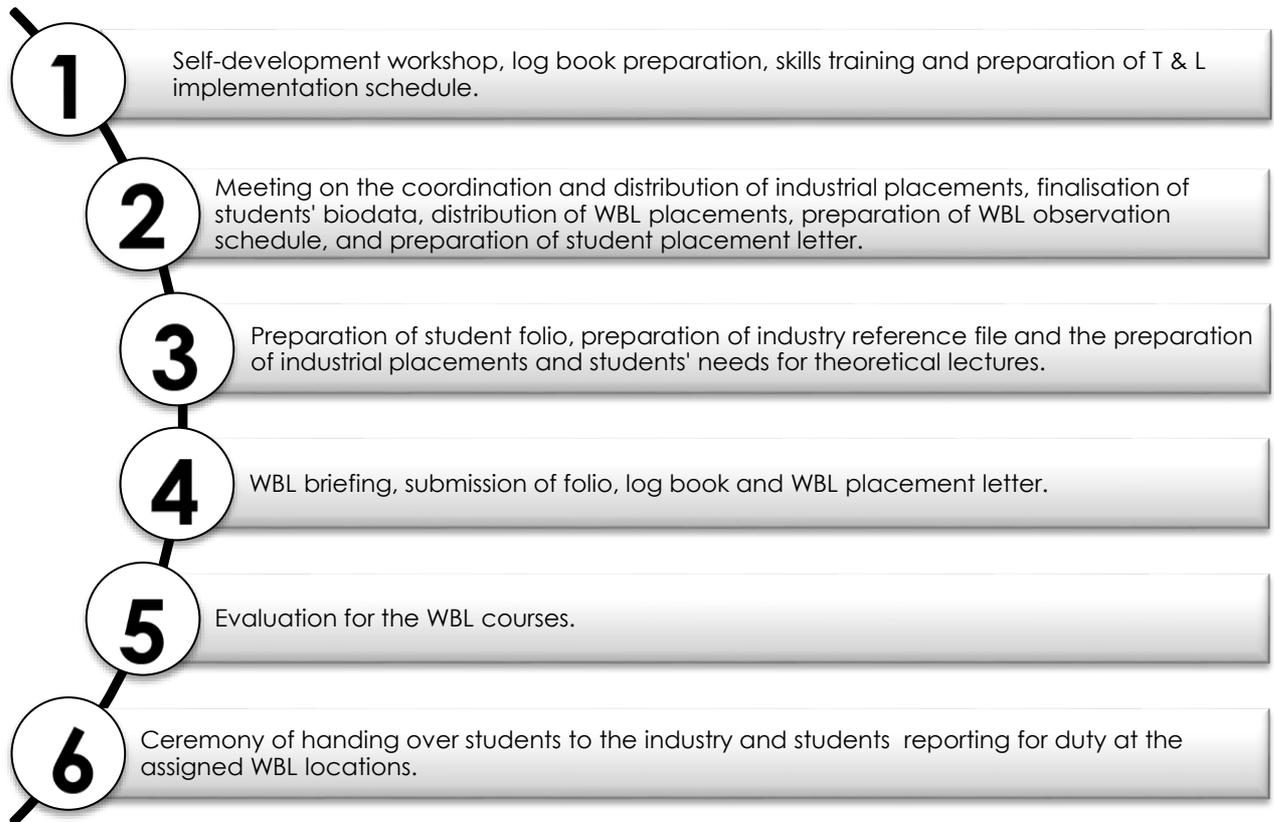


Figure 2.4: Pre-WBL Activities

### 2.5.1 Rules to be followed before undergoing WBL

- i. Register for the WBL course using the Course Registration Form.
- ii. Attend all WBL briefings.
- iii. Do not change or reject the organization's offer without prior approval from the WBL Coordinator.
- iv. Do not falsify any information sent to the WBL Coordinator.

### 2.5.2 Rules to be followed while undergoing WBL

- i. Abide by all the rules set by the polytechnic and the organization.
- ii. Report for duty on the date and time specified.
- iii. Complete the WBL at the organisation until end of the programme.
- iv. Do not change the WBL placement without prior written approval from the BCT WBL Coordinator.
- v. Do not falsify any information that is provided in all the related forms and documents which are submitted to the BCT WBL Coordinator in the stipulated time.
- vi. Inform the BCT WBL Coordinator of any changes in personal details.
- vii. Always safeguard the company's confidentiality.

### 2.5.3 Rules to be followed after undergoing WBL

- i. Students are required to submit the WBL documents to the WBL Coordinator to certify that their WBL training has ended. The documents to be submitted are as follows:
- Pre-project Report
  - Academic Report
  - Reflection Journal

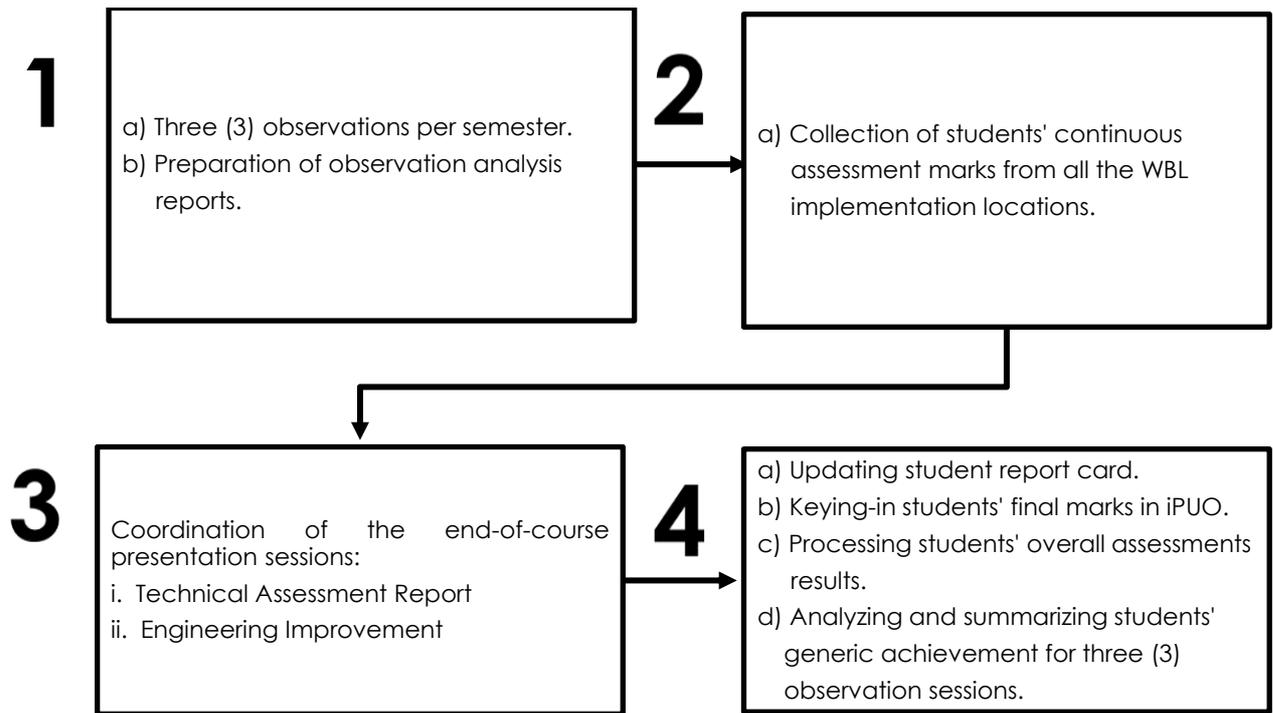


Figure 2.5: While-WBL Activities

### 2.5.4 Gantt chart for WBL Implementation

All parties must ensure that they carry out the weekly activities as scheduled in the academic calendar of the BCT WBL course (Appendix B ).

Table 2.2: Scheduled activities before undergoing WBL

Semester 6	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20
Preparation of WBL Calendar	■	■	■	■	■															
Log Book Preparation	■	■	■	■	■															
Confirmation of Placement						■	■	■	■	■	■	■	■	■						
Self-development Workshop								■	■	■	■	■	■							
Green Card Course										■	■	■								
Meetings with the industry													■	■	■	■	■	■	■	
Distribution of log books																	■	■	■	
Students' industry placement letters																	■	■	■	
WBL briefing for the students																	■	■	■	
Handing over the WBL implementation Manual																	■	■	■	■

Table 2.3: Scheduled activities for BCT Semester 7 students while undergoing WBL

Semester 7	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20
Reporting for duty at the industry	■																			
Observation / evaluation of students				■	■	■					■			■	■					
Observation analysis report / evaluation of the students				■						■						■				
Project proposal presentation											■									
Collection of marks				■	■									■	■					■
Keying-in of marks																			■	■
Processing of marks																				■

Table 2.4: Scheduled activities for BCT Semester 8 students while undergoing WBL

Semester 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20
Course registration																				
Observation / evaluation of students																				
Observation analysis report / evaluation of the students																				
Final project presentation																				
Collection of marks																				
Keying-in of marks																				
Processing of marks																				

Table 2.5 : Work Schedule of WBL – Semester 7 on Rotational Basis

Work Schedule on Rational Basis (Semester 7 WBL)	Duration (weeks)
Orientation at head office / site office	1
Quality Management System / Design work at head office / site office	4
Construction supervision at project site	8
Technology and innovation management at head office / site office / project site	6
Project presentation at Project Site	1
<b>Total</b>	<b>20</b>

Table 2.6 : Work Schedule of WBL – Semester 8 on Rotational Basis

Work Schedule on Rational Basis (Semester 8 WBL)	Duration (weeks)
Project initiation at head office	1
Project planning at head office / site office	8
Project execution at project site	9
Project closure at head office / site office / project site	1
Project presentation at the Polytechnic	1
<b>Total</b>	<b>20</b>

## CHAPTER 3

### RELATED MATTERS

#### 3.1 CODE OF CONDUCT AND DISCIPLINE FOR WBL STUDENTS

##### 3.1.1 Polytechnic Rules

Polytechnic students undergoing WBL are subjected to the rules and regulations as stated in the **Guidelines and General Rules for Polytechnic Students, Ministry of Education.**

##### 3.1.2 Industry Rules

Polytechnic students undergoing WBL are subjected to the rules and regulations set by the industry.

##### 3.1.2.1 Working Time

Students must abide by the working time as well as all the other organisation's rules and regulations just like any other employees throughout the WBL period. Students should be allowed to conduct their coursework assessment as scheduled in Appendix B.

#### 3.1.2.2 Confidentiality

- i. Students must not reveal any kind of information pertaining to the organisation (be it confidential or not) to outsiders without the organisation's permission.
- ii. Students are not allowed to print, make copies or take photographs of documents or equipment which are regarded as confidential unless permission is granted by the organisation.

### 3.2 STUDENT INSURANCE

Students are already covered by the group accident insurance throughout the duration of their studies.

### 3.3 ALLOWANCES AND FACILITIES DURING WBL

- i. The recommended allowances to be given to the students by the industry is a minimum of RM500 a month.
- ii. Facilities (accommodation and transportation) provided during WBL are subjected to the policies and discretion of the organisation concerned and the students ARE NOT to make an issue of their decision.

### 3.4 CHANGES IN STUDENT PLACEMENT

Students are required to undergo WBL at the specified training place and they are not allowed to change it without permission from the polytechnic.

### 3.5 LEAVE

- i. Students are not allowed to take leave / emergency leave (EL) without permission from the training place.
- ii. All leave applications have to be submitted 3 days earlier and approved by the training place. A copy of the approved application has to be sent to the PUO WBL Committee.
- iii. In the event of any emergency, students have to inform their Supervisor immediately regarding their absence at the training place.
- iv. Students have to inform and send a certified copy of their Medical Certificate (MC) to the Industrial Supervisor and the BCT WBL Committee.

### 3.6 VIOLATION OF RULES AND DISCIPLINARY ACTION

Disciplinary action will be taken against any students who violate any of the rules set by both parties. The disciplinary actions that can be taken against the students are as follows:

- i. Warning
- ii. Repeat Semester – Students are required to repeat their WBL.
- iii. Failed – Students have to quit their studies.

### 3.7 PUNISHMENT ACT

Absence	Action/Punishment
<b>Not attending 3 consecutive working days without any reason</b>	Warning
<b>Not attending 6 working days without any reason</b>	Failed WBL
<b>Absent overall for 7 working days without any reason</b>	Warning
<b>Total absentee total for more than 7 working days without any reason</b>	Failed WBL
<b>Discontinued by the organization by reason</b>	Failed WBL
<b>Total absenteeism exceeds 10% of training duration with reason</b>	Failed WBL
<b>Did not register for WBL Courses</b>	Failed WBL
<b>Did not report to the WBL Coordinator</b>	Failed WBL
<b>Did not reporting yourself at Polytechnic (WBL Completion Confirmation)</b>	Failed WBL
<b>Not attending WBL briefings</b>	Warning
<b>Did not meet ALL WBL assessment criteria *</b>	Failed WBL
<b>Change WBL placement without Polytechnic permission</b>	Failed WBL
<b>There is an element of impersonation / fraud on the WBL assessment.</b>	Failed WBL

Note:

- ❖ Students who are found FAILED WBL courses need to repeat the WBL Courses in the next semester.
  - Disciplinary rules (Part V of the Disciplinary Event, the Institutions of Disciplinary Act 1976 (Act 174))
  - WBL assessment criteria include institutional and industry assessments.

