Training to support manufacturing & research

Remote training

RF Principles & Technics

Ref. EL311 16 hours, including 12 hours of virtual classes

LEARNING OBJECTIVES

Provide RF principles diagnostic methods for generators, matches and plasma.

A theoretical and practical approach consistent with the use of existing process equipment installed at our facilities.

WHO WILL BENEFIT MOST?

Technicians and engineers with knowledge in electronics and on plasma requirements.

INNOVATIVE TEACHING RESOURCES

Lectures and «hands-on» exercises.
Custom training manual.
Prior interview with the trainees possible in order to qualify their needs.
A theoretical and practical approach to the links of the RF chain in line with real equipment enables trainees to draw a parallel with their own problems.

IN CHARGE OF THE TRAINING SESSION

Tarek BELLADJ: Engineer in electronics and microelectronics, frequencies and hyper frequencies; He has developed the industrial radio frequency activity in 40-30 Provence since 2006. He is qualified as a trainer and has more than 10 years of experience.

DATES

The virtual classes are every morning - from 13 to 16 April 2021 and include 4 hours of exercises (theoretical calculations and diagnostics) in autonomy.

The virtual classes are every morning - from 15 to 18 June 2021 and include 4 hours of exercises (theoretical calculations and diagnostics) in autonomy.

Sessions are scheduled throughout the year upon request.
Sessions are open from 4 registrants and limited to 6 participants.

PRICE PER PERSON

1104 € ex.VAT
992 € ex.VAT from two people registered for the same session.
On quotation for a training course specific to your company

PROGRAM

Individual e-learning start-up activities 2- 3 hours

Powerpoint course to start exploring the topic and quiz on RF and RF security.

First live virtual class with the trainer – 3 hours

1. Prerequisites
Reminder of the different dimensions in electronics that are essential for the remainder of the course.
2. Impedance adaptation
Theoretical module which covers the issues of energy transfer in Radiofrequency, the concept of reflected power, and the use of the Smith chart.

Second virtual classroom – 3 hours

3. RF Match
The key to energy transfer, detailed view of the different models and design choices.
Implementation of energy transfer issues for high RF currents, etc.
4. Skin effect
Highlighting of the effects and limitations due to high frequency currents and materials.

Individual training activities -2 hours
Exercises (calculations) on RF voltage and current, the skin effect, quality factor, etc.

Third virtual classroom – 3 hours
5. RF Cables
Theory, issues, cable choice, power resistance and cut-off frequency.
6. RF generator
Detailed analysis of the components of an RF generator.
Fault analysis.
Specification analysis.
7. RF microwave generator
Cavity magnetron preventive maintenance

Individual training activities
Exercises (calculations) ICP frequency, phase calculation in cables, standing wave on cable, VSWR

Fourth virtual classroom – 3 hours
8. Metrology and diagnosis
This module describes the implementation of RF measuring equipment in the context of etching and deposition equipments. Fault diagrams are analyzed.

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