Unleash Innovation

新人訓練中心開辦選修課程
(設備元件基礎 & 機台基礎)

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設備元件基礎 & 機台基礎　開課時程

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梯次	1	2	3
下學期 (110-2)	2022/**03/05 - 03/26** 因疫情取消	2022/**04/16 - 05/14** (4/30 OFF)	2022/**05/21- 06/18** (6/4 OFF)
上學期 (111-1) 預定時程	2022/**09/24 - 10/22** (10/8 OFF)	2022/**10/29 - 11/19**	2022/**11/26 - 12/17**

設備元件基礎(選修)

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課程名稱　**半導體設備元件基礎**

課程目標　協助學員在完成訓練後：

1. 對半導體設備元件原理與作用有基礎的了解；
2. 對半導體設備實務工作有初步的了解；
3. 能結合學校所學理論與產業實務。

招收對象　報名「半導體設備工程產業學程」之學生

實施方式　上下學期各3梯次，每梯次安排4個週六進行教學與課後測驗

課程大綱　參閱附件(Page 3)

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設備元件基礎 - 課程大綱

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週次	1	2	3	4
上午單元	Transfer(1)	Gas/MFC	Plasma	Specialty
大綱	1. EFEM元件動作與功能介紹 2. Robot動作原理與校正 3. Load port	1. 質量流量控制器(MFC)介紹 2. 氣體過濾器(Gas filter) 3. MFC校正實作	1. 電漿的形成原理 2. 電漿設計的種類與原理 3. DC bias原理 4. 電漿的應用	1. 塗佈(Coating)技術介紹 2. 光放射光譜(OES)原理與應用 3. e-Sensor 4. 電離器介紹
下午單元	Transfer(2)	Chemical	Temperature	Vacuum
大綱	1. 前開式晶圓傳送盒(FOUP)的種類與演進 2. TSMC- Load port 3. 晶圓震動感測器	1. 流體幫浦介紹 2. 化學過濾器的種類與原理 3. 化學材料介紹 4. Chemical valve	1. 溫度作用與元件種類 2. Chiller/ Heat-changer 3. 致冷晶片/ 冷卻液種類 4. 靜電力吸盤(ESC)原理與作用簡介	1. 幫浦原理 2. 壓力量測原理 3. Valve原理 4. O-ring介紹

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機台基礎(選修)

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課程名稱	**半導體機台基礎**
課程目標	協助學員在完成訓練後： 1. 對半導體機台的設計原理、操作與預防保養有基礎的概念； 2. 對半導體設備實務工作有初步的了解； 3. 能結合學校所學理論與產業實務。
招收對象	報名「半導體設備工程產業學程」之學生
實施方式	上下學期各3梯次，每梯次安排4個週六進行教學、隨堂測驗與期末報告
課程大綱	參閱附件(Page 5)

機台基礎 - 課程大綱(以蝕刻TEL Vigus機台為例)