## CHAPTER 4

### QUALITY ASSURANCE

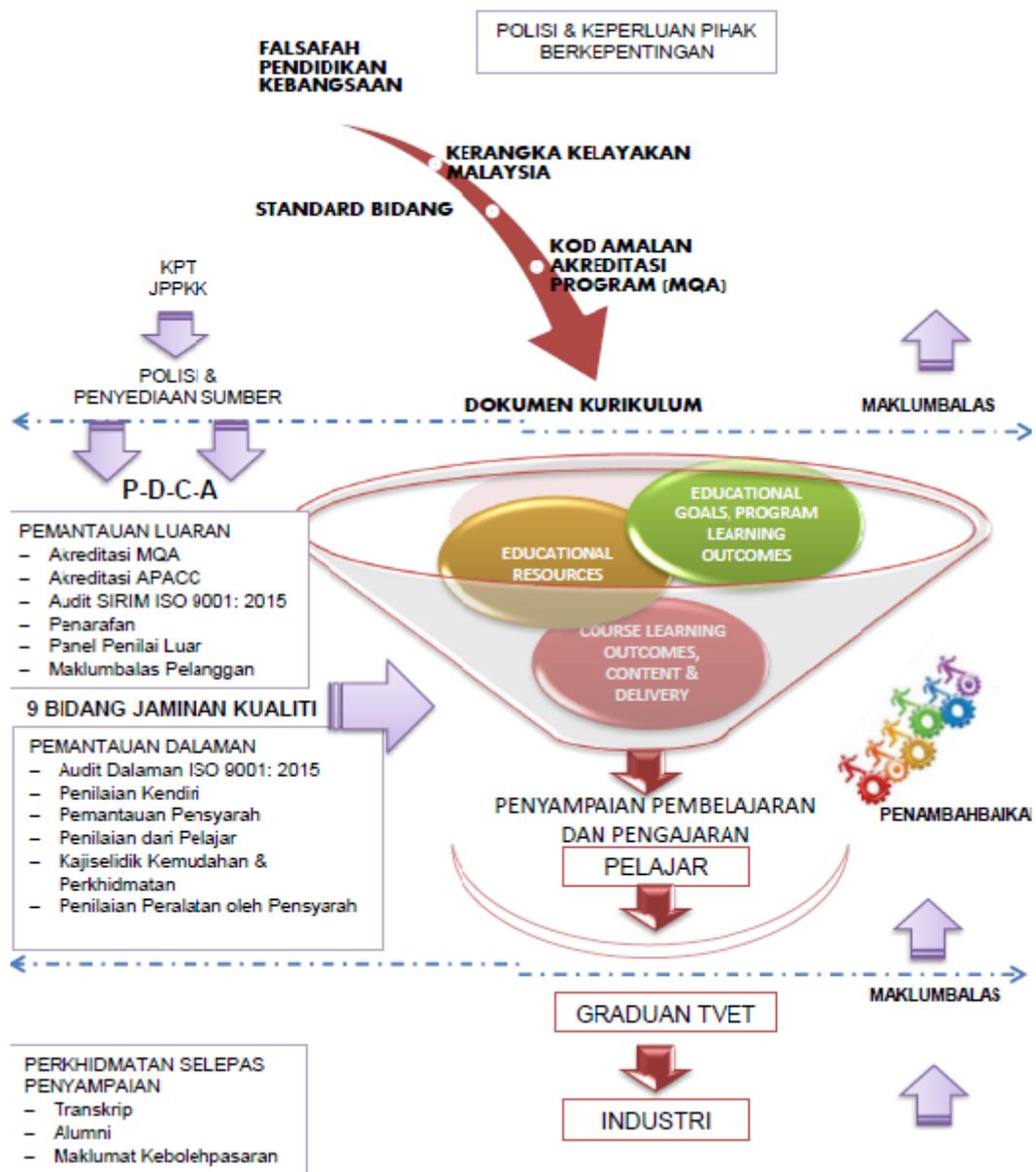
#### 4.1 INTRODUCTION

Quality assurance is a holistic approach covering all the process in a higher education institution, in order to serve the students in expected quality standards. The success of a quality assurance system depends on the support of the management. Hence quality assurance should also cover the strategic management, process management and measuring monitoring system which interact with each other for enabling the institutions to improve its process. Furthermore, information system should be implemented to integrate the quality assurance system management processes for enhancing the overall success and to produce usable information about quality assurance system.

#### 4.2 QUALITY ASSURANCE OF WORK BASED LEARNING

To ensure the quality assurance of WBL, focus should be given to the learning objectives and outcomes of the program that has been set throughout the WBL period, and transparent WBL delivery methods in the industry. All stakeholders in the implementation of WBL need to understand the goals, processes and mechanisms to give a good commitment in ensuring the level of quality of learning experience achieved by students is improved from time to time.

Coordination for learning outcomes, courses and programme is in line with the Malaysian Qualifications Framework (MQF), Code of Practice for Program Accreditation (COPPA 2nd Edition 2017), Program Discipline Standards, Engineering Technology Programme Accreditation Standard 2020, and Good Practice Guidelines : Existing Work-Based Learning (Guidelines to Good Practices: Work-Based Learning, GGP: WBL) .This is to ensure that the learning outcomes and quality of study programs will meet the needs of stakeholders .



#### 4.2.1 What is Work-Based Learning?

Work-based learning (WBL) programs are structured educational programs designed to utilize employer experiences to help students meet specific learning objectives. Work-based learning can help students improve academically. It helps them learn how the things they learn in the classroom are connected to the real world. It's also a great way to explore career options.

#### 4.2.2 What is the Features of Work-based Learning?

The curriculum meets the needs of both higher education institution and employer and is jointly planned, delivered and assessed. It uses the immediacy of the work context to provide practice and to encourage reflection on real issues leading to meaningful applicable learning. The programmes and curriculum derived from the needs of the workplace and the learner, as well as the courses itself. It used a three-way contractual arrangement between the institution, the employer and the student to delivery in part in the workplace. Assessment of the courses conducted by both workplace mentors and lectures.

#### 4.2.3 What are the features of WBL programme/course?

Such courses often contain many of the following features

- i. Existing knowledge is used as a basis on which to build new knowledge.
- ii. New knowledge is introduced and applied in context to the student.
- iii. New knowledge is then applied by the student in their work context and is therefore integrated into the student's world.
- iv. Students collaborate with peers on the courses and with colleagues in the workplace.
- v. Course activities are framed in such a way as to enable students to share knowledge in the workplace with colleagues and to facilitate solution-focused collaboration with peers, experts, mentors and significant others in the workplace.
- vi. Workplace supervisors or mentors are in place to make the theory practice links and to stimulate practice learning and reflection.

- 4.2.4 What will the student be expected to be able to do at the end of the WBL programme?
- i. Achievements of learning outcomes stated in the courses.
  - ii. Knowledge - often knowledge frameworks or methods of information literacy are more important as knowledge changes.
  - iii. General graduate skills recognised as employability requirements.
  - iv. Specific competences - often in relation to a professional body; these may be required before a person can be licensed to operate within a profession.
  - v. Specific skills required by the employer in relation to the nature of the employment.
  - vi. Personal attitudes and attributes expected of a person behaving in a professional, ethical and responsible manner.
  - vii. Career development and work targets which may need to be achieved but can be used as evidence of competence.

4.2.5 How is the implementation WBL courses do students need to complete?

Students will go through WBL for 2 semesters. Each semester will allocate 800 hours of working time in 20 weeks. In the semester 7 students will take the 3 courses and 2 courses in semester 8. Students will have industrial guidance as a mentor who can guide student's learning time. The assessment may involve reflective journal, report, appraisal and portfolio which can be adapted to the student's work place learning.

WBL assessment implementation method is implemented according to the appropriate method depending on the current situation. Any presentation of WBL implementation briefing to students could be a face to face session or online according to the appropriate method. The implementation of Teaching and Learning (*PdP*) activities and monitoring of WBL by lecturers could be carried out face to face or online session according to the appropriate method to meet the needs of the course. The implementation of *PdP* by the industry is subject to the student WBL industry.

4.2.6 Response to student needs

- i. Always facilitate student specific needs throughout the WBL period
- ii. Students are assigned to the final project supervisor. Each supervisor will oversee the development of the project and at the same time also monitor the specific needs of students. Supervision is done at least three times per semester. A supervisor will supervise a maximum of 3 students at a time.
- iii. Feedback is obtained through social applications such as Whatsapp, Skype, Google Meet and etc.

- iv. Student problems will be referred to polytechnic student support units such as counselling, welfare and zakat.
- v. Students must fully comply with the Standard Operating Procedures (SOP) and Guidelines set and prioritize health and safety measures for all Teaching and Learning (*PdP*) activities according to the current situation.
- vi. Institutions shall ensure that the implementation of all Online Teaching and Learning (*PdPDT*) courses is based on the achievement of Learning Outcomes set by the JPPKK Curriculum Document in force and also refers to the *PPdP* document.
- vii. Implementation of *PdPDT* refers to the approach Synchronous (Sync - Realtime) or Asynchronous (Non-Sync - Non-Real time).

# Appendix A

## COMPANY APPRAISAL

Appendix A1	Company Appraisal 1 - BCT 7	32
Appendix A2	Company Appraisal 2 - BCT 7	34
Appendix A3	Company Appraisal 1 - BCT 8	36
Appendix A4	Company Appraisal 2 - BCT 8	38



## BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS

### COMPANY APPRAISAL 1 SEMESTER 7 (Week 1 – 9)

Student's Name		Mentor's Name	
Matrix No.		Mentor's HP. No	
Student's HP. No		Evaluation Date	

#### Criteria Rating Guideline

1 - 2	3 - 4	5 - 6	7 - 8	9 - 10
Needs Work	Developing	Competent	Very Competent	Excellent

**INSTRUCTION:** Fill in the score (in number) based on the score scale given in the following appraisal form:

NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO1/LD4</b>	<b>CRITICAL THINKING &amp; PROBLEM SOLVING SKILLS</b>					
<b>BCT7275</b>						
1	Able to correlate latest working technology innovation to companies' vision, mission and objectives.					
2	Able to relate the importance of innovation in organization.					
3	Able to take part creatively in task decision making.					
4	Able to analyse the importance of innovation in organization.					
NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO 4/LD 8</b>	<b>PROFESSIONALISM, ETHICS AND MORAL</b>					
<b>BCT7288</b>						
5	Able to adhere the company's attendance regulations.					
6	Able to complete task/work promptly.					
7	Able to accommodate company's work discipline.					
8	Able to adhere adequate responsibility in each task/work given.					
9	Able to organise the execution of task/work given.					
10	Able to accommodate comments/opinions with an open mind.					
11	Able to explain idea(s)/suggestion(s) to superior/colleague.					

12	Able to integrate professionalism, ethics and moral in task given.					
<b>NO</b>	<b>TASKS</b>	<b>1-2</b>	<b>3-4</b>	<b>5-6</b>	<b>7-8</b>	<b>9-10</b>
<b>CLO 2/LD 2</b>	<b>PRACTICAL SKILL</b>					
<b>BCT7288/BCT7264</b>						
13	Able to coordinate investigations based on industrial issues.					
14	Able to demonstrate problem solving techniques effectively.					
15	Able to coordinate relevant information for project design.					
16	Able to design a project based on industrial issue(s)/problem(s).					
17	Able to construct an innovative idea using appropriate technology.					
<b>NO</b>	<b>TASKS</b>	<b>1-2</b>	<b>3-4</b>	<b>5-6</b>	<b>7-8</b>	<b>9-10</b>
<b>CLO3/LD5</b>	<b>SOCIAL SKILLS &amp; RESPONSIBILITY</b>					
<b>BCT7264</b>						
18	Able to practice appropriate code of ethics in proposed project.					
19	Able to interpret economic, social, environmental and sustainability in the proposed project.					
20	Able to act responsibly.					
<b>NO</b>	<b>TASKS</b>	<b>1-2</b>	<b>3-4</b>	<b>5-6</b>	<b>7-8</b>	<b>9-10</b>
<b>CLO2/LD1</b>	<b>KNOWLEDGE</b>					
<b>BCT7275</b>						
21	Able to decide innovation tools in search of issues/problems to be solved at the workplace.					
22	Able to assess an innovative and marketable project related to the industry.					

**REMARKS:**

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**Verified by Supervisor / Mentor (Stamped and Signed):**

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**Date:**



MINISTRY OF HIGHER EDUCATION

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS**

**COMPANY APPRAISAL 2  
SEMESTER 7  
(Week 10 – 18)**

Student's Name		Mentor's Name	
Matrix No.		Mentor's HP. No	
Student's HP. No		Evaluation Date	

**Criteria Rating Guideline**

1 - 2	3 - 4	5 - 6	7 - 8	9 - 10
Needs Work	Developing	Competent	Very Competent	Excellent

**INSTRUCTION:** Fill in the score (in number) based on the score scale given in the following appraisal form:

NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO1/LD4</b>	<b>CRITICAL THINKING &amp; PROBLEM SOLVING SKILLS</b>					
<b>BCT7275</b>						
1	Able to correlate latest working technology innovation to companies' vision, mission and objectives.					
2	Able to relate the importance of innovation in organization.					
3	Able to take part creatively in task decision making.					
4	Able to analyse the importance of innovation in organization.					
NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO 4/LD 8</b>	<b>PROFESSIONALISM, ETHICS AND MORAL</b>					
<b>BCT7288</b>						
5	Able to adhere the company's attendance regulations.					
6	Able to complete task/work promptly.					
7	Able to accommodate company's work discipline.					
8	Able to adhere adequate responsibility in each task/work given.					
9	Able to organise the execution of task/work given.					
10	Able to accommodate comments/opinions with an open mind.					
11	Able to explain idea(s)/suggestion(s) to superior/colleague.					
12	Able to integrate professionalism, ethics and moral in task given.					

NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO 2/LD 2</b>	<b>PRACTICAL SKILL</b>					
<b>BCT7288/BCT7264</b>						
13	Able to coordinate investigations based on industrial issues.					
14	Able to demonstrate problem solving techniques effectively.					
15	Able to coordinate relevant information for project design.					
16	Able to design a project based on industrial issue(s)/problem(s).					
17	Able to construct an innovative idea using appropriate technology.					
NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO3/LD5</b>	<b>SOCIAL SKILLS &amp; RESPONSIBILITY</b>					
<b>BCT7264</b>						
18	Able to practice appropriate code of ethics in proposed project.					
19	Able to interpret economic, social, environmental and sustainability in the proposed project.					
20	Able to act responsibly.					
NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO2/LD1</b>	<b>KNOWLEDGE</b>					
<b>BCT7275</b>						
21	Able to decide innovation tools in search of issues/problems to be solved at the workplace.					
22	Able to assess an innovative and marketable project related to the industry.					

**REMARKS:**

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**Verified by Supervisor / Mentor (Stamped and Signed):**

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**Date:**



MINISTRY OF HIGHER EDUCATION



## BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS

### COMPANY APPRAISAL 1 SEMESTER 8 (Week 1 – 9)

Student's Name		Mentor's Name	
Matrix No.		Mentor's HP. No	
Student's HP. No		Evaluation Date	

#### Criteria Rating Guideline

1 - 2	3 - 4	5 - 6	7 - 8	9 - 10
Needs Work	Developing	Competent	Very Competent	Excellent

**INSTRUCTION:** Fill in the score (in number) based on the score scale given in the following appraisal form:

NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO 3&amp;CLO4/LD 8</b>	<b>PROFESSIONALISM, ETHICS AND MORAL</b>					
<b>BCT8297/BCT83010</b>						
1	Able to adhere the company's attendance regulations.					
2	Able to complete task/work promptly.					
3	Able to accommodate company's work discipline.					
4	Able to adhere adequate responsibility in each task/work given.					
5	Able to accommodate comments/opinions with an open mind.					
6	Able to explain idea(s)/suggestion(s) to superior/colleague.					
7	Able to integrate professionalism, ethics and moral in task given.					
8	Able to integrate economic, social, environmental and sustainability in the developed project.					
9	Able to accommodate all aspects of job that applies to increase productivity and quality of the project developed.					

NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO 2/LD 2</b>	<b>PRACTICAL SKILL</b>					
<b>BCT8297/BCT83010</b>						
10	Able to coordinate according to the instruction(s) given.					
11	Able to display adequate effort towards the execution of work.					
12	Able to demonstrate work towards the required quality.					
13	Able to coordinate efficient time management towards the execution of a specific work.					
14	Able to build competency towards problem solving techniques.					
15	Able to demonstrate comprehensive analytical skills.					
16	Able to manipulate technology effectively.					
NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO1/LD1</b>	<b>KNOWLEDGE</b>					
<b>BCT83010</b>						
17	Able to interpret relevant data for industrial based problem.					
18	Able to evaluate data through analysis.					
19	Able to justify the results obtained from data analysis.					

