

WORK BASED LEARNING (WBL) MODULE :
Bachelor of Engineering Technology in Rail
Transportation with Honours (BNT)

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Abstract: Work Based Learning (WBL) Module addresses the courses that will be implemented during WBL for programme Bachelor of Engineering Technology in Rail Transportation with honours (BNT). The implementation of WBL is during final year of study with the duration of forty-eight (48) weeks. There are five (5) courses will be implemented during WBL such as Safety Practices, Data Analytics, Maintenance Practices, Project Management and Quality Assurance. Furthermore, Bachelor's Degree Project 1 and 2 will be conducted during WBL. This book represents the synopsis, course learning outcomes, course contents, assessment including templates and rubrics also references for each WBL subjects.

Keywords: Engineering, technology, data analytics, assessment, project

FIRST EDITION



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PREFACE

Work Based Learning (WBL) Module addresses the courses that will be implemented during WBL for programme Bachelor of Engineering Technology in Rail Transportation with honours (BNT). The implementation of WBL is during final year of study with the duration of forty-eight (48) weeks. There are five (5) courses will be implemented during WBL such as Safety Practices, Data Analytics, Maintenance Practices, Project Management and Quality Assurance. Furthermore, Bachelor's Degree Project 1 and 2 will be conducted during WBL. This book represents the synopsis, course learning outcomes, course contents, assessment including templates and rubrics also references for each WBL subjects.

1.0

LIST OF SUBJECTS

1.1 BNT 41204 : Data Analytics

Synopsis

It is very crucial for a professional to be able to transform data into strategic business decisions, value-driven products, and lead predictions. In this course, student will learn how to leverage on data to unlock new economic value for business, as well as apply useful concepts. This course combines a good balance of theoretical knowledge and practical application where students will learn the processes of gathering, cleaning and handling data by using case study references or real on field cases to reinforce learning.

Course Learning Outcome(s)

At the end of this course the student will be able to:

CLO 1	Discuss and assess situations/problems according to the area of specialization.
CLO 2	Manipulate relevant data by case basis to support recommendation.
CLO 3	Display the ability to perform data search/data analysis/data mining/data crunching by using appropriate modern tools.
CLO 4	Work effectively as an individual, and as a member or leader in diverse technical teams.

Content outline of the course/module

1. SITUATION/PROBLEM IDENTIFICATION


- 1.1 Overall understanding of project/problems/ issues/ situation
- 1.2 Understanding of current objectives/ problems/ issues/ workflow
- 1.3 Define questions for investigations

Guidelines: The student should be able to demonstrate the ability to understand their task given by the instructor and should be able to answer 'what' and 'why' or the importance of the work.

2.0

ASSESSMENT FORM AND RUBRIC

2.1 Practice Assessment Rubric Form (for Industry)

	WBL MODULE (BNT)	Document No: UTHM/FTK/JTKP/WBL/Module-002 Issue: 02 Revision: 00 Date: 1 September 2022
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Student's Name:		Industrial Supervisor's Name: Date:							
Company's name:									
Instructions: This booklet will be used for mid-semester and end-semester appraisal. Please tick (✓) in the score column.									
No.	Item	Level	Very Good (5)	Good (4)	Fair (3)	Poor (2)	Very Poor (1)	Weight	Score
1	Ability to plan the projects/tasks assigned	P5	Plan with excellent clarity, comprehensiveness, and organization.	Plan with good clarity, comprehensiveness, and organization.	Plan with satisfactory clarity, comprehensiveness, and organization.	Plan with minimal clarity, comprehensiveness, and organization.	Plan unclearly, loosely, and disorganized.	0.2	
2	Ability to explore and experiment on the project/task	P6	Independently explore, show interest, and demonstrate ability to comply	Independently explore and show interest.	Agree to explore when asked/recommended	Lack of interest to explore	Does not show interest to explore	0.3	
3	Ability to demonstrate critical/analytical thinking skills towards finding solutions. The student has properly supported the background of the work with appropriate evidence, information, data, or observations	P3	Makes insightful or inspired observations or very accurately interprets reports, evidence, information, or data and has thoroughly and properly supported the work of the assignment.	Makes important observations or accurately interprets reports, evidence, information, or data and has properly supported the work of the assignment.	Accurately makes observations or interprets reports, evidence, information, or data and has properly supported the work of the assignment.	Makes observations or interprets reports, evidence, information, or data poorly and has only vaguely supported the work of the assignment.	Does not make observations or interpret reports, evidence, information, or data and has not thoroughly and properly supported the work of the assignment.	0.5	