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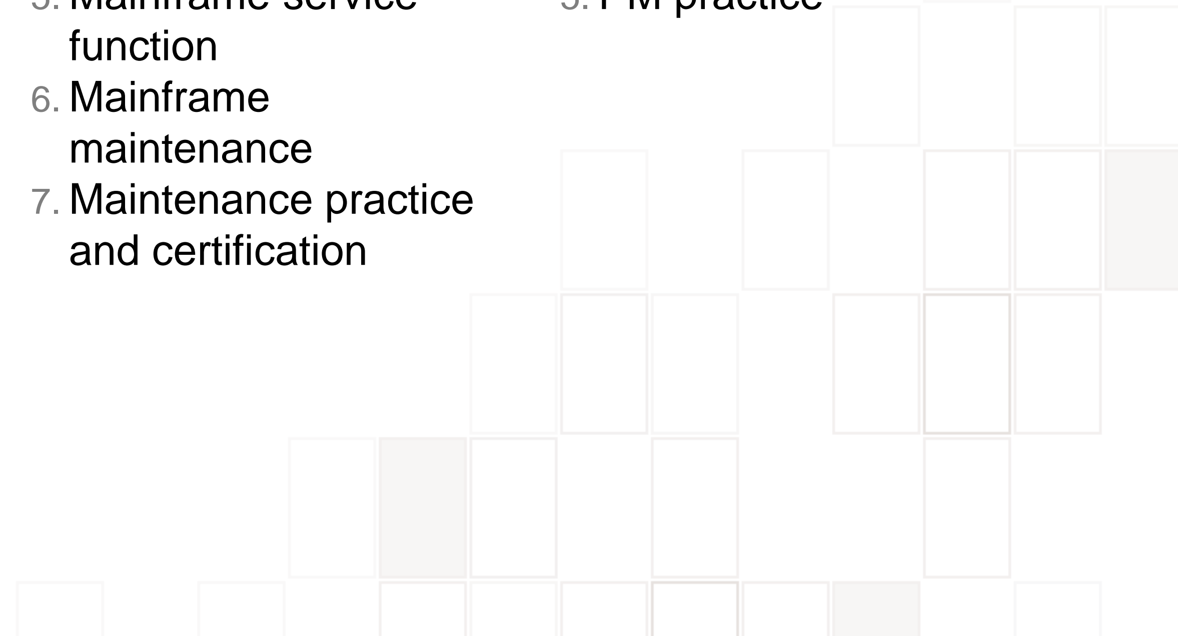
週次	1	2	3	4
大綱	1. System overview 2. Mainframe configuration 3. Process module 4. Utility connection 5. Sub-system 6. Safety 7. Tool on-site inspection	1. RF delivery system 2. Gas delivery system 3. Pressure servo system 4. ESC system 5. Backside He system 6. Temperature system 7. Chamber design evolution 8. EPD system introduction 9. Software operation overview	1. S/W operation main platform 2. S/W operation process module 3. S/W operation data access 4. Mainframe outline 5. Mainframe service function 6. Mainframe maintenance 7. Maintenance practice and certification	1. Chamber outline and PM preparation 2. Process kits disassembling 3. Process kits cleaning and inspection 4. Process kits installation 5. PM practice



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ENG Version

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Introduction of Equipment Components

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Course	**Introduction of Equipment Components in Semiconductor**
Objective	After completing the training, the trainees will: 1. Have a basic understanding of the principles and functions of semiconductor equipment components; 2. Have a preliminary understanding of what an equipment engineer does in Fab; 3. Be able to combine the theories learned from the school with industrial practices.
Target Audience	Students who enrolled the program “Semiconductor Equipment Engineering Industry Program”
Implementation	3 batches for each semester; 4 Saturdays’ training with after-class test for each batch
Outline	See the attachment (page 8)

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Course Outline
- Introduction of Equipment Components

Week	1	2	3	4
AM Session	**Transfer(1)**	**Gas/MFC**	**Plasma**	**Specialty**
Outline	1. Introduction to the functions and actions of EFEM(Equipment Front End Module) component. 2. Principles of robot action and correction. 3. Load port.	1. MFC(Mass Flow Controller) introduction 2. Gas filter 3. MFC calibration implementation	1. Principle of Plasma Formation 2. Types and principles of plasma design 3. Principle of DC bias 4. Application of Plasma	1. Coating techniques introduction 2. OES(Optical Emission Spectroscopy) principle and application 3. e-Sensor 4. Introduction to ionizer
PM Session	**Transfer(2)**	**Chemical**	**Temperature**	**Vacuum**
Outline	1. Types and evolution of FOUP(Front Opening Unified Pod) 2. TSMC- Load port 3. Vibration wafer sensor	1. Liquid pump introduction 2. Types and principles of chemical filters 3. Chemical material introduction 4. Chemical valve	1. Temperature effect and component types 2. Chiller/ Heat-changer 3. Types of Cooling chip/ Coolant 4. Introduction to the principle and function of ESC(Electrostatic Chuck)	1. Pump principle 2. Pressure Gauge Principle 3. Valve principle 4. Introduction to O-ring