**REMARKS:**

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**Verified by Supervisor / Mentor (Stamped and Signed):**

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**Date:**



MINISTRY OF HIGHER EDUCATION



## BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS

### COMPANY APPRAISAL 2 SEMESTER 8 (Week 10 – 18)

Student's Name		Mentor's Name	
Matrix No.		Mentor's HP. No	
Student's HP. No		Evaluation Date	

#### Criteria Rating Guideline

1 - 2	3 - 4	5 - 6	7 - 8	9 - 10
Needs Work	Developing	Competent	Very Competent	Excellent

**INSTRUCTION:** Fill in the score (in number) based on the score scale given in the following appraisal form.

NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO 3&amp;CLO4/LD 8</b>	<b>PROFESSIONALISM, ETHICS AND MORAL</b>					
<b>BCT8297/BCT83010</b>						
1	Able to adhere the company's attendance regulations.					
2	Able to complete task/work promptly.					
3	Able to accommodate company's work discipline.					
4	Able to adhere adequate responsibility in each task/work given.					
5	Able to accommodate comments/opinions with an open mind.					
6	Able to explain idea(s)/suggestion(s) to superior/colleague.					
7	Able to integrate professionalism, ethics and moral in task given.					
8	Able to integrate economic, social, environmental and sustainability in the developed project.					
9	Able to accommodate all aspects of job that applies to increase productivity and quality of the project developed.					

NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO 2/LD 2</b>	<b>PRACTICAL SKILL</b>					
<b>BCT8297/BCT83010</b>						
10	Able to coordinate according to the instruction(s) given.					
11	Able to display adequate effort towards the execution of work.					
12	Able to demonstrate work towards the required quality.					
13	Able to coordinate efficient time management towards the execution of a specific work.					
14	Able to build competency towards problem solving techniques.					
15	Able to demonstrate comprehensive analytical skills.					
16	Able to manipulate technology effectively.					
NO	TASKS	1-2	3-4	5-6	7-8	9-10
<b>CLO1/LD1</b>	<b>KNOWLEDGE</b>					
<b>BCT83010</b>						
17	Able to interpret relevant data for industrial based problem.					
18	Able to evaluate data through analysis.					
19	Able to justify the results obtained from data analysis.					

**REMARKS:**

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**Verified by Supervisor / Mentor (Stamped and Signed):**

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**Date:**

# Appendix B

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## ACADEMIC CALENDAR

Appendix B1	Academic Calendar BCT 7	41
Appendix B2	Academic Calendar BCT 8	44

<b>ACADEMIC CALENDAR</b>				
<b>BCT7288 SUSTAINABLE CONSTRUCTION TECHNOLOGY (BCT7)</b>				
<b>COURSE LEARNING OUTCOME (CLO)</b>				
<ol style="list-style-type: none"> <li>1. Compare the construction methods, materials and challenges development for civil engineering and construction activities through sustainable policies. (C5, PLO2)</li> <li>2. Demonstrate an ability to conduct experimental investigations of broadly-defined civil engineering and construction problems, using data from relevant sources. (P5, PLO4)</li> <li>3. Integrate the knowledge of the sustainability and impact of civil engineering and construction technology work in the solution of broadly-defined civil engineering problems in societal and environmental contexts. (A4, PLO6)</li> <li>4. Develop professionally relevant competencies and practice the professional field, etiquette complies with policies, procedure and rules of the organization. (A4, PLO11)</li> </ol>				
WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5
<ul style="list-style-type: none"> <li>• WBL registration at workplace (industry)</li> <li>• Submission Appendix B1 and B2 to PUO</li> </ul>	<b>CHAPTER 1</b> Sustainable Policy For Civil Engineering And Construction	<b>CHAPTER 2</b> Development Of Green Civil Engineering And Construction	<b>CHAPTER 3</b> Green Materials For Civil Engineering And Construction	<ul style="list-style-type: none"> <li>• 1<sup>st</sup> Observation</li> </ul>
ASSESSMENT	ASSESSMENT	ASSESSMENT	ASSESSMENT	ASSESSMENT
-	Progress RJ1	Progress RJ1	Progress RJ1	Presentation RJ1 (10%)
WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10
REFLECTIVE JOURNAL 1	<b>CHAPTER 4</b> Green Civil Engineering And Construction Implementation	<b>CHAPTER 5</b> Sustainable Civil Engineering And Construction Solution	REFLECTIVE JOURNAL 2	<b>PROPOSE REPORT TITLE</b> LR Introductions, Objectives, Scope, Novelty.
ASSESSMENT	ASSESSMENT	ASSESSMENT	ASSESSMENT	ASSESSMENT
Final Submission RJ1 (15%)	Progress RJ2	Progress RJ2	Final Submission RJ2 (15%)	Progress Report
WEEK 11	WEEK 12	WEEK 13	WEEK 14	WEEK 15
<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>• Produce Report</li> </ul>	<ul style="list-style-type: none"> <li>• 2nd Observation</li> </ul>	<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>• Produce Report</li> </ul>	<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>• Produce Report</li> </ul>	<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>• Produce Report</li> </ul>
ASSESSMENT	ASSESSMENT	ASSESSMENT	ASSESSMENT	ASSESSMENT
Progress Report	Presentation RJ2 (10%)	Progress Report	Progress Report	Progress Report
WEEK 16	WEEK 17	WEEK 18	WEEK 19	WEEK 20
<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>• Produce Report</li> </ul>	<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>• Produce Report</li> </ul>	<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>• Produce Report</li> </ul>	<b>REPORT</b>	
ASSESSMENT	ASSESSMENT	ASSESSMENT	ASSESSMENT	
Progress Report	Progress Report	Progress Report	Final Report (30%) Submission	

<b>ACADEMIC CALENDAR</b>				
<b>BCT7027 – TECHNOLOGY AND INNOVATION MANAGEMENT (BCT 7)</b>				
<b>COURSE LEARNING OUTCOME (CLO)</b>				
1. Analyse the importance of innovation in organization (C4, PLO2). 2. Assess an innovative project related to the industry by using the Design Thinking process. (C5; PLO3 ) 3. Develop a viable innovative project.(A4,PLO10)				
WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5
<ul style="list-style-type: none"> <li>WBL registration at workplace (industry)</li> <li>Submission Appendix B1 and B2 to PUO</li> </ul>	<ul style="list-style-type: none"> <li>Empathy study</li> </ul>	<ul style="list-style-type: none"> <li>Empathy study</li> </ul>	<ul style="list-style-type: none"> <li>Define organizational structure</li> <li>Trigger problematic issues</li> </ul>	<ul style="list-style-type: none"> <li>1<sup>st</sup> Observation</li> <li>Submit RJ1 – Organizational Structure</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>
				RJ1
WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10
<ul style="list-style-type: none"> <li>Define Problem Statement.</li> </ul>	<ul style="list-style-type: none"> <li>Ideation</li> </ul>	<ul style="list-style-type: none"> <li>Submit RJ2 – Working Culture</li> </ul>	<ul style="list-style-type: none"> <li>Ideation</li> </ul>	<ul style="list-style-type: none"> <li>Ideation</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>
		RJ2		
WEEK 11	WEEK 12	WEEK 13	WEEK 14	WEEK 15
<ul style="list-style-type: none"> <li>Ideation and prototype</li> </ul>	<ul style="list-style-type: none"> <li>2nd Observation Proposal presentation</li> </ul>	<ul style="list-style-type: none"> <li>Ideation and prototype</li> </ul>	<ul style="list-style-type: none"> <li>Ideation and prototype</li> </ul>	<ul style="list-style-type: none"> <li>Planning for Testing</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>
	Proposal	Proposal	Proposal	Proposal
WEEK 16	WEEK 17	WEEK 18	WEEK 19	WEEK 20
<ul style="list-style-type: none"> <li>Planning for Testing</li> </ul>	<ul style="list-style-type: none"> <li>Present Proposal via PUO</li> </ul>	<ul style="list-style-type: none"> <li>Proposal correction</li> </ul>	<ul style="list-style-type: none"> <li>Proposal correction</li> </ul>	<ul style="list-style-type: none"> <li>Proposal correction</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>
Proposal	Proposal	Proposal	Proposal	Proposal

<b>ACADEMIC CALENDAR BCT7264 - RESEARCH METHOD AND PRE-PROJECT (BCT 7)</b>				
<b>COURSE LEARNING OUTCOME (CLO)</b>				
<ol style="list-style-type: none"> <li>1. Plan a project work using proper research technique based on knowledge and understanding from broadly-defined civil engineering problems.</li> <li>2. Build initiative, intellectual achievement and comprehension of the chosen subject matter and employ the theoretical principles in practical situations.</li> <li>3. Show a professional and ethical conduct to complete a research and / or development of project.</li> <li>4. Produce project proposal based on knowledge and analysis in broadly-defined civil engineering problems.</li> </ol>				
WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5
<ul style="list-style-type: none"> <li>• WBL REGISTRATION AT WORKPLACE (INDUSTRY)</li> <li>• Submission Appendix B1 and B2 to PUO</li> </ul>	RESEARCH INTRODUCTION	RESEARCH TOPIC	RESEARCH WRITING	RESEARCH PROPOSAL •1st Observation
	<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> -1 <sup>st</sup> Observation & Evaluation Presentation/Consultation/ Log Book/Appraisal
WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10
SUBMIT RESEARCH PROPOSAL DRAF 1	RESEARCH PROPOSAL (SUPERVISOR SELECTED)	RESEARCH PROPOSAL	RESEARCH PROPOSAL	RESEARCH PROPOSAL
<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Consultation/Appraisal/ Log Book
WEEK 11	WEEK 12	WEEK 13	WEEK 14	WEEK 15
SUBMIT RESEARCH PROPOSAL DRAF 2	RESEARCH PROPOSAL 2 <sup>nd</sup> Observation	RESEARCH PROPOSAL	RESEARCH PROPOSAL	RESEARCH PROPOSAL
<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Presentation/Consultation/ Log Book/Appraisal	<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Consultation/ Log Book	<b>ASSESSMENT</b> Consultation/ Log Book
WEEK 16	WEEK 17	WEEK 18	WEEK 19	WEEK 20
SUBMIT RESEARCH PROPOSAL	PROPOSAL DEFENCE	MARKING PROPOSAL	MARKING PROPOSAL	SUBMISSION FINAL PROPOSAL AND RESULT TO EXAMINATION UNIT AT PUO
SUBMIT A COMPLETE FINAL PROPOSAL TO PUO	PRESENTATION AT PUO	PRODUCE A COMPLETE FINAL PROPOSAL	PRODUCE A COMPLETE FINAL PROPOSAL	
<b>ASSESSMENT</b> Final proposal report, Slides, Log Book, Poster	<b>ASSESSMENT</b> Presentation & Log book	<b>ASSESSMENT</b> Final proposal report &Log book	<b>ASSESSMENT</b> Final proposal report &Log book	<b>ASSESSMENT</b> Final Research Proposal &Log Book

<b>ACADEMIC CALENDAR</b>				
<b>BCT BCT8297 - PROJECT MANAGEMENT (BCT 8)</b>				
<b>COURSE LEARNING OUTCOME (CLO)</b>				
Upon completion of this course, the students should be able to :				
1. Plan a project successfully by applying the concepts of management. (C6, PLO1)				
2. Organise a part of civil engineering project effectively. (P5, PLO4)				
3. Build the ability to arrange a verbal presentation session relating to project management. (A4, PLO5)				
4. Develop professionally relevant competencies and practice in the professional field, etiquette complies with policies, procedure and rules of the organization. (A4, PLO11)				
WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5
<b>WBL REGISTRATION AT WORKPLACE (INDUSTRY)</b>	<b>CHAPTER 1 PRINCIPLES OF PROJECT MANAGEMENT</b> <ul style="list-style-type: none"> <li>Overview of project management</li> <li>Project management life cycle</li> <li>Overview of construction management</li> </ul>	<b>CHAPTER 1 PRINCIPLES OF PROJECT MANAGEMENT</b> <ul style="list-style-type: none"> <li>Lifecycle of construction project</li> <li>Organisational Structures and staffing</li> </ul>	<b>CHAPTER 2 SITE MANAGEMENT</b> <ul style="list-style-type: none"> <li>Objectives of site management</li> <li>Characteristics of effective site management</li> <li>Site organization</li> </ul>	<b>CHAPTER 2 SITE MANAGEMENT</b> <ul style="list-style-type: none"> <li>Project team members</li> <li>Effectiveness of site layout planning</li> <li>Temporary facilities and temporary site design</li> <li>1st Observation</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>
				<ul style="list-style-type: none"> <li>Technical Report 1</li> <li>Interview/Presentation</li> <li>Appraisal</li> </ul>
WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10
<b>CHAPTER 3 PROJECT QUALITY MANAGEMENT</b> <ul style="list-style-type: none"> <li>Quality definition</li> <li>Total Quality Management (TQM)</li> <li>Quality Improvement and Role of Employee</li> </ul>	<b>CHAPTER 3 PROJECT QUALITY MANAGEMENT (cont.)</b> <ul style="list-style-type: none"> <li>Strategic Implications of TQM</li> <li>Six Sigma</li> </ul>	<b>CHAPTER 4 PROJECT RISK MANAGEMENT</b> <ul style="list-style-type: none"> <li>Definition of Risk Management</li> <li>Risk in the Project Cycle</li> <li>Individual Risk Profiles and its implications</li> </ul>	<b>CHAPTER 4 PROJECT RISK MANAGEMENT (cont.)</b> <ul style="list-style-type: none"> <li>Qualitative vs Quantitative Risk</li> <li>Cost of Risk to an Organisation</li> <li>Risk Management Process</li> </ul>	<b>CHAPTER 5 SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT</b> <ul style="list-style-type: none"> <li>Accident Theories and concept</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>

<p><b>WEEK 11</b></p> <p><b>CHAPTER 5</b> <b>SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT (cont.)</b></p> <ul style="list-style-type: none"> <li>• Safety and Health Issues in Construction Industry</li> </ul> <p><b>ASSESSMENT</b></p>	<p><b>WEEK 12</b></p> <p><b>CHAPTER 5</b> <b>SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT (cont.)</b></p> <ul style="list-style-type: none"> <li>• Hazard Identification</li> <li>• 2nd Observation</li> </ul> <p><b>ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>• Technical Report 2</li> <li>• Interview/Presentation</li> <li>• Appraisal</li> </ul>	<p><b>WEEK 13</b></p> <p><b>CHAPTER 5</b> <b>SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT (cont.)</b></p> <ul style="list-style-type: none"> <li>• Risk Assessment</li> <li>• Risk Control</li> </ul> <p><b>ASSESSMENT</b></p>	<p><b>WEEK 14</b></p> <p><b>CHAPTER 6</b> <b>PLANNING AND SCHEDULING</b></p> <ul style="list-style-type: none"> <li>• Understanding Microsoft Project or other database software.</li> </ul> <p><b>ASSESSMENT</b></p>	<p><b>WEEK 15</b></p> <p><b>CHAPTER 6</b> <b>PLANNING AND SCHEDULING (cont.)</b></p> <ul style="list-style-type: none"> <li>• Understanding Microsoft Project or other database software</li> </ul> <p><b>ASSESSMENT</b></p>
<p><b>WEEK 16</b></p> <p><b>CHAPTER 6</b> <b>PLANNING AND SCHEDULING (cont.)</b></p> <ul style="list-style-type: none"> <li>• Interpret a simple project by using Microsoft Project or other database software:</li> <li>• developing network model- Activity-on-arrow Network</li> </ul> <p><b>ASSESSMENT</b></p>	<p><b>WEEK 17</b></p> <p><b>CHAPTER 6</b> <b>PLANNING AND SCHEDULING (cont.)</b></p> <ul style="list-style-type: none"> <li>• calculating Early and Late, Start/Finish times, Total Float, Free Float</li> </ul> <p><b>ASSESSMENT</b></p>	<p><b>WEEK 18</b></p> <p><b>CHAPTER 6</b> <b>PLANNING AND SCHEDULING (cont.)</b></p> <ul style="list-style-type: none"> <li>• identify Critical path</li> </ul> <p><b>ASSESSMENT</b> documentation</p>	<p><b>WEEK 19</b></p> <p><b>CHAPTER 6</b> <b>PLANNING AND SCHEDULING</b></p> <p><b>ASSESSMENT</b> documentation</p>	<p><b>WEEK 20</b></p> <p><b>CHAPTER 6</b> <b>PLANNING AND SCHEDULING</b></p> <p><b>ASSESSMENT</b> Documentation</p>

