

List of Competencies for On-the-Job Training (OJT)
Work-Study Diploma in Microelectronics (Assistant Engineer)

Applicants applying for this course must be free from colour appreciation deficiency. A score of 100% from the **Colour Blindness Test** is mandatory for course admission.

S/N	List of Competencies (Standard)	Company to indicate '✓' for OJT competencies it can provide
Perform semiconductor manufacturing protocol		
1	Execute safe work practices	☐
2	Execute risk control measures	☐
3	Execute good manufacturing practices	☐
Perform semiconductor manufacturing technology		
4	Execute semiconductor manufacturing processes	☐
5	Measure process parameter with metrology technique	☐
6	Optimise semiconductor manufacturing processes	☐
Apply Quality Engineering practice with Data Analytics		
7	Execute data cleansing practices	☐
8	Analyse defects and yield in the manufacturing process	☐
9	Evaluate out-of-control and abnormal chart trends for continuous improvement	☐
Implement IoT system and process automation		
10	Integrate IoT system	☐
11	Validate system performance for IoT system	☐
12	Execute process automation tasks	☐
Conduct system maintenance		
13	Perform routine check on semiconductor system	☐
14	Maintain semiconductor equipment	☐
15	Perform functional test on semiconductor equipment	☐
Perform process integration analysis		
16	Analyse key process parameters	☐
17	Determine upper and lower process control window	☐
18	Evaluate process capability	☐

S/N	List of Competencies (Standard)	Company to indicate '✓' for OJT competencies it can provide
Implement industrial automation and robotic systems		
19	Perform operational test on industrial automation and robotic systems	☐
20	Troubleshoot industrial automation and robotic system	☐
21	Evaluate system performance and safety compliance	☐
Develop project planning and problem-solving skills		
22	Develop structured problem-solving skills	☐
23	Conduct project planning	☐
24	Produce technical reports and presentation	☐
	Sub-total: Competencies (Standard)	24
List of Competencies (Company-specific)		
1		
2		
3		
4		
5		
6		
	Sub-total: Competencies (Company-specific)	0

Note:

- Company must be able to provide OJT for at least **75%** of the List of Competencies (Standard).
- If company is unable to meet the 75%, please propose alternate **course-related** competencies which are unique to company operations. Alternate competencies are capped at 25%.
[i.e. 50% of the list of competencies (standard) + 25% alternate competencies (Company-specific)].
- All alternate competencies (Company-specific) must be reviewed and endorsed by ITE.
- Trainees must receive OJT and be assessed for **All** competencies selected in this List.

Total no. of competencies selected by company for OJT

0

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

24

Percentage of selected competencies

0%

Completed By:

Name

Company

MODULE SYNOPSIS – WSDip in Microelectronics (Assistant Engineer)

Course Objective

The course equips trainees with the skills and knowledge to support equipment and process engineering in a semiconductor manufacturing environment, analyse, develop improvement plan and problem solve issues encountered.

Modules Synopsis

Semiconductor Manufacturing Protocol
On completion of the module, trainees should be able to identify workplace hazards and apply proper usage of the personal protective equipment (PPE). They should also be able to execute good manufacturing practices.
Semiconductor Technology
On completion of the module, trainees should be able to perform semiconductor manufacturing process and apply metrology methodologies for semiconductor manufacturing.
Data Analytics & Quality Engineering
On completion of the module, trainees should be able to apply data analytic skills, analyse defect density and monitor abnormal control charts trends in manufacturing process.
IoT System & Process Automation
On completion of the module, trainees should be able to write application programs integrating IoT devices into systems using programming concepts/ language and operate automation systems.
Equipment Maintenance
On completion of the module, trainees should be able to perform semiconductor equipment maintenance and conduct functional tests on semiconductor equipment.
Process Integration
On completion of the module, trainees should be able to analyse key process parameters in the semiconductor process flow. Trainees will be able to monitor process stability and determine the control window. They will be expected to be able to perform commonality troubleshooting.
Industrial Automation & Robotics
On completion of the module, trainees should be able to set up/ maintain automation/ sensor system and apply logic/ sequential control on robotic systems.
Project Planning & Problem Solving
On completion of the module, trainees should be able to plan, execute and monitor manufacturing project to meet scope, schedule and cost requirements. They will be able to use problem solving methodologies on issues that surfaces.
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.
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.

TRAINING PATTERN SCHEDULE

WSDip in Microelectronics (Assistant Engineer)

Day Release - Trainees attend 1 day per week at ITE + 1 full week before semester assessment during term time. The remaining work hours are spent at the workplace for On-the-Job (OJT) Training.

April'27 Intake	April – June 2027	ITE Vacation (June) 4 weeks	July – September 2027	ITE Vacation (Sept) 2 weeks	October – December 2027	ITE Vacation (Dec) 4 weeks	January – March 2028	ITE Vacation (March) 2 weeks
1 st Year Off-JT @ ITE	1 day/week		1 day/week Last week 5 days		1 day/week		1 day/week Last week 5 days	
April'27 Intake	April – June 2028	ITE Vacation (June) 4 weeks	July – September 2028	ITE Vacation (Sept) 2 weeks	October – December 2028	ITE Vacation (Dec) 4 weeks	January – March 2029	ITE Vacation (March) 2 weeks
2 nd Year Off-JT @ ITE	1 day/week		1 day/week Last week 5 days		1 day/week		1 day/week Last week 5 days	
April'27 Intake	April – June 2029	ITE Vacation (June) 4 weeks	July – September 2029	ITE Vacation (Sept) 2 weeks	WSDip Programme 2027 Start: 1 April 2027 End: 30 September 2029 Duration: 2.5 years Final Results release may be later than programme end date			
3 rd Year Off-JT @ ITE	1 day/week		1 day/week Last week 5 days					