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Tool Introduction

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Course	**Tool Introduction**
Objective	After completing the training, the trainees will: 1. Know the basic concept of the design principle, operation and preventive maintenance about semiconductor tools; 2. Have a preliminary understanding of what an equipment engineer does in Fab; 3. Be able to combine the theories learned from the school with industrial practices.
Target Audience	Students who enrolled the program “Semiconductor Equipment Engineering Industry Program”
Implementation	3 batches for each semester; 4 Saturdays’ training with pop quiz and final report for each batch
Outline	See the attachment (page 10)

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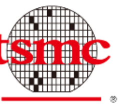
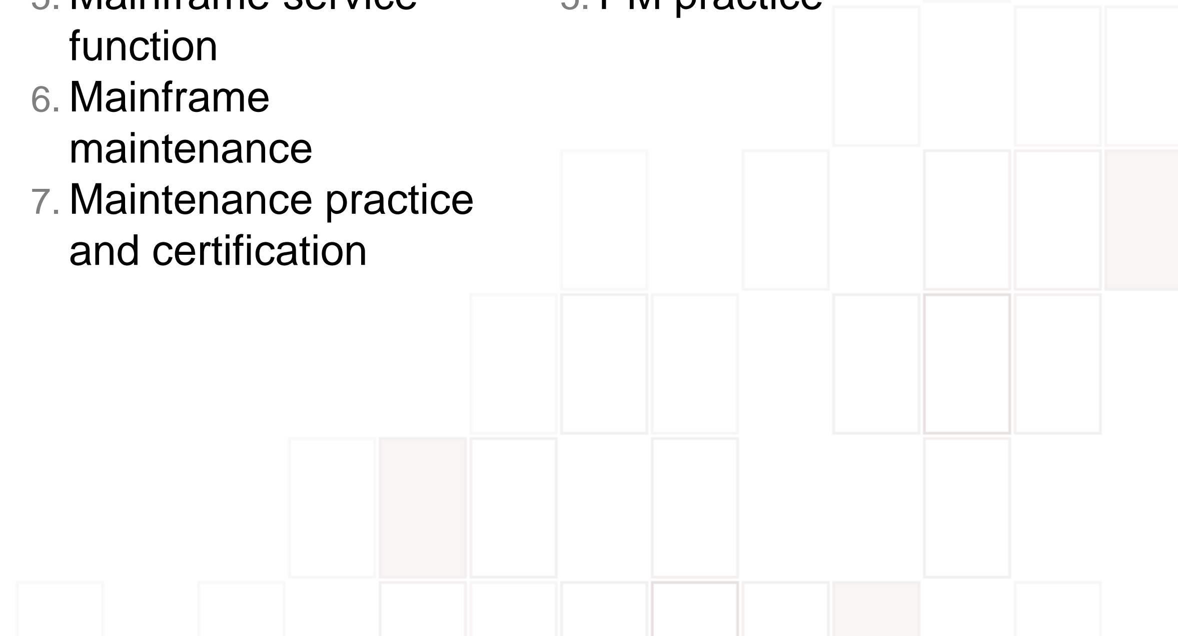
Course Outline
- Tool Introduction(ETC TEL Vigus)



Week	1	2	3	4
Outline	1. System overview 2. Mainframe configuration 3. Process module 4. Utility connection 5. Sub-system 6. Safety 7. Tool on-site inspection	1. RF delivery system 2. Gas delivery system 3. Pressure servo system 4. ESC system 5. Backside He system 6. Temperature system 7. Chamber design evolution 8. EPD system introduction 9. Software operation overview	1. S/W operation main platform 2. S/W operation process module 3. S/W operation data access 4. Mainframe outline 5. Mainframe service function 6. Mainframe maintenance 7. Maintenance practice and certification	1. Chamber outline and PM preparation 2. Process kits disassembling 3. Process kits cleaning and inspection 4. Process kits installation 5. PM practice



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