List of Competencies for On-the-Job Training (OJT)
Work-Study Diploma in Automation Engineering

Note: LOC is subject to changes due to curriculum review/ development

S/N	List of Competencies (Standard)	Company to indicate '✓' for OJT competencies it can provide
1	Install electro – pneumatic system	
2	Install mechanical transmission system	
3	Install electrical equipment and wiring	
4	Install electronic equipment	
5	Install sensors and transducers	
6	Set up vision system	
7	Perform commissioning on robotics system	
8	Program robotics system	
9	Perform equipment automation using programmable logic controller (PLC)	
10	Develop program for automation processes	
11	Integrate station / equipment into automated system	
12	Perform breakdown maintenance of equipment / system	
13	Perform preventive maintenance of equipment / system	
14	Perform predictive maintenance of equipment / system	
15	Implement Industrial Internet of Things (IIoT) application system	
16	Acquire data from IIoT devices	
17	Prepare information for overall equipment effectiveness (OEE) monitoring	
18	Develop system performance improvement plan	
19	Develop proof of concept (POC)	
20	Prepare user requirement specifications (URS)	
21	Prepare design specifications and costing	
	Sub-total of Competencies (Standard)	
List of Competencies (Company-specific)		
1		
2		
3		
4		

S/N	List of Competencies (Standard)	Company to indicate '✓' for OJT competencies it can provide
5		
	Sub-total of Competencies (Company-specific)	

Note:

a) Company must be able to provide OJT for at least **75%** of the List of Competencies (Standard).

b) If company is unable to meet the 75%, please propose alternate **course-related** competencies which are unique to company operations. <u>Alternate competencies are capped at 25%.</u>
[i.e. 50% of the list of competencies (standard) + 25% alternate competencies (Company-specific)].

c) All alternate competencies (Company-specific) must be reviewed and endorsed by ITE.

d) Trainees must receive OJT and be assessed for **All** competencies selected in this List.

Total no. of competencies selected by company for OJT

Total no. of competencies listed *(standard & company specific)*

Percentage of selected competencies

Completed By:

Name

Designation

Company

Date

For ITE's Completion			
Reviewed by CED / College *(For Company-specific Competencies)*		**Verified by IBT Officer**	
Name:		Name & Date:	
Designation:	Date:		

Version: July'24

Work-Study Diploma in Automation Engineering

This course equips trainees with the skills, knowledge and professional attributes to install, maintain and troubleshoot computer-controlled systems, equipment and robotics in advanced manufacturing facilities.

Core Modules

Module 1: Mechanical System
On completion of the module, trainees should be able to set up, install, check, perform periodic servicing and maintenance, as well as troubleshoot faults on electro-pneumatic and mechanical transmission systems.

Module 2: Electrical & Electronic Systems
On completion of the module, trainees should be able to interpret electrical and electronics circuit diagrams and to setup, install as well as troubleshoot both electrical equipment and electronics system.

Module 3: Sensory System
On completion of the module, trainees should be able to interpret data sheets, diagrams and drawings of sensors and transducers, integrate with control units and perform alignment and adjustments on sensory system. They should also be able to set up a vision system for inspection, as well as optimise inspection speed and accuracy.

Module 4: Robotics System
On completion of the module, trainees will gain familiarity with common robotics terminology and concepts. They will develop the competence to interpret data sheets and diagrams, enabling them to confidently undertake commissioning processes and execute functional checks on robotics systems. They should also be able to acquire proficiency in programming robotics systems and command robots for applications like pick-and-place, assembly, and other manipulation tasks.

Module 5: Automated System Integration
On completion of the module, trainees should be able to perform equipment automation using programmable logic controllers (PLC), as well as integrate station / equipment into automated system. They should also be able to interpret the system requirements and develop the application programs.

Module 6: Automated System Maintenance
On completion of the module, trainees should be able to choose the appropriate maintenance strategy (breakdown, preventive and predictive) to improve equipment performance. They should also be able to collect and interpret data for predictive maintenance, as well as identify and rectify faults for breakdown maintenance.

Module 7: Smart Monitoring System
On completion of the module, trainees should be able to apply the concept and capabilities of Industrial Internet of Things (IIoT) to set up a smart monitoring system. They should also be able to select and configure IIoT devices for desired application, acquire data, as well as create visualisations to monitor overall equipment effectiveness (OEE).

Module 8: Automated System Improvement
On completion of the module, trainees should be able to collect and interpret system performance data to identify areas for operational improvement. They should also be able to develop and conduct a proof of concept (POC).

Module 9: Conceptual Design
On completion of the module, trainees should be able to gather customer requirements and interpret technical specifications to produce a user requirement specification (URS). Trainees should be able to perform simulation on equipment automation. They should also be able to interpret user requirement specifications to produce concept drawings and establish the design costing.

Module 10: Company Project
On completion of the module, trainees should have applied their presentation skills and acquired competencies in an authentic project that would value-add to the company.

Module 11: 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.

Feeder Course:

ITE graduates from any one of the following courses:
Nitec with GPA ≥ 2:

- All courses from School of Engineering
- All courses from School of Electronics & Info-Comm Technology

Higher Nitec:
- All courses from School of Engineering
- All courses from School of Electronics & Info-Comm Technology

OR

In-service employees with:
- Equivalent qualifications such as Workplace Literacy & Numeracy (WPLN) Level 5 and above
- Relevant work experience
- Strong employer endorsement

Applicants must also be free from colour appreciation deficiency and pass company screening and interview.

TRAINING PATTERN FOR WSDIP IN AUTOMATION ENGINEERING - BLOCK RELEASE

WSDip Automation Engineering Training Calendar for AY2024

2024-2025	Apr-24					May-24				Jun-24				Jul-24					Aug-24				Sep-24				
Monday of the week	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	2	9	16	23	30
ITE Academic Calendar	1	2	3	4	5	6	7	8	9	10					11	12	13	14	15	16	17	18	19	20			1
1st Year WSD Class (AH2404P)								■	■											■	■	■					
2nd Year WSD Class (AH2304S)							■	■											■	■	■						
3rd Year WSD Class (AH2204W)			■	■													■	■									

2024-2025	Oct-24				Nov-24				Dec-24					Jan-25				Feb-25				Mar-25				
Monday of the week	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	3	10	17	24	3	10	17	24	31
ITE Academic Calendar	2	3	4	5	6	7	8	9	10						11	12	13	14	15	16	17	18	19	20		
1st Year WSD Class (AH2404P)							■	■													■	■	■			
2nd Year WSD Class (AH2304S)						■	■											■	■	■			■			
3rd Year WSD Class (AH2204W)																										

- 🟧 ITE School Vacation
- 🟫 Off the Job Training in ITE for Apr 2024 Intake (Year 1 Class)
- 🟦 Off the Job Training in ITE for Apr 2023 Intake (Year 2 Class)
- ⬜ Off the Job Training in ITE for Apr 2022 Intake (Year 3 Class)

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