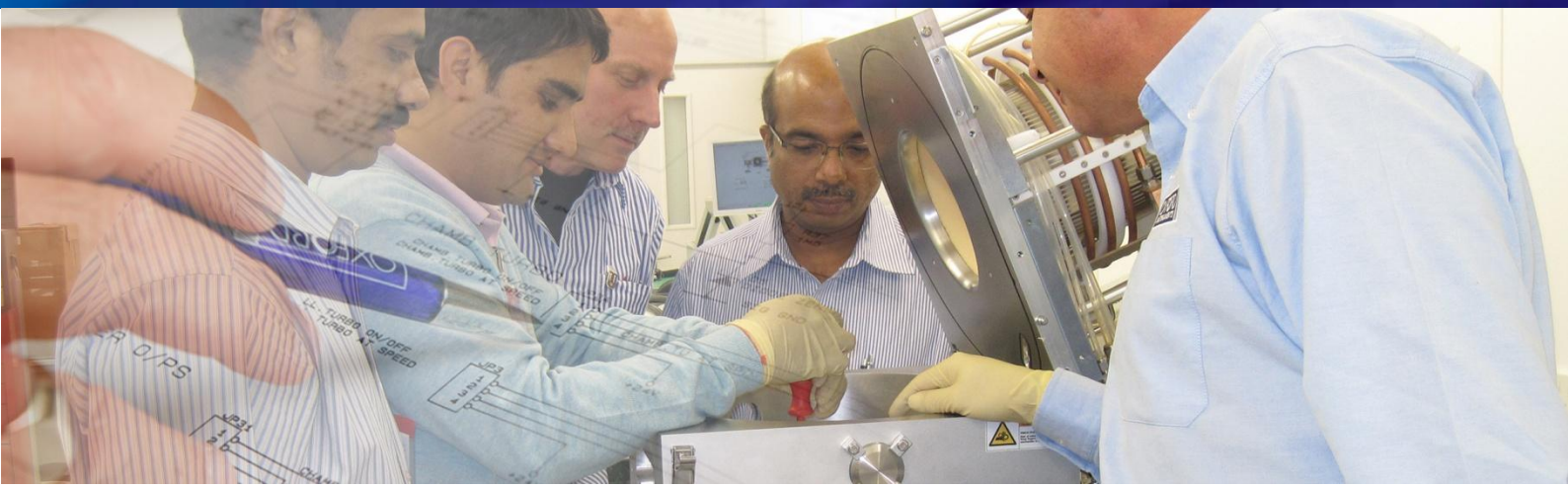
Ion Fab 300
Maintenance Training Course



Course Level	*Intermediate*
Course Outline	*Designed for Maintenance Engineers, Process Engineers and Lab Technicians*
Course Prerequisites	*Knowledge of vacuum and plasma technology.* *A related mechatronic, electrical or electronic qualification*
Course Length	*4 days*
Location	*Yatton training facility or where appropriate at the customer site*

Course Overview

- The course is designed to be informal and informative, with an emphasis on practical hands-on learning
- CAD drawings, simulations and videos will be used to explore the mechanical build and disassembly
- All training presentations will be provided on a USB memory at the end of the course
- Each course agenda is pre-assembled based on the answers received in the training needs analysis forms returned by each delegate
- Each attendee will receive a printed training certificate
- The course content is adapted to the needs and experience of those attending but will usually include the elements listed in the agenda

Oxford Instruments Plasma Technology, North End, Yatton, Bristol BS49 4AP UK
Tel: +44 (0) 1934 837000 | Email: PlasmaCS @oxinst.com | www.oxford-instruments.com/plasma

OXFORD INSTRUMENTS
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Maintenance Training Course

Typical Course Agenda

Day 1

1. **Introductions**
2. **Health and safety working on and around the tool**
3. **Introduction to Ion beam (If required)**
4. **Software**
5. **System overview and examination of the major internal electrical components:**
    - AC and DC internal power distribution and control
    - EMO, interlocks and EN13849
    - X20 PLC and modules
    - Blue PLC (where required)
    - High voltage DC power supplies
    - RF generators + AMU tuning *(theory and practical)*
    - Ion Beam Vacuum gauges and pumps
    - Chamber and table heating control
    - Electrical schematics

Day 2

1. **Review learning to date and revisit subjects for clarification**
2. **Examination of the major internal mechanical assemblies**
    - The specimen holder- Platen assembly
    - Platen bearings – Checking and alignment
    - Ion Beam sources –Etch/Dep grid options
    - The Neutraliser
    - The target drive and shutter (if applicable)
    - Water seal housing
    - Teaching the EMS Robot (if applicable)
    - SIMs probe/RGA/Ellipsometer (as applicable)

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Day 3

1. **Review learning to date and revisit subjects for clarification**
2. **Tool maintenance:**
   - Benchmarking tool performance prior to the PM
   - Using process and system logs to establish performance trends
   - Wafer handling checks prior to maintenance
   - PM guide - mechanical disassembly:
     - Walk through of the process using CAD drawings of the customer's machine and photographic slides of a recent PM
   - Recommissioning the tool

Day 4

1. **Review learning to date and revisit subjects for clarification**
2. **Tool fault diagnosis**
   - Relating process trends and failures to their hardware root causes
   - Fault identification and tracing
   - Neutraliser start
   - Beam strike issues
   - RF related/Software error codes
   - PLC
   - Commonly encountered faults,
3. **Remote fault diagnosis via Team Viewer**
4. **Review learning to date and revisit subjects for clarification**
5. **Issue training certificates and memory sticks**