CONTROLLED DOCUMENT

3.0

Appendix

	WBL MODULE (BNT)	Document No: UTHM/FTK/JTKP/WBL/Module-002 Issue: 02 Revision: 00 Date: 1 September 2022
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3.1 WBL Bi-Weekly Report Instruction and Template

Student's Name:		
Industrial Supervisor's Name:		
Course:		
Week/ Time:		
INSTRUCTIONS: <ol style="list-style-type: none"> 1. This report must be completed by the student on a bi-weekly basis. 2. This report should take about one hour to complete. (SLT) 3. The report must be submitted to the course lecturer within one week. 		
Project/Activities/Tasks: More emphasis should be placed on exploring, organising, examining, and compiling projects/activities that are related to railway engineering technology. (P4 & SK8)		
Contents/ Coverage topic	Lecturer's Remarks	Mid-CQI (Action taken)
Accomplishments/Results: Students are strongly encouraged to discuss and analyse their results/achievements with their industrial supervisor. (A4)		
Contents/ Coverage topic	Lecturer's Remarks	Mid-CQI (Action taken)
Work in Progress (WIP)/ Next Action: The student must identify the course's current and future progress/next action. (SK 3, SK 4 & SK 6)		
Contents/ Coverage topic	Lecturer's Remarks	Mid-CQI (Action taken)

For Industry Use:	For University Use:
Industrial Supervisor's Signature: _____ Name: Date: Comments:	Lecturer's Signature: _____ Name: Date: Performance and student report are: <input type="checkbox"/> Very Unsatisfied <input type="checkbox"/> Unsatisfied <input type="checkbox"/> Satisfied <input type="checkbox"/> Good <input type="checkbox"/> Very Good Comments:

CONTROLLED DOCUMENT

3.2 WBL Portfolio Instructions

The purpose of a portfolio is to help students to document their skills and achievements, to challenge students to create their best work, and to help students to reflect on what they have accomplished. Students must identify, formulate, perform literature, and analyze the broadly define engineering problems to reach substantiated conclusions using analytical tools appropriate to railway transportation engineering technology. In general, the portfolio should cover the related knowledge profile as required by the ETAC Student 2020 as below (but not limited to):

SK3: A systematic theory-based formulation of engineering fundamentals required in an accepted sub-discipline (Related theories)

SK4: Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for an accepted discipline (Work samples)

SK6: Knowledge of engineering technologies applicable in the sub-discipline.

When the student produces the portfolio, this should also cover characteristics of Broadly-defined Engineering Problem (SP) as such:

SP1: Depth of knowledge

SP2: Range of conflicting requirements

SP3: Depth of analysis required

SP4: Familiarity with issues

SP5: Extent of applicable codes

SP6: Extent of stakeholder involvement and level

SP7: Interdependence

3.3

WBL Portfolio Template



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FAKULTI TEKNOLOGI KEJURUTERAAN

WORK-BASED LEARNING

PORTFOLIO

SEMESTER: XX

SESSION: XXXX/XXXX

SUBJECT:

BNTxxxxx – xxxxxxxx

BNT xxxxx – xxxxxxxxx

BNT xxxxx – xxxxxx

NAME:


MATRIKS NO.:

INDUSTRIAL SUPERVISOR'S NAME:

COMPANY'S NAME :

4.0

References

	WBL MODULE (BNT)	Document No: UTHM/FTK/JTKP/WBL/Module-002 Issue: 02 Revision: 00 Date: 1 September 2022
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