

**List of Competencies for On-the-Job Training
Work-Study Diploma in Land Transport Engineering (Rail)**

S/N	List of Competencies (Standard)	Company to indicate the tasks it can provide [✓]
1	Conduct toolbox meeting	
2	Conduct workplace safety and health (WSH) checks	
3	Conduct diagnostic consultations	
4	Write technical report	
5	Liaise with OEM on technical matters	
6	Analyse material failure	
7	Perform non-destructive testing	
8	Produce 3D components	
9	Troubleshoot electrical circuits	
10	Inspect electrical circuits	
11	Inspect electrical components serviceability	
12	Install sensors and actuators	
13	Inspect sensors and actuators serviceability	
14	Troubleshoot sensor and actuator circuits	
15	Install motor and control system	
16	Troubleshoot motor control system	
17	Inspect motor serviceability	
18	Plan workshops operations	
19	Prepare maintenance schedule	
20	Prepare operational budget	
21	Establish maintenance and data requirements	
22	Perform data analysis	
23	Propose work improvements	
Select one of the following groups:		
*Option 1: Rolling Stock System		
24A	Install rolling stock equipment	
25A	Perform maintenance works on rolling stock equipment and system	
26A	Diagnose faults in rolling stock equipment and system	

S/N	List of Competencies (Standard)	Company to indicate the tasks it can provide [✓]
*Option 2: Signalling Systems		
24B	Install rapid transit signalling systems	
25B	Perform maintenance works on rapid transit signalling system	
26B	Diagnose rapid transit signalling systems faults	
*Option 3: Track Electrification System		
24C	Install track electrification system	
25C	Carry out works on track electrification system	
26C	Diagnose faults on track electrification system	
*Option 4: Permanent Way System		
24D	Inspect permanent way parts and tracks systems	
25D	Install permanent way components	
26D	Diagnose permanent way equipment faults	
Company-specific tasks to be included		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Total number of Company-Specific Competencies		

* Company may select either Option 1, Option 2, Option 3 or Option 4.

As a guide, companies should provide at least 75% of the tasks indicated in the list of competencies (standard).

If companies are unable to meet this target, they may propose alternative tasks which are unique to their operations (cap at 25%; i.e. companies must be able to fulfil **at least 50%** of the original proposed list of competencies). The alternative tasks will be listed under “Company-specific tasks to be included”.

Note: Competencies proposed by company must be endorsed by ITE.

	Option 1			Option 2			Option 3			Option 4		
	Standard	Company-Specific	Total	Standard	Company-Specific	Total	Standard	Company-Specific	Total	Standard	Company-Specific	Total
No of competencies able to provide												
Total no of list of competencies listed												
Percentage of competencies able to provide												

Completed By:

Name

Company

Designation

Date

For ITE's Completion	
<p>Verified by CED department (applicable if standard competencies provided is less than 75%)</p> <p>Name: _____</p> <p>Designation: _____ Date: _____</p>	<p>Verified by IBT Officer:</p> <p>_____</p>

WORK-STUDY DIPLOMA IN LAND TRANSPORT ENGINEERING (RAIL)

S/N	Module
1.	<p>Workplace Safety & Health</p> <p>On completion of the module, trainees should be able to implement relevant workplace safety and health regulations and carry out risk assessment and inspection.</p>
2.	<p>Technical Communication</p> <p>On completion of the module, trainees should be able to effectively communicate and document technical specifications and requirements with stakeholders (both internal and external) in both verbal and written forms.</p>
3.	<p>Engineering Materials</p> <p>On completion of the module, trainees should be able to perform various non-destructive testing (NDT) methods to detect defects and carry out analysis on the NDT results.</p>
4.	<p>DC & AC Circuits</p> <p>On completion of the module, trainees should be able to analyse, connect and troubleshoot DC and AC circuits.</p>
5.	<p>Sensors & Actuators</p> <p>On completion of the module, trainees should be able to install and inspect sensors and actuators, as well as perform circuit troubleshooting.</p>
6.	<p>Electrical Machines</p> <p>On completion of the module, trainees should be able to install and maintain electrical motors and drive systems.</p>
7.	<p>Workshop Operations</p> <p>On completion of the module, trainees should be able to plan corrective, preventive and predictive maintenance activities that ensure equipment and systems are fully functional and in optimal operating condition.</p>
8.	<p>Data Analytics for Predictive Maintenance</p> <p>On completion of the module, trainees should be able to perform data cleaning, transformation and analysis for predictive maintenance.</p>
9.	<p>Rolling Stock System[^]</p> <p>On completion of the module, trainees should be able to perform the maintenance and inspection of train air-conditioning, ventilation, brakes, bogie and cabin equipment and door control systems.</p>
10	<p>Railway Signalling[^]</p> <p>On completion of the module, trainees should be able to perform the maintenance and inspection of rapid transit signalling devices, circuits and systems in accordance with railway industry standards and regulations.</p>

11.	<p>Track Electrification[^] On completion of the module, trainees should be able to perform the maintenance and inspection of third rail and current collection systems for trains.</p>
12.	<p>Permanent Way System[^] On completion of the module, trainees should be able to perform the maintenance and inspection of permanent way parts and tracks systems for rapid transit network.</p>
13.	<p>Company Project On completion of the module, trainees should have applied their acquired competencies in an authentic project that would value-add to the company.</p>
14.	<p>On-the-Job Training On completion of the module, trainees should be able to apply the skills and knowledge acquired at ITE College and workplace to take on the full job scope, including supervisory function where appropriate, at the company.</p>

* Modules for Vehicle Specialization

[^] Modules for Rail Specialization

TRAINING PATTERN (DAY RELEASE)*

*1 to 2 days / week – depending on course

Example
(using 1 day Off-JT in a 44 hrs/5 day work week)

		10 weeks	4 weeks	10 weeks	2 weeks	10 weeks	4 weeks	10 weeks	2 weeks
1 st Year	ITE	1 day/week	June Term Break	1 day/week	Sept Term Break	1 day/week	Dec Term Break	1 day/week	March Term Break
	Company	4 days/week	44 hrs / wk @ Company	4 days/week	44 hrs / wk @ Company	4 days/week	44 hrs / wk @ Company	4 days/week	44 hrs / wk @ Company

2 nd Year	ITE	1 day/week	June Term Break	1 day/week	Sept Term Break	1 day/week	Dec Term Break	1 day/week	March Term Break
	Company	4 days/week	44 hrs / wk @ Company	4 days/week	44 hrs / wk @ Company	4 days/week	44 hrs / wk @ Company	4 days/week	44 hrs / wk @ Company

3 rd Year	ITE	1 day/week	June Term Break	1 day/week	Sept Term Break
	Company	4 days/week	44 hrs / wk @ Company	4 days/week	44 hrs / wk @ Company

Legend:



Company: On-the-Job Training (70-80%)



ITE College: Off-the-Job Training (20-30%)