

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

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
<b>Perform semiconductor manufacturing protocol</b>		
1	Execute safe work practices	
2	Executive risk control measures	
3	Execute good manufacturing practices	
<b>Perform semiconductor manufacturing technology</b>		
4	Execute semiconductor manufacturing processes	
5	Measure process parameter with metrology technique	
6	Optimise semiconductor manufacturing processes	
<b>Implement New Product Integration and Introduction (NPI)</b>		
7	Analyse key process parameters	
8	Determine upper and lower process control window	
9	Evaluate process window	
<b>Apply Quality Engineering process</b>		
10	Analyse defect density information in the manufacturing process	
11	Analyse out-of-control and abnormal chart trends	
12	Perform failure analysis	
<b>Review quality improvement with Data Analytics</b>		
13	Apply quality management tools for continuous process improvement	
14	Analyse manufacturing performance	
15	Recommend parameters for manufacturing enhancement	
<b>Implement automation system</b>		
16	Carry out automation system operations	
17	Operate MES (manufacturing execution system)	
18	Control APC (advance process control) system	
<b>Implement IoT system</b>		
19	Integrate devices in IoT system	
20	Perform operational checks on application program for IoT system	

S/N	List of Competencies (Standard)	Company to indicate '✓' for OJT competencies it can provide
21	Verify IoT system performance with test result	
<b>Develop project management plan</b>		
22	Conduct project planning	
23	Produce technical reports	
24	Conduct technical presentation	
	<b>Sub-total of Competencies (Standard)</b>	
<b>List of Competencies (Company-specific)</b>		
1		
2		
3		
4		
5		
6		
	<b>Sub-total of Competencies (Company-specific)</b>	

**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. Alternate competencies are capped at 25%.  
[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**

\_\_\_\_\_

**Company**

# MODULE SYNOPSIS – WSDip in Microelectronics (Process)

## Course Objective

This course is your gateway to an exciting career in the manufacturing sector. You will learn essential skills to improve processes and make production more efficient. By analysing trend charts and identifying issues, you will play a vital role in ensuring everything runs smoothly. As you progress through the course, you will build the knowledge needed to tackle real-world challenges in manufacturing. You will become confident in spotting problems and suggesting improvements.

## Modules Synopsis

### Perform Semiconductor Manufacturing Protocol

On completion of the module, trainees should be able to identify workplace hazard 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 methodology for semiconductor manufacturing.

### Data Analytics for Quality Improvement

On completion of the module, trainees should be able to apply data analytic skills for semiconductor manufacturing.

### Computer Programming & IoT Integration

On completion of the module, trainees should be able to write application program to integrate IoT devices into system using programming concept and language.

### Project Management & Technical Writing

On completion of the module, trainees should be able to plan, execute and monitor manufacturing process to meet project scope, schedule and cost requirements; as well as write and present technical report, apply communication and supervision skills to build essential relationships at the workplace.

### Company Project

On completion of this module, trainees should be able to plan, supervise and execute microelectronics equipment-related projects for manufacturing process improvement.

### Process Integration

On completion of the module, trainees should be able to understand basic semiconductor process integration and analyze data to improve yield and performance.

### Quality Engineering

On completion of the module, trainees should be able to analyse defect density, perform capability analysis and monitor abnormal control charts trends in manufacturing process.

### Process Automation

On completion of the module, trainees should be able to apply robotic system and electro-mechanical control systems which includes common input/output devices, pneumatics, electro-pneumatics systems and PLC in process control system.

## MODULE SYNOPSIS – WSDip in Microelectronics (Process)


### 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 (Process)

Day Release - Trainees attend 1 to 2 days of lessons per week at ITE, with the remaining work-week spent at the workplace for On-the-Job Training.

<b>April'26 Intake</b>	<b>April – June 2026</b>	ITE Vacation (June) 4 weeks	<b>July – September 2026</b>	ITE Vacation (Sept) 2 weeks	<b>October – December 2026</b>	ITE Vacation (Dec) 4 weeks	<b>January – March 2027</b>	ITE Vacation (March) 2 weeks
<b>1<sup>st</sup> Year Off-JT @ ITE</b>	<b>2 days/week</b>		<b>2 days/week</b>		<b>2 days/week</b>		<b>2 days/week</b>	
<b>April'26 Intake</b>	<b>April – June 2027</b>	ITE Vacation (June) 4 weeks	<b>July – September 2027</b>	ITE Vacation (Sept) 2 weeks	<b>October – December 2027</b>	ITE Vacation (Dec) 4 weeks	<b>January – March 2028</b>	ITE Vacation (March) 2 weeks
<b>2<sup>nd</sup> Year Off-JT @ ITE</b>	<b>2 days/week</b>		<b>2 days/week</b>		<b>1 day/week</b>		<b>1 day/week</b>	
<b>April'26 Intake</b>	<b>April – June 2028</b>	ITE Vacation (June) 4 weeks	<b>July – September 2028</b>	ITE Vacation (Sept) 2 weeks	<b>WSDip Programme 2026</b> <b>Start: 1 April 2026</b> <b>End: 30 September 2028</b> <b>Duration: 2.5 years</b>  <b>Final results release may be later than programme end date</b>			
<b>3<sup>rd</sup> Year Off-JT @ ITE</b>	<b>2 days/week</b>		<b>2 days/week</b>					