<b>ACADEMIC CALENDAR</b>				
<b>BCT83010 - FINAL YEAR PROJECT (BCT 8)</b>				
<b>COURSE LEARNING OUTCOME (CLO)</b>				
<ol style="list-style-type: none"> <li>1. Organize and interpret results from the analyses of data and formulate solutions to broadly-defined civil engineering problems with respect to the research topic.</li> <li>2. Build competence, initiative, intellectual achievement and comprehension of the chosen subject matter and employ the theoretical principles in practical situations.</li> <li>3. Integrate a professional and ethical conduct to complete a research and / or development of product.</li> <li>4. Display competency in written and oral communication skills.</li> <li>5. Produce academic projects report based on knowledge and analysis in broadly-defined civil engineering problems.</li> </ol>				
WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5
<b>WBL REGISTRATION AT WORKPLACE (INDUSTRY)</b>	<b>PREPARATION FOR DATA COLLECTION</b>	<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b>	<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b>	<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b>
<ul style="list-style-type: none"> <li>• Submission Appendix B1 and B2 to PUO</li> <li>• Preparation of data collection.</li> </ul>	<ul style="list-style-type: none"> <li>• Resources identification and selection.</li> </ul>	<ul style="list-style-type: none"> <li>• Product development/ data collection.</li> </ul>	<ul style="list-style-type: none"> <li>• Product development/ data collection.</li> </ul>	<ul style="list-style-type: none"> <li>• Product development/ data collection.</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>
Progress report & Log book	Progress report & Log book	Progress report & Log book	Progress report & Log book	-1 <sup>st</sup> Observation & Evaluation -Progress report, Log book, Appraisal

WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10
<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b> <ul style="list-style-type: none"> <li>Product development/ data collection</li> </ul>	<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b> <ul style="list-style-type: none"> <li>Product development/ data collection</li> </ul>	<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b> <ul style="list-style-type: none"> <li>Product development/ data collection</li> </ul>	<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b> <ul style="list-style-type: none"> <li>Product development/ data collection</li> </ul>	<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b> <ul style="list-style-type: none"> <li>Test run the project</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>
Progress report & Log book	Progress report & Log book			
WEEK 11	WEEK 12	WEEK 13	WEEK 14	WEEK 15
<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b> <ul style="list-style-type: none"> <li>Test run the project</li> </ul>	<b>PROJECT IMPLEMENTATION AND DEVELOPMENT</b> <ul style="list-style-type: none"> <li>Test run the project</li> </ul>	<b>RESULTS AND ANALYSIS</b> <ul style="list-style-type: none"> <li>Interpret the results</li> </ul>	<b>RESULTS AND ANALYSIS</b> <ul style="list-style-type: none"> <li>Interpret the results.</li> </ul>	<b>RESULTS AND ANALYSIS</b> <ul style="list-style-type: none"> <li>State and summarize all the results</li> </ul>
WEEK 16	WEEK 17	WEEK 18	WEEK 19	WEEK 20
<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>Produce a complete final report.</li> </ul>	<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>Produce a complete final report.</li> </ul>	<b>REPORT WRITING</b> <ul style="list-style-type: none"> <li>Produce a complete final report.</li> </ul>	<b>PREPARATION FOR FYP SEMINAR PRESENTATION</b> <ul style="list-style-type: none"> <li>Prepare material for FYP Seminar presentation</li> </ul>	<b>FYP SEMINAR PRESENTATION</b> <ul style="list-style-type: none"> <li>FYP seminar presentation and</li> </ul>
<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>	<b>ASSESSMENT</b>
-Progress report, Log book, Draft report & Appraisal	Progress report, Draft report & Log book	Progress report, Draft Report & Log book	Final report, Slides, Log Book, Poster	Presentation and final report submission at PUO

# Appendix C

## COURSE ASSESSMENT RUBRIC

Appendix C1	Rubric Assessment BCT 7275	49
Appendix C2	Rubric Assessment BCT 7288	56
Appendix C3	Rubric Assessment BCT 7264	65
Appendix C4	Rubric Assessment BCT 8297	82
Appendix C5	Rubric Assessment BCT 83010	86



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIC NUM.:</b>						
<b>COURSE:</b>		<b>BCT7275 - TECHNOLOGY &amp; INNOVATION MANAGEMENT</b>				
<b>ASSESSMENT:</b>		<b>REFLECTIVE JOURNAL (30%)</b>				
<b>CLO1 - LD 4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>Aspects/Skills</b>	<b>Excellent</b> <b>4</b>	<b>Good</b> <b>3</b>	<b>Fair</b> <b>2</b>	<b>Unsatisfactory</b> <b>1</b>	<b>Score</b>
	<b>A. Inquire :</b> Identify and Define Key Issue/s and/or Problem/s	Clearly, accurately and appropriately identifies key issues/s and/or problem/s	Identifies most or all key issue/s and/or problem/s	Identifies some or all key issue/s and/or problem/s. May have some inaccuracies, omissions or errors present that interfere with meaning.	Most or all of key issue/s and/or problem/s are not identified or defined, or are identified or defined inaccurately (unclear).	
	<b>B. Analyze:</b> Present and Analyze Data / Information	Present appropriate, sufficient and credible data/information. Clear analyses information for accuracy, relevance and validity. Information clearly relates to meaning.	Present sufficient and appropriate data/information. Generally analyzes data/information for accuracy, relevance and validity. Minor inaccuracies or omissions do not interfere with analysis of meaning.	Presents some appropriate data/information. May miss or ignore relevant data/information.  Analysis is limited or somewhat inappropriate. May contain inaccuracies or omissions that interfere with analysis and/or meaning.	Does not present relevant and appropriate data/information. Fails to analyze or uses inaccurate or inappropriate analysis of data/information. Copies information without analysis.	

<b>CLO1 - LD 4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>C.Evaluate :</b> Apply a Multi-Dimensional Approach/ Consider Context	Clearly applies a multi-dimensional approach. Synthesizes various perspectives.  Acknowledge limit of position or context.	Acknowledges multiple approaches. Some synthesis of perspectives. May not fully acknowledge limits of position or context, but is aware of limits or context.	Somewhat simplifies position with some sense of multiple approaches. Minor or vague synthesis of perspectives. Some acknowledgement position may have limit and may not acknowledge context.	Student's position is grounded in a singular, often personal perspective. Position may be simplistic and obvious. Little or no awareness that position may have limits or context.	
	<b>D.Solve:</b> Demonstrate Sound Reasoning and Conclusions	Reasoning is logical and creative, consistent, complete and often unique.  Conclusion is complex and/or detailed, well supported, creative, complete and relevant.	Reasoning is mostly logical, complete and consistent. Demonstrates some unique or creative insight.  Conclusion is generally complete, supported and mostly consistent and relevant.	Reasoning contains elements of logic and/or creative insight, but not fully resolved. May have minor inconsistencies or omissions. Conclusion is relevant but abbreviated or simplified, not fully supported and /or contains minor inconsistencies.	Reasoning is illogical, simplistic, and inconsistent or absent. Conclusion is simplistic and stated as an absolute, or inconsistent with evidence or reasoning. Lack of coherent or clear conclusion.	

NAME/MATRIC NUM.:						
COURSE:		<b>BCT7275 - TECHNOLOGY &amp; INNOVATION MANAGEMENT</b>				
ASSESSMENT:		<b>REFLECTIVE JOURNAL (30%)</b>				
<b>CLO2 - LD 1 KNOWLEDE</b>	<b>Aspects/Skills</b>	<b>Excellent</b> <b>4</b>	<b>Good</b> <b>3</b>	<b>Fair</b> <b>2</b>	<b>Unsatisfactory</b> <b>1</b>	<b>Score</b>
	<b>Generates ideas</b>	Clear evidence of multiple ideas generated.	Some evidence of ideas generated.	Lack evidence of ideas generated.	No evidence of ideas generated.	
	<b>Analyze relationships</b>	Demonstrates ability to identify the main pattern running through all information given along with minor patterns.	Demonstrates ability to identify the main pattern running through all information given.	Demonstrates ability to identify the main pattern running through few information given.	Does not address the main pattern running through the information given.	
	<b>Compare and contrast various ideas</b>	Uses specific inductive or deductive reasoning to make inferences regarding premises, identifies facts and relevant information correctly, addresses implications and consequences.	Uses apparent reasoning to make inferences regarding solutions. Shows some confusion regarding facts, opinions, evidence, data or information.	Uses superficial reasoning to make inferences regarding solutions. Shows confusion regarding facts, opinions, evidence, data or information.	Does not select or defend a solution	
	<b>TOTAL SCORE FOR CLO 1/LD4</b>					/16
<b>TOTAL SCORE FOR CLO 2/LD1</b>					/12	
<b>(TOTAL SCORE CLO 1) + (TOTAL SCORE CLO 2) =</b>					/28 X 30%	%
<b>Examiner's Signature :</b>						
<b>Stamping: Date :</b>						



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

NAME:						
MATRIC NUM.:						
COURSE:		<b>BCT7275 - TECHNOLOGY &amp; INNOVATION MANAGEMENT</b>				
ASSESSMENT:		<b>PROPOSAL (50%)</b>				
<b>CLO1 - LD 4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>Aspects/Skills</b>	<b>Excellent 4</b>	<b>Good 3</b>	<b>Fair 2</b>	<b>Unsatisfactory 1</b>	<b>Score</b>
	<b>A.Inquire :</b> Identify and Define Key Issue/s and/or Problem/s	Clearly, accurately and appropriately identifies key issues/s and/or problem/s	Identifies most or all key issue/s and/or problem/s	Identifies some or all key issue/s and/or problem/s. May have some inaccuracies, omissions or errors present that interfere with meaning.	Most or all of key issue/s and/or problem/s are not identified or defined, or are identified or defined inaccurately (unclear).	
	<b>B.Analyze:</b> Present and Analyze Data / Information	Present appropriate, sufficient and credible data/information. Clear analyses information for accuracy, relevance and validity. Information clearly relates to meaning.	Present sufficient and appropriate data/information. Generally analyzes data/information for accuracy, relevance and validity. Minor inaccuracies or omissions do not interfere with analysis of meaning.	Presents some appropriate data/information. May miss of ignore relevant data/information.  Analysis is limited or somewhat inappropriate. May contain inaccuracies or omissions that interfere with analysis and/or meaning.	Does not present relevant and appropriate data/information. Fails to analyze or uses inaccurate or inappropriate analysis of data/information. Copies information without analysis.	

<b>CLO1 - LD 4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>C.Evaluate :</b> Apply a Multi-Dimensional Approach/ Consider Context	Clearly applies a multi-dimensional approach. Synthesizes various perspectives.  Acknowledge limit of position or context.	Acknowledges multiple approaches. Some synthesis of perspectives. May not fully acknowledge limits of position or context, but is aware of limits or context.	Somewhat simplifies position with some sense of multiple approaches. Minor or vague synthesis of perspectives. Some acknowledgement position may have limit and may not acknowledge context.	Student's position is grounded in a singular, often personal perspective. Position may be simplistic and obvious. Little or no awareness that position may have limits or context.	
	<b>D.Solve:</b> Demonstrate Sound Reasoning and Conclusions	Reasoning is logical and creative, consistent, complete and often unique.  Conclusion is complex and/or detailed, well supported, creative, complete and relevant.	Reasoning is mostly logical, complete and consistent. Demonstrates some unique or creative insight.  Conclusion is generally complete, supported and mostly consistent and relevant.	Reasoning contains elements of logic and/or creative insight, but not fully resolved. May have minor inconsistencies or omissions. Conclusion is relevant but abbreviated or simplified, not fully supported and /or contains minor inconsistencies.	Reasoning is illogical, simplistic, and inconsistent or absent. Conclusion is simplistic and stated as an absolute, or inconsistent with evidence or reasoning. Lack of coherent or clear conclusion.	

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT7275 - TECHNOLOGY &amp; INNOVATION MANAGEMENT</b>				
<b>ASSESSMENT</b>		<b>PROPOSAL (50%)</b>				
<b>CLO 2 - LD 1 KNOWLEDGE</b>	<b>Aspects</b>	<b>Excellent</b> <b>4</b>	<b>Good</b> <b>3</b>	<b>Fair</b> <b>2</b>	<b>Unsatisfactory</b> <b>1</b>	<b>Score</b>
	<b>E.Generates ideas</b>	Clear evidence of multiple ideas generated.	Some evidence of ideas generated.	Lack evidence of ideas generated.	No evidence of ideas generated.	
	<b>F.Analyse relationships</b>	Demonstrates ability to identify the main pattern running through all information given along with minor patterns.	Demonstrates ability to identify the main pattern running through all information given.	Demonstrates ability to identify the main pattern running through few information given.	Does not address the main pattern running through the information given.	
	<b>G.Compare and contrast various ideas</b>	Uses specific inductive or deductive reasoning to make inferences regarding premises, identifies facts and relevant information correctly, addresses implications and consequences.	Uses apparent reasoning to make inferences regarding solutions. Shows some confusion regarding facts, opinions, evidence, data or information.	Uses superficial reasoning to make inferences regarding solutions. Shows confusion regarding facts, opinions, evidence, data or information.	Does not select or defend a solution	

<b>CLO3-LD7 MANAGEMENT AND ENTREPRENEURIAL SKILLS</b>	<b>H.Information Literacy</b>	Demonstrates ability to explain, organize and evaluate the quality and relevance of information from multiple sources	Usually able to explain, organize and evaluate the quality and relevance of information from multiple sources	Has difficulty to explain, organize and evaluate the quality and relevance of information from multiple sources	Unable to explain, organize and evaluate the quality and relevance of information from multiple sources		
	<b>I.Adaptability &amp; Flexibility</b>	Easily make changes in the environment that require adaptation or flexibility and helps others explore ways to adapt or be flexible to better achieve an intended outcome	Notices changes in the environment that require adaptation or flexibility and helps others explore ways to adapt or be flexible to better achieve an intended outcome	Makes an effort to adapt to unfamiliar change in the environment and / or tries to be more flexible with encouragement and when the need is pointed out	Makes no effort to adapt to unfamiliar change in the environment and / or tries to be more flexible with encouragement and when the need is pointed out		
	<b>J.Collaboration</b>	Models behaviours, including sensitivity to cultural, generational, and personality differences, that promote collaboration and working productivity	Works well as a team member when roles and goals are clearly defined. Sometimes able to negotiate conflict to achieve an intended result	Comfortable working with friends or like-minded individuals from similar backgrounds. Has difficult time negotiating conflicts	Uncomfortable working with friends or like-minded individuals from similar backgrounds. Unable to negotiate conflicts		
<b>TOTAL SCORE FOR CLO 1/LD4</b>						/16	
<b>TOTAL SCORE FOR CLO 2/LD1</b>						/12	
<b>TOTAL SCORE FOR CLO 3/LD7</b>						/12	
<b>(TOTAL SCORE CLO 1) + (TOTAL SCORE CLO 2) + (TOTAL SCORE CLO 3) =</b>						/40 X 50%	%
<b>Examiner's Signature :</b>							
<b>Stamping:</b>							
<b>Date :</b>							



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

NAME						
MATRIC NUM.:						
COURSE:		<b>BCT 7288 SUSTAINABLE CONSTRUCTION TECHNOLOGY</b>				
ASSESSMENT:		<b>REFLECTIVE JOURNAL 1 (15%)</b>				
LD1 : KNOWLEDGE	Aspects/Skills	Excellent 4	Good 3	Fair 2	Unsatisfactory 1	Score
	<b>A. Subject Knowledge</b>	Excellent understanding of the given task with relevant use data	Good understanding of the given task with relevant use data	Moderate understanding of the given task with relevant use data	Poor understanding of the given task with relevant use data	
	<b>B. Reflection</b>	Excellent ability to integrate the relationship between the work place with the construction sustainability.	Good ability to integrate the relationship between the work place with the construction sustainability.	Moderate ability to integrate the relationship between the work place with the construction sustainability.	Poor ability to integrate the relationship between the work place with the construction sustainability.	
	<b>C. References</b>	Citing of references is done honestly, are proper, appropriate and suitable with the issue/problem and subject matter.	Good citing of references with less editing.	Citing of references are moderately done where improvisation and editing has to be carried out.(less than 2 pdf files)	Citing of references is done poorly, where it is found to be irrelevant with the issue/problem, and there is some detection of plagiarism as well.	
					<b>/12</b>	
					<b>Total Score: /12 X 15%</b>	%
<b>Examiner's Signature :</b>						
<b>Stamping:</b>						
<b>Date :</b>						



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

NAME						
MATRIC NUM.:						
COURSE:		<b>BCT 7288 SUSTAINABLE CONSTRUCTION TECHNOLOGY</b>				
ASSESSMENT:		<b>PRESENTATION 1 (10%)</b>				
LD1 : KNOWLEDGE	Aspects/Skills	Excellent 4	Good 3	Fair 2	Unsatisfactory 1	Score
	<b>A.Ability to create a genuine project by adopting sustainable construction.</b>	Shows excellent abilities to create genuine project as per requirement.	Shows good abilities to create genuine project as per requirement.	Shows moderate abilities to create genuine project as per requirement.	Shows poor abilities to create genuine project as per requirement.	
	<b>B.Clear view / understanding/idea on solving/ preventing/mitigating the issue/problem identified.</b>	Shows excellence in the view/ understanding/idea in solving /prevention/mitigating the issue/problem.	Has good View/understanding /idea in solving/ Prevention / mitigating the issue/problem.	Has a fair view/understanding/idea in solving/Prevention / mitigating the issue/ problem.	Has a poor view/understanding/idea in solving/ prevention/mitigating the issue/problem.	
	<b>C.Visual Aids.</b>	Excellent presentation using suitable visual aids.	Good presentation using suitable visual aids.	Moderate presentation using visual aids and could be improvised.	Poor presentation on the whole and lacks in the suitability of the visual aids used.	
					<b>/12</b>	
<b>Total Score</b>				<b>/12 X 10%</b>	<b>%</b>	
<b>Examiner's Signature :</b>						
<b>Stamping: Date :</b>						



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APPENDIX C2  
BCT7288 – RJ2 - (1/2)

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

NAME						
MATRIC NUM.:						
COURSE:		<b>BCT 7288 SUSTAINABLE CONSTRUCTION TECHNOLOGY</b>				
ASSESSMENT:		<b>REFLECTIVE JOURNAL 2 (15%)</b>				
<b>LD1 : KNOWLEDGE</b>	<b>Aspects/Skills</b>	<b>Excellent</b> <b>4</b>	<b>Good</b> <b>3</b>	<b>Fair</b> <b>2</b>	<b>Unsatisfactory</b> <b>1</b>	<b>Score</b>
	<b>A.Subject Knowledge</b>	Excellent elaboration of the civil engineering and construction sustainability implementation/ subject matter	Good elaboration of the civil engineering and construction sustainability implementation/ subject matter	Moderate elaboration of the civil engineering and construction sustainability implementation/ subject matter	Poor elaboration of the civil engineering and construction sustainability implementation/ subject matter	

<b>LD1 : KNOWLEDGE</b>	<b>B.Reflection</b>	Excellent ability to solve/mitigate/improve/solution to the civil engineering and construction sustainability/ subject matter	Good ability to solve/ mitigate/ improve/solution to the civil engineering and construction sustainability/ subject matter	Moderate ability to solve/ mitigate/ improve/solution to the civil engineering and construction sustainability/ subject matter	Poor ability to solve/ mitigate/improve/solution to the civil engineering and construction sustainability/ subject matter	
	<b>C.References</b>	Citing of references are done honestly, are proper, appropriate and suitable with the issue/problem and subject matter.	Good citing of references with less editing.	Citing of references are moderately done where improvisation and editing has to be carried out.	Citing of references are done poorly, where it is found to be irrelevant with the issue/problem, and there are some detection of plagiarism as well.	
						<b>/12</b>
					<b>Total Score :</b>	<b>/12 X 15%</b>
<b>Examiner's Signature :</b>						
<b>Stamping:</b>						
<b>Date :</b>						



MINISTRY OF HIGHER EDUCATION



APPENDIX C2  
BCT7288 – PRESENT2 - (1/2)

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT 7288 SUSTAINABLE CONSTRUCTION TECHNOLOGY</b>				
<b>ASSESSMENT</b>		<b>PRESENTATION 2 (10%)</b>				
<b>LD1 : KNOWLEDGE</b>	<b>Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A.Ability to create a genuine project by adopting sustainable construction.</b>	Shows excellent abilities to create genuine project as per requirement.	Shows good abilities to create genuine project as per requirement.	Shows moderate abilities to create genuine project as per requirement.	Shows poor abilities to create genuine project as per requirement.	

<b>LD1 : KNOWLEDGE</b>	<b>B.Clear view / understanding / idea on solving/ preventing/ mitigating the issue/problem identified.</b>	Shows excellence in the view/ understanding/ idea in solving /preventing/mitigating the issue/ problem.	Has good view /understanding/idea in solving/ preventing/ mitigating the issue/problem.	Has a fair view/understanding /idea in solving/ Preventing /mitigating the issue/problem.	Has a poor view/understanding/idea in solving/ preventing /mitigating the issue/problem.	
	<b>C.Visual Aids.</b>	Excellent presentation using suitable visual aids.	Good presentation using suitable visual aids.	Moderate presentation using visual aids and could be improvised.	Poor presentation on the whole and lacks in the suitability of the visual aids used.	
	<b>TOTAL STUDENT'S SCORE</b>					<b>/12</b>
	<b>TOTAL = /12 x 10%</b>					
<b>Examiner's Signature :</b>						
<b>Stamping:</b>						
<b>Date :</b>						



MINISTRY OF HIGHER EDUCATION



APPENDIX C2  
BCT7288 – REPORT - (1/3)

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT 7288 SUSTAINABLE CONSTRUCTION TECHNOLOGY</b>				
<b>ASSESSMENT</b>		<b>REPORT (30%)</b>				
<b>CLO 1 - LD1 KNOWLEDGE</b>	<b>Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A.Subject Knowledge</b>	Shows excellent understanding on the issue/problem arising in the work place & able to relate with subject matter.	Shows good understanding on the issue/problem arising in the work place & able to relate with subject matter.	Fair understanding on the issue/problem arising in the work place & able to relate with subject matter.	Shows poor understanding on the issue/problem arising in the work place & able to relate with subject matter.	
	<b>B.Technical Writing Skills</b>	Shows excellent writing skills as required and as according to format.	Shows good writing skills as required and as according to format.	Shows moderate writing skills as required and as according to format.	Shows poor writing skills as required and as according to format.	
	<b>CLO1 SCORE</b>					<b>/8</b>



MINISTRY OF HIGHER EDUCATION



APPENDIX C2  
BCT7288 – REPORT - (2/3)

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT 7288 SUSTAINABLE CONSTRUCTION TECHNOLOGY</b>				
<b>ASSESSMENT</b>		<b>REPORT (30%)</b>				
<b>CLO3 - LD4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>C.Ability to link the issue/ problem</b>	Very skilful in relating the issue/problem seen in the work scope to the subject matter.	Shows good skills in relating the issue/ problem seen in the work scope to the subject matter.	Shows acceptable skills in relating the issue/ problem seen in the work scope to the subject matter.	Shows poor skills in relating the issue/ problem seen in the work scope to the subject matter.	
<b>D.Narration are in proper flow/accordance</b>	The narrations of the contents in the literature review are written in an excellent and proper flow, and in accordance, without any confusion.	The narrations of the contents in the literature review are written in a good flow and accordance, with minor amendments.	The narrations of the contents in the literature review are written in a moderate flow and accordance, where improvisation is needed.	The narrations of the contents in the literature review are written poorly with improper flow and accordance needs to be revised.		

<b>CLO3 - LD4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>E.Conclusion</b>	The conclusion part is sufficient where here the main issue that is touched upon and the exact focus and scope that is subjected to is clearly seen at the end.	The conclusion part is sufficient where here the main issue that is touched upon is seen here, and an idea of the exact focus and scope that could be subjected to could be established with guidance.	The conclusion part seems to be moderate where it is quite unclear of what is intended to be focused on in the future.	The conclusion part is done poorly where it's unclear on the issue that is narrated on and as well the focus and scope in the future are not clearly seen here.	
	<b>F.Ethical Skills</b>	Citing of references is done honestly, are proper, appropriate and suitable with the issue/problem, and subject matter.	Good citing of references but still needs to be improvised and edited.	Citing of references are moderately done where improvisation and editing has to be carried out.	Citing of references are done poorly, where it is found to be irrelevant with the issue/problem, and there are some detection of plagiarism as well.	
	<b>CLO3 SCORE</b>					<b>/16</b>
	<b>TOTAL CLO1 + TOTAL CLO3 =</b>					<b>/16 x 30%</b>
	<b>Examiner's Signature :</b>					
	<b>Stamping:</b>					
	<b>Date :</b>					



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT7264: RESEARCH METHOD &amp; PRE-PROJECT</b>				
<b>ASSESSMENT</b>		<b>PROPOSAL 1 (10%)</b>				
<b>CLO 2/LD4: CRITICAL THINKING &amp; PROBLEM SOLVING SKILLS</b>	<b>Skills/ Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A. Tittle</b>	The topic of the project is directly relevant to current issues in civil engineering industry.	The topic of the project is for the most part timely and relevant to the civil engineering industry.	The topic seems to be focusing on current issues or directly relevant to the civil engineering industry but could be improvised.	The topic needs to be edited/changed to meet to the requirement of the Final Year Project (FYP).	
	<b>B. Introduction</b>	Shows relevance of the topic where starts from general and proceeds to the specific state/issue/focus of the study which makes the understanding of the topic/study easier.	Shows satisfactory relevance of the topic with proper flow, the topic/study intended is able to be understood.	The relevance of the topic is shown moderately, needs to be revised to have a better understanding of the topic/study.	The relevance of the topic is not shown/narrated well, where it is unable to view and understand the topic/study that is intended.	

<b>CLO 2/LD4: CRITICAL THINKING &amp; PROBLEM SOLVING SKILLS</b>	<b>C.Problems Statement</b>	Addresses a real issue/problem directly related to research findings and narrated in a clear understanding.	Addresses an issue/problem somewhat related to research findings and the narration could be understood.	Addresses a tide pool issue that is unrelated to research.	Does not address an issue related to tide pools.	
	<b>D.Objectives</b>	The objective is related to the topic and developed alternative ideas accurately.	The objective is related to the topic and developed alternative ideas.	The objective is related to the topic and developed alternative ideas with assistance.	Have difficulty in recognizing the objective to the topic and as well as developing alternative ideas.	
	<b>E.Scope of Project</b>	The limitation and focus of the study is outlined clearly.	The limitation and focus of the study is somewhat outlined.	The limitation and focus of the study is outlined poorly.	The limitation and focus of the study is not properly outlined.	
	<b>F.Significance of Research</b>	The importance/rationale of the study is stated clearly where it is convincing to see why the study is worth to be conducted.	The importance/rationale of the study is stated where it is quite convincing to see why the study is worth to be conducted.	The importance/rationale of the study is fairly stated where it is quite difficult to see why the study is worth to be conducted.	There is no relevance in the importance/ rationale of the study which makes it difficult to see why the study is worth to be conducted in the first place.	

<b>CLO 2/LD4: CRITICAL THINKING &amp; PROBLEM SOLVING SKILLS</b>	<b>G.Schedule/ Timeline</b>	Proposal handed in on time	Up to two days late	Up to one week late	Proposal handed in more than one week late		
	<b>H.References</b>	Project reference or credits were complete and flawlessly formatted. All sources were cited and media included captions showing source.	Project reference or credits were complete. All information and media sources were cited.	Project reference or credits were incomplete. Less than half of the sources were cited.	Did not include project reference or credits. One or two sources were cited.		
<b>TOTAL SCORE FOR CLO 2/LD4</b>						<b>/32</b>	
<b>TOTAL SCORE</b>						<b>32 X 10% =</b>	<b>%</b>
<b>Examiner's Signature :</b>							
<b>Stamping:</b>							
<b>Date :</b>							



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APPENDIX C3  
BCT7264 – PROPOSAL2 - (1/3)

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT7264: RESEARCH METHOD &amp; PRE-PROJECT</b>				
<b>ASSESSMENT</b>		<b>PROPOSAL 2 (15%) – LITERATURE REVIEW &amp; METHODOLOGY</b>				
	<b>Skills/ Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A.Introduction</b>	Development of the contents are fully done with relevance to the chapter as well as to the topic.	Clear development of the contents with proper relevance to the chapter and as well as to the topic.	Adequate development of contents where it lacks on the relevance of the chapter as well as the topic.	Poor development of the contents where there are no significant relevance to the chapter as well as to the topic.	
<b>CLO4/LD1: KNOWLEDGE</b>	<b>B.Writing Flow</b>	The narrations of the contents in the literature review are written in an excellent and proper flow, and in accordance, without any confusion.	The narrations of the contents in the literature review are written in a very good flow and accordance, without much confusion.	The narrations of the contents in the literature review are written in a moderate flow and accordance, where improvisation is needed.	The narrations of the contents in the literature review are written poorly with improper flow and accordance needs to be revised.	

<b>CLO4/LD1: KNOWLEDGE</b>	<b>C.Ability to link the issue/ problem</b>	Very skilful in relating the issue/problem seen in the work scope to the subject matter.	Show very good skills in relating the issue/problem seen in the work scope to the subject matter.	Shows acceptable skills in relating the issue/problem seen in the work scope to the subject matter.	Shows poor skills in relating the issue/problem seen in the work scope to the subject matter.	
	<b>D.Conclusion</b>	The conclusion part is sufficient where here the main issue that is touched upon and the exact focus and scope that is subjected to is clearly seen at the end.	The conclusion part is sufficient where here the main issue that is touched upon and an idea of the exact focus and scope that is intended are seen at the end.	The conclusion part seems to be moderate where it is quite unclear of what is intended to be focused on in the future.	The conclusion part is done poorly where it's unclear on the issue that is narrated on and as well the focus and scope in the future are not clearly seen here.	
	<b>E.Ethical Skills</b>	Citing of references is done honestly, are proper, appropriate and suitable with the issue/problem, and subject matter.	Very good citing of references with less editing.Very good citing of references with less editing.	Citing of references are moderately done where improvisation and editing has to be carried out.	Citing of references are done poorly, where it is found to be irrelevant with the issue/problem, and there are some detection of plagiarism as well.	

<b>CLO4/LD1: KNOWLEDGE</b>	<b>F.Methodologi cal Diagram</b>	The diagram shown is suitable and relevant to the method/procedure intended to be carried out in order to achieve the study's objective without any confusion.	The diagram shown is quite suitable and relevant to the method/procedure intended to be carried out in order to achieve the study's objective.	The diagram shown needs to be revised to meet to a more suitable and relevant method/procedure in order to achieve the study's objective.	The diagram shown lacks of suitable and relevant method/procedure, therefore achieving the study's objective seems vague at the moment.	
<b>Examiner's Signature :</b>				<b>TOTAL SCORE FOR CLO 4/LD1</b>		<b>/24</b>
<b>Stamping:</b>				<b>TOTAL SCORE</b>		<b>%</b>
<b>Date :</b>				<b>/24 X 15 =</b>		



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APPENDIX C3  
BCT7264 – C.PROPOSAL - (1/4)

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT7264: RESEARCH METHOD &amp; PRE-PROJECT</b>				
<b>ASSESSMENT</b>		<b>COMPLETED PROPOSAL (15%)</b>				
	<b>Skills/ Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A.Tittle</b>	The topic of the project is directly relevant to current issues in civil engineering industry.	The topic of the project is for the most part timely and relevant to the civil engineering industry.	The topic seems to be focusing on current issues or directly relevant to the civil engineering industry but could be improvised.	The topic needs to be edited/changed to meet to the requirement of the Final Year Project (FYP).	
	<b>B.Introduction</b>	Shows relevance of the topic where starts from general and proceeds to the specific state/ issue/ focus of the study which makes the understanding of the topic/study easier.	Shows satisfactory relevance of the topic with proper flow, the topic/study intended is able to be understood.	The relevance of the topic is shown moderately, needs to be revised to have a better understanding of the topic/study.	The relevance of the topic is not shown/narrated well, where it is unable to view and understand the topic/study that is intended.	

<b>CLO4/LD1: KNOWLEDGE</b>	<b>C.Problems Statement</b>	Addresses a real issue/ problem directly related to research findings and narrated in a clear understanding.	Addresses an issue/ problem somewhat related to research findings and the narration could be understood.	Addresses a tide pool issue that is unrelated to research.	Does not address an issue related to tide pools.	
	<b>D.Objectives</b>	The objective is related to the topic and developed alternative ideas accurately.	The objective is related to the topic and developed alternative ideas.	The objective is related to the topic and developed alternative ideas with assistance.	Have difficulty in recognizing the objective to the topic and as well as developing alternative ideas.	
	<b>E.Scope of Project</b>	The limitation and focus of the study is outlined clearly.	The limitation and focus of the study is somewhat outlined.	The limitation and focus of the study is outlined poorly	The limitation and focus of the study is not properly outlined.	
	<b>F.Significance of Research</b>	The importance/rationale of the study is stated clearly where it is convincing to see why the study is worth to be conducted.	The importance/ rationale of the study is stated where it is quite convincing to see why the study is worth to be conducted.	The importance/ rationale of the study is fairly stated where it is quite difficult to see why the study is worth to be conducted.	There is no relevance in the importance/ rationale of the study which makes it difficult to see why the study is worth to be conducted in the first place.	

<b>CLO4/LD1: KNOWLEDGE</b>	<b>G.Literature Review Primary and secondary sources</b>	Included information from reputable secondary sources. Made extensive use of relevant and interesting primary source materials.	Included information from at least three secondary sources. Used information from relevant primary source materials.	Included factual information from multiple secondary sources. Used information from one primary source.	Work did not have information from any primary sources. Included information from only one secondary source.	
	<b>H.Ethical Skills</b>	Citing of references is done honestly, are proper, appropriate and suitable with the issue/problem, and subject matter.	Very good citing of references with less editing. Very good citing of references with less editing.	Citing of references are moderately done where improvisation and editing should be carried out.	Citing of references are done poorly, where it is found to be irrelevant with the issue/problem, and there is some detection of plagiarism as well.	
	<b>I.Ability to link the issue/problem</b>	Very skillful in relating the issue/problem seen in the work scope to the subject matter.	Show good skills in relating the issue/problem seen in the work scope to the subject matter.	Shows acceptable skills in relating the issue/problem seen in the work scope to the subject matter.	Shows poor skills in relating the issue/problem seen in the work scope to the subject matter.	
	<b>J.Methodological Diagram</b>	The diagram shown is suitable and relevant to the method/procedure intended to be carried out in order to achieve the study's objective without any confusion.	The diagram shown is quite suitable and relevant to the method/procedure intended to be carried out in order to achieve the study's objective.	The diagram shown needs to be revised to meet to a more suitable and relevant method/procedure in order to achieve the study's objective.	The diagram shown lacks suitable and relevant method/procedure, therefore achieving the study's objective seems vague at the moment.	

<b>CLO4/LD1: KNOWLEDGE</b>	<b>K.Expected Outcome</b>	Shows very good ability to predict the expected outcome of the proposal with continuity for Final Year Project with strong objectives.	Shows good ability to predict the expected outcome of the proposal with continuity for Final Year Project with good objectives and revision is required.	Shows fair ability to predict the expected outcome of the proposal with continuity for Final Year Project with fair objectives and revision need to be stress out.	Shows poor ability to predict the expected outcome of the proposal with continuity for Final Year Project with weak objectives.	
	<b>L.Schedule/ Timeline</b>	Proposal handed in one on time	Up to two days late	Up to one week late	Proposal handed in more than one week late	
	<b>M.References</b>	Project reference or credits were complete and flawlessly formatted. All sources were cited and media included captions showing source.	Project reference or credits were complete. All information and media sources were cited.	Project reference or credits were incomplete. Less than half of the sources were cited.	Did not include project reference or credits. One or two sources were cited.	
Examiner's Signature :				<b>TOTAL SCORE FOR CLO 4/LD1</b>		<b>/52</b>
Stamping:				<b>TOTAL SCORE</b>		<b>/52 X 15% =</b>
Date :						<b>%</b>



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT7264: RESEARCH METHOD &amp; PRE-PROJECT</b>				
<b>ASSESSMENT</b>		<b>LOG BOOK 1 (10%)</b>				
	<b>Skills/ Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Poor</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>CLO1/LD1: KNOWLEDGE</b>	<b>A.Organisation</b>	Information is summarised very well with proper organisation.	Information is summarised with proper organisation.	Summary of the Information is somewhat organized.	Summary of the Information is done poorly.
	<b>B.Writing technique</b>	Student is able to write the log book with regards to details and supporting the main idea.	Student is able to write the log book with regards to details and supporting some of the main idea.	Student's log book shows that the details lack to support the main idea.	Student unable to show supportive links between the details and main idea.	

<b>CLO1/LD1: KNOWLEDGE</b>	<b>C.Information</b>	All entries of information convince the key concept.	Although one or two entries are missing, the information tends to convince the key concept.	Three or more entries are missing, where the information lacks to convince the key concept.	Several entries are missing. Information has little or nothing to convince the key concept.	
	<b>D.Appearance /Creativity</b>	Log book is exceptionally neat. Key terms are clearly illustrated or highlighted. Log book is very creative and original.	Log book is neat. Key terms which clearly described or highlighted. Log books are creative and original.	Log books are less messy. There are important terms that are less clearly described or highlighted. Logbook less creative and original.	Log books are less messy. There are many conditions that are less obvious matters described or highlighted. Logbook less creative and original.	
<b>CLO2/LD4: CRITICAL THINKING AND PROBLEM-SOLVING SKILLS</b>	<b>E.Creative/ Innovative Thinking</b>	Choice of ideas or information are in creative ways; able to make decisions on the connections between seemingly unrelated ideas and able to reframe goals accurately.	Choice of ideas or information are in creative ways; able to make decisions on the connections between seemingly unrelated ideas and able to reframe goals with guidance.	Choices made by the student have limited to have ideas or information in creative ways; this affects the decision on the connections between seemingly unrelated ideas and also unable to reframe goals.	Poor choices made by the student resulting to fail to identify new ideas, not able to decide on the connections between seemingly unrelated ideas nor reframe goals.	
	<b>F.Problem Solving</b>	Able to assess problems, choose and decide alternative ideas accurately.	Able to assess problems, choose and decide alternative ideas with an effective manner with little assistance.	Able to assess problems, decision on alternative ideas was identified only with guidance.	Have difficulty in assessing problems, not able to decide on the alternative ideas.	

<b>CLO2/LD4: CRITICAL THINKING AND PROBLEM- SOLVING SKILLS</b>	<b>G.Seeing Things In The Mind's Eye</b>	Generate new imagination freely, combine ideas or information in creative ways; make connections between seemingly unrelated ideas and reshapes goals accurately.	Identify new imagination freely, combine ideas or information in creative ways; make connections between seemingly unrelated ideas and reshapes goals.	Some acknowledgement position may have limit generate new imagination freely, combine ideas or information in creative ways; make connections between seemingly unrelated ideas and reshapes goals.	Have difficulty identifying new ideas, using imagination freely, making connections between seemingly unrelated ideas or reshapes goals.	
	<b>H.Evaluating alternative ideas</b>	Evaluate alternative ideas and recommend solutions,	Evaluate alternative ideas generally with little assistance.	Evaluate alternative ideas and generally only with assistance.	Have difficulty in evaluating alternative ideas.	
<b>TOTAL SCORE FOR CLO 1/LD1 = /16 X 5%</b>						%
<b>TOTAL SCORE FOR CLO 2/LD4 = /16 x 5%</b>						%
<b>TOTAL = (TOTAL SCORE FOR CLO 1/LD1) + (TOTAL SCORE FOR CLO 2/LD4)</b>						%
<b>Examiner's Signature :</b>						
<b>Stamping:</b>						
<b>Date :</b>						



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT7264: RESEARCH METHOD &amp; PRE-PROJECT</b>				
<b>ASSESSMENT</b>		<b>LOG BOOK 2 (10%)</b>				
	<b>Skills/ Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Poor</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>CLO1/LD1: KNOWLEDGE</b>	<b>A.Organisation</b>	Information is summarised very well with proper organisation.	Information is summarised with proper organisation.	Summary of the Information is somewhat organized.	Summary of the Information is done poorly.
	<b>B.Writing technique</b>	Student is able to write the log book with regards to details and supporting the main idea.	Student is able to write the log book with regards to details and supporting some of the main idea.	Student's log book shows that the details lack to support the main idea.	Student unable to show supportive links between the details and main idea.	

<b>CLO1/LD1: KNOWLEDGE</b>	<b>C.Information</b>	All entries of information convince the key concept.	Although one or two entries are missing, the information tends to convince the key concept.	Three or more entries are missing, where the information lacks to convince the key concept.	Several entries are missing. Information has little or nothing to convince the key concept.	
<b>CLO2/LD4: CRITICAL THINKING AND PROBLEM-SOLVING SKILLS</b>	<b>D.Creative/ Innovative Thinking</b>	Choice of ideas or information are in creative ways; able to make decisions on the connections between seemingly unrelated ideas and able to reframe goals accurately.	Choice of ideas or information are in creative ways; able to make decisions on the connections between seemingly unrelated ideas and able to reframe goals with guidance.	Choices made by the student have limited to have ideas or information in creative ways; this affects the decision on the connections between seemingly unrelated ideas and also unable to reframe goals.	Poor choices made by the student resulting to fail to identify new ideas, not able to decide on the connections between seemingly unrelated ideas nor reframe goals.	
	<b>E.Problem Solving</b>	Able to assess problems, choose and decide alternative ideas accurately.	Able to assess problems, choose and decide alternative ideas with an effective manner with little assistance.	Able to assess problems, decision on alternative ideas was identified only with guidance.	Have difficulty in assessing problems, not able to decide on the alternative ideas.	

<b>CLO2/LD4: CRITICAL THINKING AND PROBLEM- SOLVING SKILLS</b>	<b>F. Seeing Things In The Mind's Eye</b>	Generate new imagination freely, combine ideas or information in creative ways; make connections between seemingly unrelated ideas and reshapes goals accurately.	Identify new imagination freely, combine ideas or information in creative ways; make connections between seemingly unrelated ideas and reshapes goals.	Some acknowledgement position may have limit generate new imagination freely, combine ideas or information in creative ways; make connections between seemingly unrelated ideas and reshapes goals.	Have difficulty identifying new ideas, using imagination freely, making connections between seemingly unrelated ideas or reshapes goals.	
	<b>G. Evaluating alternative ideas</b>	Evaluate alternative ideas and recommend solutions,	Evaluate alternative ideas generally with little assistance.	Evaluate alternative ideas and generally only with assistance.	Have difficulty in evaluating alternative ideas.	
<b>TOTAL SCORE FOR CLO 1/LD1 = /12 X 5%</b>						
<b>TOTAL SCORE FOR CLO 2/LD4 = /16 x 5%</b>						
<b>TOTAL = (TOTAL SCORE FOR CLO 1/LD1) + (TOTAL SCORE FOR CLO 2/LD4)</b>						<b>%</b>
<b>Examiner's Signature :</b>						
<b>Stamping:</b>						
<b>Date :</b>						



MINISTRY OF HIGHER EDUCATION



APPENDIX C4  
BCT8297 – TR - (1/2)

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT 8297 PROJECT MANAGEMENT</b>				
<b>ASSESSMENT</b>		<b>TECHNICAL REPORT (20%)</b>				
<b>CLO1-LD1: KNOWLEDGE</b>	<b>Skills/ Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A.Subject Knowledge</b>	Adapt excellent understanding on the issue/problem arising in the work place & able to relate with subject matter.	Adapt very good understanding on the issue/problem arising in the work place & able to relate with subject matter.	Fair understanding on the issue/problem arising in the work place & able to relate with subject matter.	Adapt poor understanding on the issue/problem arising in the work place & able to relate with subject matter.	
	<b>B.Technical Writing Skills</b>	Adapt excellent writing skills as required and as according to format.	Adapt very good writing skills as required and as according to format.	Adapt moderate writing skills as required and as according to format.	Adapt poor writing skills as required and as according to format.	

<b>CLO1-LD1: KNOWLEDGE</b>	<b>C.Analyse and evaluate</b>	Consistently is successful at analyzing and evaluating evidence, arguments, claims and beliefs	Is effective in analyzing and evaluating evidence, arguments, claims and beliefs	Is not thorough at analyzing and/or evaluating evidence, arguments, claims and beliefs	Does not complete analysis or evaluation of evidence, arguments, claims or beliefs	
<b>CLO4 - LD8: PROFESSIONALISM, ETHICS AND MORAL</b>	<b>D.Ethical Skills</b>	Citing of references are done honestly, are proper, appropriate and suitable with the issue/problem, and subject matter.	Very good citing of references with less editing.	Citing of references are moderately done where improvisation and editing should be carried out.	Citing of references are done poorly, where it is found to be irrelevant with the issue/problem, and there is some detection of plagiarism as well.	
	<b>E.Professional and Moral Skills</b>	Identify appropriately when accessing and using information acts ethically and within the legal limitations	Identifies the ethical and legal limitations when accessing and using information	Identifies there is a need for ethical and legal limitations	Does not identifies the need for the law and/or ethics in regards to information literacy	
<b>Examiner's Signature :</b>  <b>Stamping:</b>  <b>Date :</b>				<b>TOTAL SCORE FOR CLO 1/LD1</b>		<b>/12</b>
				<b>TOTAL SCORE FOR CLO 4/LD8</b>		<b>/8</b>
				<b>TOTAL SCORE /20 X 20 =</b>		<b>%</b>



MINISTRY OF HIGHER EDUCATION



APPENDIX C4  
BCT8297 – PRESENT - (1/2)

**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT 8297 PROJECT MANAGEMENT</b>				
<b>ASSESSMENT</b>		<b>PRESENTATION (15%)</b>				
<b>CLO 1 - LD1: KNOWLEDGE</b>	<b>Skills/ Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A.Delivery of information/ details</b>	Excellent delivery of information/ details, and able to interrelate with subject matter.	Very good delivery of information/ details, and able to interrelate with subject matter.	Fair delivery of information/details, and able to interrelate with subject matter.	Poor delivery of information/details, and able to interrelate with subject matter.	
	<b>B.Appropriate media creation tools</b>	Creates presentation using innovative digital tools to compose, illustrate and communicate original ideas	Creates presentation using digital tools to compose, illustrate and communicate information	Attempts to create a presentation using digital tools to compose, illustrate and communicate information but does not complete	Does not attempt or does not understand how to utilize digital tools	

<b>CLO3 - LD3: COMMUNICATION SKILLS</b>	<b>C.Clear view /understanding/ idea/issue/ problem identified based on project management practices</b>	Explain excellently in the view/ understanding/idea in solving/ preventing/mitigating the issue/problem.	Explain very good view/ understanding/ idea in solving/ preventing/mitigating the issue/problem.	Explain a fair view/ understanding/idea in solving/preventing/mitigating the issue/problem.	Explain a poor view/understanding/ idea in solving/ preventing/mitigating the issue/problem.	
	<b>D.Variety of forms and contexts</b>	Worked creatively to craft and present a comprehensive multimedia presentation that uses both verbal and nonverbal communication.	Communicated thoughts and ideas by crafting and presenting a multimedia presentation using both verbal and nonverbal communication.	Creates a multimedia presentation but does not effectively address/communicate using both verbal and nonverbal communication	Either creates a multimedia presentation but does not present, or fails to complete the multimedia presentation, thus does not communicate using both verbal and nonverbal communication	
<b>Examiner's Signature :</b>				<b>TOTAL SCORE FOR CLO 1/LD1</b>		<b>/8</b>
<b>Stamping:</b>				<b>TOTAL SCORE FOR CLO 3/LD3</b>		<b>/8</b>
<b>Date :</b>				<b>TOTAL SCORE /16 X 15 =</b>		<b>%</b>



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME :</b>						
<b>MATRIC NUM.:</b>						
<b>COURSE:</b>		<b>BCT 83010- FINAL YEAR PROJECT</b>				
<b>ASSESSMENT:</b>		<b>REPORT</b>				
<b>CLO 1: LD 1: ORGANIZE AND INTERPRET RESULTS FROM THE ANALYSES OF DATA AND FORMULATE SOLUTIONS TO BROADLY-DEFINED CIVIL ENGINEERING PROBLEMS WITH RESPECT TO THE RESEARCH TOPIC</b>	<b>Aspects/Skills</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A.Organising the analysis</b>	Organizes and synthesizes evidence to appraise and judge the patterns, differences, or similarities related to focus.	Organizes evidence to appraise important patterns, differences, or similarities related to focus.	Organizes evidence but the organization is not effective to appraise or judge important patterns, differences or similarities.	Lists evidence but it is not organized and/or is unrelated to focus	
	<b>B.Depth of analysis</b>	Results are carefully and objectively assessed. Results are justified based on the analyses using appropriate equations, models, or theories	Results are carefully assessed. Results are justified from the analyses but lacks in defending them using appropriate equations, models, or theories.	Engineering analysis is lacking in details, to aid understanding of the results from the analyses equations, models, or theories should be enhanced with equations, models, or theories.	Engineering analysis is so sketchy and inadequate that the reader is not able to evaluate the validity of the interpretation of the findings.	

<p><b>CLO 1: LD 1: ORGANIZE AND INTERPRET RESULTS FROM THE ANALYSES OF DATA AND FORMULATE SOLUTIONS TO BROADLY-DEFINED CIVIL ENGINEERING PROBLEMS WITH RESPECT TO THE RESEARCH TOPIC</b></p>	<p><b>C.Result/findings</b></p>	<p>Discusses and defends a conclusion that is a logical extrapolation from the inquiry findings.</p>	<p>Discusses a conclusion focused solely on the inquiry findings. The conclusion arises specifically from and responds specifically to the inquiry findings.</p>	<p>Discusses a general conclusion that, because it is so general, also applies beyond the scope of the inquiry findings.</p>	<p>Discusses an ambiguous, illogical or unsupportable conclusion from inquiry findings.</p>	
<p><b>CLO 3: LD 8: INTEGRATE A PROFESSIONAL &amp; ETHICAL CONDUCT TO COMPLETE A RESEARCH AND/OR DEVELOPMENT OF PRODUCT</b></p>	<p><b>A.Using code of ethics, explain ethical issues(s).</b></p>	<p>Explain the issue(s) in detail, theorise full understanding of relevant code of ethics provisions and how they relate to the issue(s).</p>	<p>Explain the issue(s) using basic concepts from code of ethics.</p>	<p>Explain the issue(s) using concepts from code of ethics, but important elements may be missing or misunderstood.</p>	<p>Has a vague idea of what the issue is and is uncertain on how the code of ethics applies.</p>	

<b>CLO 3: LD 8: INTEGRATE A PROFESSIONAL &amp; ETHICAL CONDUCT TO COMPLETE A RESEARCH AND/OR DEVELOPMENT OF PRODUCT</b>	<b>B. Identify parties involved and discusses their points of view.</b>	Identify who should be involved in the issue(s) and thoroughly discusses their view of points.	Identify who should be involved in the issue(s) and discusses the viewpoints of the parties at a basic level.	Identifies some of the parties and their view of points, but important elements are missing or misunderstood.	Is unsure who should be involved in the issue and/or does not reflect on their view of points.	
	<b>C. Explains and relates possible/alternative approaches.</b>	Explains and relates a number of alternative approaches and thoroughly considers the interests and concerns of all parties involved.	Explains and relates at least two alternatives and their effects on parties involved.	Explains and relates only one alternative and its effect on parties involved, but important elements are missing or misunderstood.	Is unable to explain or relate alternatives or consider the effect on parties involved.	
	<b>D. Explains an approach and explains the benefits and risks.</b>	Explains an approach and thoughtfully and thoroughly explains benefits and risks.	Explains an approach together with the basic benefits and risks.	Explains an approach together with the benefits and risks, but important elements are missing or misunderstood.	Has difficulty explaining an approach or stating benefits and risks.	
	<b>E. Relates, synthesize and generalise supporting information through citations.</b>	An appropriate amount of high quality supporting material was used for the report and clearly cited.	An appropriate amount of supporting material was used, but it was of medium quality and not always cited appropriately.	Little supporting material was used from low quality sources and it was not cited appropriately.	No supporting material was used.	

<b>CLO 5: LD 1: PRODUCE ACADEMIC PROJECT REPORT BASED ON KNOWLEDGE AND ANALYSIS IN BROADLY- DEFINED CIVIL ENGINEERING PROBLEMS</b>	<b>A. Convincement on the Issue/problem for the purpose of research set up.</b>	Research is positioned sharply in the relevant scientific field. Student is able to defend the novelty and innovation of the research.	Context of the research is discussed well, with input from the student. There is a link between the context and the issue under the research.	The context of the topic at hand is discussed in broad terms but there is no link between what is known and what will be researched	No link is made to existing research on the topic. No research context is discussed.	
	<b>B.Theoretical justification and use of literature</b>	Clear, complete and coherent overview of relevant theories. Exactly tailored to the project at hand.	Student has found the relevant theories, and has been partially successful in tailoring the description to the project at hand. Few errors occurred.	There is some discussion of underlying theories, but the description shows serious errors.	No discussion of underlying theories.	
	<b>C.Decision making of Methods and analysis (literature) data</b>	Decision making of methods used and analysis of the information is appropriate, complete and clear.	Decision making of methods and analysis of information/data is lacking in a number of places. Used methods and analysis of data/information mostly appropriate.	Insufficient information on methods and insufficient analysis of the information.	No discussion of methods and analysis of the information/data.	

<b>CLO 5: LD 1: PRODUCE ACADEMIC PROJECT REPORT BASED ON KNOWLEDGE AND ANALYSIS IN BROADLY-DEFINED CIVIL ENGINEERING PROBLEMS</b>	<b>D.Appraise the clarity of argumentation and conclusions</b>	<p>Clear link between research problem and conclusions. Conclusions substantiated by results. Conclusions are formulated exact and concise. Conclusions are grouped/ordered in a logical way.</p>	<p>Most conclusions well linked to issue/problem and substantiated by results. Conclusions mostly formulated clearly but some vagueness in wording.</p>	<p>Conclusions are drawn, but in many cases these are only partial answers to the research problems. Conclusions merely repeat results or conclusions are not substantiated by results.</p>	<p>No link between research problems, results and conclusions.</p>	
	<b>E.Recommendation &amp; Critical discussion</b>	<p>Recommendations are to-the -point, well defended to the conclusions. Student is able to judge and compare the contribution of his work to the development of scientific concepts</p>	<p>Recommendations are well defended to the conclusions. Student tries to describe the added value of his study but does not relate this to existing research.</p>	<p>Recommendations are absent or trivial. Some confrontation with existing literature but incomplete and irrelevant.</p>	<p>No recommendation given. No confrontation with existing literature.</p>	
<b>Examiner's Signature :</b>				<b>CLO1: /12 X 10%</b>		
<b>Stamping:</b>				<b>CLO3: /20 X 10%</b>		
<b>Date :</b>				<b>CLO5: /20 X 20%</b>		



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIC NUM.:</b>						
<b>COURSE:</b>		<b>BCT 83010- FINAL YEAR PROJECT</b>				
<b>ASSESSMENT:</b>		<b>PRESENTATION</b>				
<b>CLO 4: LD 3: DISPLAY COMPETENCY IN ORAL COMMUNICATION SKILLS</b>	<b>Aspects/Skills</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A.Presentation on the objectives/purpose of the project.</b>	Clear presentation on the objectives/purpose of the project which relates accordingly to the issue/problem and also to the scope of the project.	The presentation on the objectives/purpose was clearly stated, but strayed in terms of relating to the issue/problem and scope of the project.	The presentation on the objectives/purpose was not clearly stated, but were implicit/indirectly hinted.	The presentation on the objectives/purpose was not clearly stated nor the sense of the issue/problem and the scope of the project was clearly shown.	

<b>CLO 4: LD 3: DISPLAY COMPETENCY IN ORAL COMMUNICATION SKILLS</b>	<b>B.Present a clearly organized set of ideas.</b>	The presentation had a clear and deliberate organisational structure.	The presentation was organised, but strayed at times from this organisation.	The presentation had identifiable main points, but displayed lacking in terms of internal structure.	The organisation lacked any structure.	
	<b>C.Use clear and engaging language and delivery.</b>	The language was powerful and effective; delivery was clear and powerful.	Language and delivery were generally good but could have been more effective.	Language was weak, unclear; delivery relied too much on notes and lacked spontaneity.	Language was unclear; delivery relied exclusively on notes.	
	<b>D.Delivery</b>	Completes presentation by maintaining good eye contact; able to respond appropriately to questions.	Completes presentation by maintaining some eye contact; able to respond to most of the questions.	Lacked in maintaining eye contact; showed inconfidence in responses relating towards the questions given.	Not able to response to questions asked.	
	<b>E.Level of confidence</b>	Defends the presentation with an act of self-confidence; able to interpret material with confidence and enthusiasm.	Defends the presentation, and able to interpret material with some confidence and enthusiasm.	The act of confidence during presentation and interpreting material is fair.	The act of confidence during presentation is poor and lacked towards interpreting material with confidence and enthusiasm.	
<b>Total Score</b>					<b>/20 X 10%</b>	
<b>Examiner's Signature :</b>						
<b>Stamping:</b>						
<b>Date :</b>						



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME :</b>						
<b>MATRIC NUM.:</b>						
<b>COURSE:</b>		<b>BCT 83010- FINAL YEAR PROJECT</b>				
<b>ASSESSMENT:</b>		<b>PRESENTATION</b>				
<b>CLO 3: LD 8: INTEGRATE A PROFESSIONAL &amp; ETHICAL CONDUCT TO COMPLETE A RESEARCH AND/OR DEVELOPMENT OF PRODUCT</b>	<b>Aspects/Skills</b>	<b>Excellent</b> 4	<b>Good</b> 3	<b>Fair</b> 2	<b>Unsatisfactory</b> 1	<b>Score</b>
	<b>A.Accommodates code of ethics, explains ethical issues(s).</b>	Explains the issue(s) in detail, with full understanding of relevant code of ethics provisions and how they relate to the issue(s).	Explains the issue(s) using basic concepts from code of ethics.	Explains the issue(s) using concepts from code of ethics, but important elements may be missing or misunderstood.	Has a vague idea of what the issue is and is uncertain how the code of ethics applies.	
	<b>B. Identifies parties involved and explains their points of view.</b>	Identifies and explains who should be involved in the issue(s) along with their view of points.	Explains who should be involved in the issue(s) along with the viewpoints of the parties at a basic level.	Explains some of the parties and their view of points, but important elements are missing or misunderstood.	Is unsure who should be involved in the issue and/or does not reflect on their view of points.	

<b>CLO 3: LD 8: INTEGRATE A PROFESSIONAL &amp; ETHICAL CONDUCT TO COMPLETE A RESEARCH AND/OR DEVELOPMENT OF PRODUCT</b>	<b>C.Generalises the possible/alternative of approaches.</b>	Generalises with proper analysis on number of alternative approaches and thoroughly considers the interests and concerns of all parties involved.	Generalises with analysis on at least two alternatives and their effects on parties involved.	Explains the alternative and its effect on parties involved, but important elements are missing or misunderstood.	Is unable to explain with appropriate analysis on the alternatives or consider the effect on parties involved.	
	<b>D.Organises an approach and explains the benefits and risks.</b>	Organises an approach and thoughtfully and thoroughly explains benefits and risks.	Organises an approach and explains basic benefits and risks.	Organises an approach and explains benefits and risks, but important elements are missing or misunderstood.	Has difficulty organizing an approach or stating benefits and risks.	
	<b>E.Identify, access, select, evaluate and cite supporting information for a presentation.</b>	An appropriate amount of high-quality supporting material was used for the presentation and clearly cited.	An appropriate amount of supporting material was used, but it was of medium quality and not always cited appropriately.	Little supporting material was used from low quality sources and it was not cited appropriately.	No supporting material was used.	
<b>Total Score</b>			<b>/20 X 10%</b>			
<b>Examiner's Signature :</b>						
<b>Stamping:</b>						
<b>Date :</b>						



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT83010 FINAL YEAR PROJECT</b>				
<b>ASSESSMENT</b>		<b>PROGRESS REPORT (1) (6.67%)</b>				
<b>CLO1 - LD 1 KNOWLEDGE</b>	<b>Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A. Progress Achievement</b>	Appropriate work process was chosen for the reason of being ahead of schedule with either more than expected quantifiable results or expected results with superior performance	Good work process was chosen to progress but need reminder sometimes. Minor problems in research project management.	Work process that was chosen slows the progress, with basic project outcome and rely on supervisor's push to work.	Slow progress due to poor and inappropriate choices of work process with barely satisfactory result and unresponsive to supervisor.	
	<b>B. Work procedure</b>	Original, detailed and systematic work procedure measured and outlined by student.	Detailed and systematic work procedure measured and outlined with the guidance of the supervisor.	Work procedure/analysis approach measured is not fully understood by student.	Work procedure/analysis approach are not able to be measured by student and consumes time.	

<b>CLO1 - LD 1 KNOWLEDGE</b>	<b>C. Project Achievement</b>	Convinces a fully functioning working project with several original/inventive elements.	Able to convince a working project with support to all desired functions.	Present a working project but some desired functions are not convincing due to not supported or malfunctioned.	The project is totally unconvincing resulting to incomplete or does not work.	
	<b>TOTAL STUDENT'S SCORE</b>					<b>/12</b>
	<b>TOTAL = /12 x 6.67%</b>					
<p><b>Examiner's Signature :</b></p>   <p><b>Stamping:</b></p>  <p><b>Date :</b></p>						



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT83010 FINAL YEAR PROJECT</b>				
<b>ASSESSMENT</b>		<b>PROGRESS REPORT (2) (6.67%)</b>				
<b>CLO2 - LD4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A. Analysis and Problem Solving Skills</b>	Progress report showed that student has managed to construct the project using appropriate technique, modelling and software.	Progress report showed that the student has put sufficient effort to construct the project using appropriate technique, modelling and software.	Progress report showed that the student did not put enough effort in order to construct the project using appropriate technique, modelling and software.	No evidence of problem-solving method being put forwarded in the progress of constructing the project.	

<b>CLO2 - LD4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>B. Critical Thinking</b>	Students is clear with the steps taken in building a project (broadly-defined civil engineering problems) by demonstrating research-based knowledge and methods learned towards displaying excellent output/findings.	Students is clear on the steps to be taken in building a project (broadly-defined civil engineering problems), however the output is at satisfactory level.	Student have a vague idea on organising an appropriate investigation (broadly-defined civil engineering problems). No input is displayed.	No investigation is organised nor assembled conducted.	
	<b>TOTAL STUDENT'S SCORE</b>					<b>/8</b>
	<b>TOTAL = /8 x 6.67%</b>					
	<p><b>Examiner's Signature :</b></p> <p><b>Stamping:</b></p> <p><b>Date :</b></p>					



MINISTRY OF HIGHER EDUCATION



**BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
RUBRIC COURSES**

APPENDIX C5  
BCT83010 – PROGRESS 3

<b>NAME:</b>						
<b>MATRIX NUMBER:</b>						
<b>COURSE</b>		<b>BCT83010 FINAL YEAR PROJECT</b>				
<b>ASSESSMENT</b>		<b>PROGRESS REPORT (3) (6.67%)</b>				
<b>CLO2 - LD4 CRITICAL THINKING AND PROBLEM SOLVING SKILLS</b>	<b>Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Unsatisfactory</b>	<b>Score</b>
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>A. Analysis And Problem-Solving Skills</b>	Progress report showed that student has managed to construct the project using appropriate technique, modelling and software.	Progress report showed that the student has put sufficient effort to construct the project using appropriate technique, modelling and software.	Progress report showed that the student did not put enough effort in order to construct the project using appropriate technique, modelling and software.	No evidence of problem-solving method being put forwarded in the progress of constructing the project.	
	<b>B. Critical Thinking</b>	Students is clear with the steps taken in building a project (broadly-defined civil engineering problems) by demonstrating research-based knowledge and methods learned towards displaying excellent output/findings.	Students is clear on the steps to be taken in building a project (broadly-defined civil engineering problems), however the output is at satisfactory level.	Student have a vague idea on organising an appropriate investigation (broadly-defined civil engineering problems). No input is displayed.	No investigation is organised nor assembled conducted.	
	<b>Examiner's Signature :</b>				<b>TOTAL STUDENT'S SCORE</b>	<b>/8</b>
<b>Stamping:</b>				<b>TOTAL = /8 x 6.67%</b>		
<b>Date :</b>						

# Appendix **D**

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## WBL STUDENT'S REGISTRATION FORM

Appendix D1	WBL Placement (Location)	101
Appendix D2	WBL Registration Form	103
Appendix D3	Aku Janji Pelajar	104
Appendix D4	Borang lepas Tanggung	105
Appendix D5	Borang Maklumat Peribadi	106



MINISTRY OF HIGHER EDUCATION



**POLITEKNIK UNGKU OMAR  
DEPARTMENT OF CIVIL ENGINEERING**

**WORK-BASED LEARNING (WBL)  
BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
SESSION \_\_\_\_\_**

**WBL PLACEMENT LOCATION FORM**

Hereby, I affirm that the student as named below has been placed as according to the following details:

STUDENTS'S NAME : \_\_\_\_\_

MATRIC NUMBER : \_\_\_\_\_

COMPANY'S NAME : \_\_\_\_\_

EFFECTIVE DATE OF THE NEW PLACEMENT: \_\_\_\_\_

ADDRESS OF THE NEW PLACEMENT : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NEW PLACEMENT LOCATION'S COORDINATE : \_\_\_\_\_

TELEPHONE NUM. : \_\_\_\_\_

FAX NUMBER : \_\_\_\_\_

NAME OF SUPERVISOR (INDUSTRY) : \_\_\_\_\_

H/P NUM : \_\_\_\_\_

SUPERVISOR'S SIGNATURE :

OFFICIAL STAMP OF ORGANISATION :

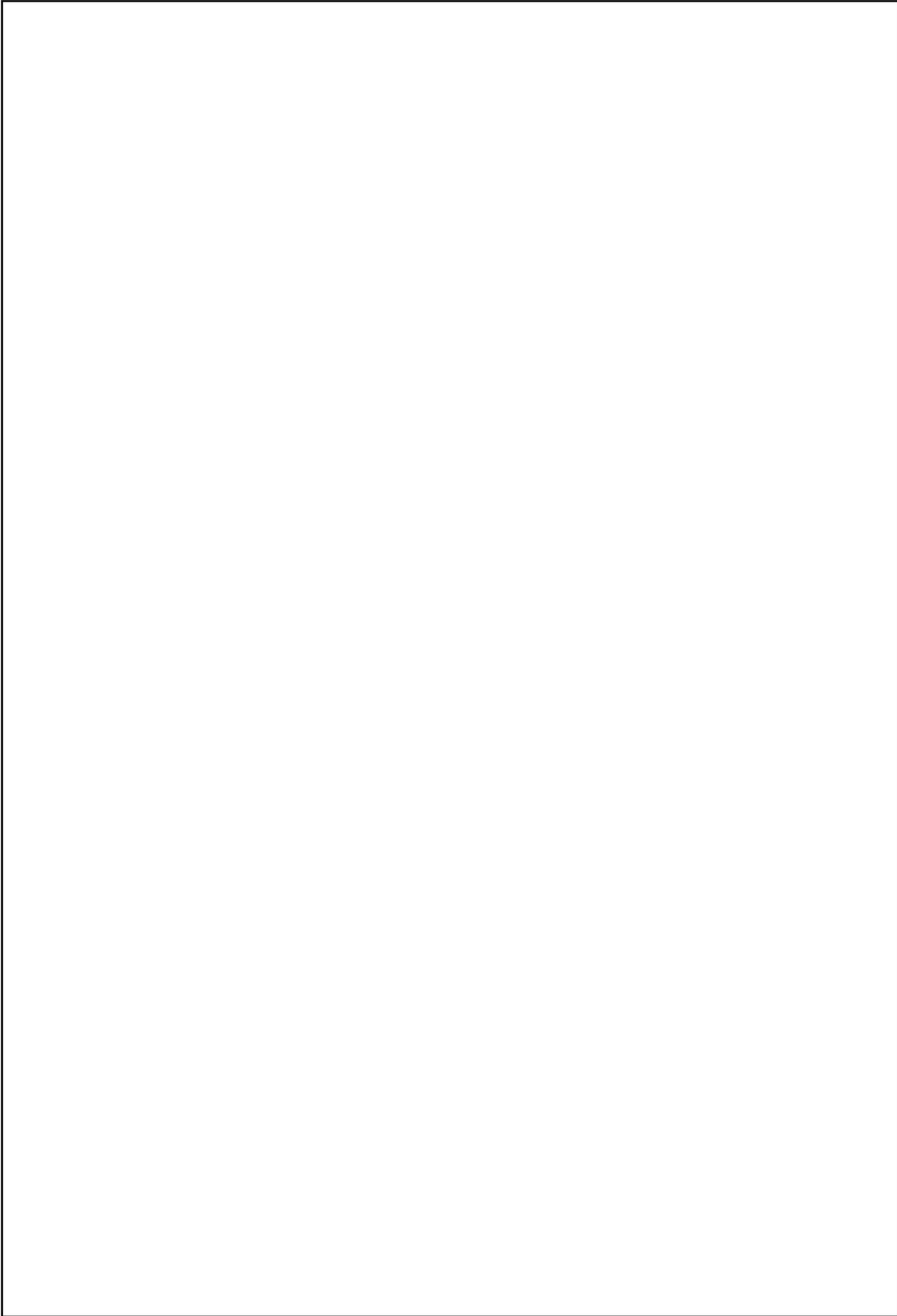
Coordinator of WBL (BCT),  
Department of Civil Engineering,  
Polytechnic Ungku Omar (Polytechnic Premier),  
Jalan Raja Musa Mahadi, 31400 Ipoh, Perak.

Fax Num.: 05 - 547 1162 (PN. MAZZIYATOL FARIZZA BT MAT)

Email address: [mazziyatol@puo.edu.my](mailto:mazziyatol@puo.edu.my) or [azuin.ramli@puo.edu.my](mailto:azuin.ramli@puo.edu.my)

**Attention: If there are any changes on the location of the WBL placement, please return this form (completed) to the above mentioned address a week after the date of student's self-report at the respective placement at the latest.**

**LOCATION SKETCH PLAN OF THE NEW PLACEMENT**





MINISTRY OF HIGHER EDUCATION



**POLITEKNIK UNGKU OMAR  
DEPARTMENT OF CIVIL ENGINEERING**

**WORK-BASED LEARNING (WBL)  
BACHELOR IN CIVIL ENGINEERING TECHNOLOGY WITH HONOURS  
SESSION \_\_\_\_\_**

**STUDENT'S SELF-REPORT REGISTRATION FORM**

Hereby, I affirm that the student as named below has reported to this organisation for the purpose of WBL on the \_\_\_\_\_ (date).

**STUDENT'S DETAIL:**

NAME : \_\_\_\_\_  
MATRIC NUMBER : \_\_\_\_\_  
NAME OF ORGANISATION : \_\_\_\_\_  
ORGANISATION : \_\_\_\_\_  
ADDRESS : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**INDUSTRIAL SUPERVISOR'S DETAIL:**

NAME : \_\_\_\_\_  
TELEPHONE NUM : \_\_\_\_\_  
EMAIL ADDRESS : \_\_\_\_\_  
  
SIGNATURE : \_\_\_\_\_

OFFICIAL STAMP OF ORGANISATION:

**Please return this form (completed) to the address below a week after the date of student's self-report at the organization at the latest.**

Coordinator of WBL (BCT),  
Department of Civil Engineering,  
Polytechnic Ungku Omar (Polytechnic Premier),  
Jalan Raja Musa Mahadi, 31400 Ipoh, Perak.

Fax Num.: 05 - 547 1162 (PN. MAZZIYATOL FARIZZA BT MAT)

Email address: [mazziyatol@puo.edu.my](mailto:mazziyatol@puo.edu.my) or [azuin.ramli@puo.edu.my](mailto:azuin.ramli@puo.edu.my)

**Attention:**

**If this form is not returned as per according to the condition, the student at the respective organisation is therefore assumed as failed to self-report and would not be further assessed for the purpose of WBL.**



### AKUJANJI PELAJAR

Tuan/Puan,

Dengan ini, Saya(Nama): \_\_\_\_\_

No. Kad Pengenalan : \_\_\_\_\_ No. Pendaftaran Pelajar: \_\_\_\_\_

Work-Based Learning(WBL) di Organisasi: \_\_\_\_\_

Dengan sesungguhnya dan sebenarnya berjanji bahawa saya akan mematuhi semua undang-undang, kaedah-kaedah, peraturan-peraturan dan apa-apa arahan yang terpakai kepada pelajar-pelajar **POLITEKNIK UNGKU OMAR, IPOH, PERAK ("Institusi")** yang dibuat dari semasa ke semasa sepanjang saya menjadi seorang pelajar **POLITEKNIK UNGKU OMAR, IPOH, PERAK**.

Saya sesungguhnya faham bahawa sekiranya saya tidak mematuhi mana-mana peruntukan dalam undang-undang, kaedah-kaedah, peraturan-peraturan atau arahan tersebut, maka tindakan boleh diambil ke atas saya menurut peruntukan undang-undang, kaedah-kaedah, peraturan-peraturan atau arahan berkenaan, termasuklah disingkirkan daripada Institusi.

\_\_\_\_\_

Tandatangan Pelajar

Tarikh:

\_\_\_\_\_

Tandatangan Saksi Pelajar

Nama Saksi : \_\_\_\_\_

Jawatan Saksi : \_\_\_\_\_

Tarikh:





Maklumat Peribadi Pelajar

Gambar Bersaiz  
Pasport

**WORK BASED LEARNING (WBL)  
SARJANA MUDA TEKNOLOGI KEJURUTERAAN AWAM  
DENGAN KEPUJIAN (BCT)**

**MAKLUMAT PELAJAR:**

Nama: \_\_\_\_\_  
(seperti di dalam kad pengenalan)

Program: \_\_\_\_\_ No. Pendaftaran: \_\_\_\_\_

No. Telefon: \_\_\_\_\_ No. Kad Pengenalan: \_\_\_\_\_

Alamat Tetap: \_\_\_\_\_

Poskod: \_\_\_\_\_ Bandar: \_\_\_\_\_ Negeri: \_\_\_\_\_

Alamat surat-menyurat (jika tidak seperti di atas): \_\_\_\_\_

Poskod: \_\_\_\_\_ Bandar: \_\_\_\_\_ Negeri: \_\_\_\_\_

Alamat e-mel(jika ada): \_\_\_\_\_

Bank: \_\_\_\_\_ Nombor Akaun: \_\_\_\_\_

Jenis Alahan: \_\_\_\_\_

**MAKLUMAT PENASIHAT AKADEMIK:**

Nama: \_\_\_\_\_

**MAKLUMAT IBUBAPA / PENJAGA:**

Nama ibubapa / penjaga\*: \_\_\_\_\_

No. Telefon (rumah): \_\_\_\_\_ (Pejabat): \_\_\_\_\_

Nama alamat pejabat ibubapa/penjaga\*: \_\_\_\_\_

Poskod: \_\_\_\_\_ Bandar: \_\_\_\_\_ Negeri: \_\_\_\_\_

**MAKLUMAT PENJAGA UNTUK DIHUBUNGI SEMASA KECEMASAN**

Nama: \_\_\_\_\_

No. Telefon (Rumah): \_\_\_\_\_ (Pejabat): \_\_\_\_\_

Alamat: \_\_\_\_\_

# Sertakan satu salinan muka hadapan buku bank

\* Potong mana yang tidak berkenaan

