

Antennas

Training Course

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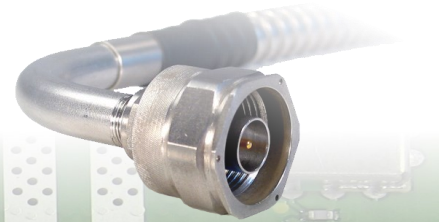


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Distance Learning in a Virtual Classroom

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Antennas Course

The course duration is 24 academic hours.

It is delivered in a Distance Learning format in a Virtual Classroom Using the Zoom Platform.

Each session is a live online event but the recording can be made available online on demand.

The course will be delivered over 6 meetings of 4 academic hours each.

Course Overview

The course provides foundations for understanding the structure and function of antennas in the world of communications.

Antennas are a critical component in any wireless communication system, radar, navigation systems and electronic warfare.

The course consists of three parts: The first part defines the main parameters of antennas and describes the basic radiation mechanism from a single source and arrays. The second part describes the main types of antennas - wires, arrays, apertures and printed antennas. The third part deals with measurements and system aspects.

Prerequisites

The course does not require prior knowledge of the subject itself.

For any engineer the ability to assimilate and understand the technical principles is essential. Therefore a technical background is desirable in order to get the most out of the course.

The course is intended for those with a bachelor's degree or equivalent experience in engineering, physics or mathematics related to the subject.

Who will benefit?

This course is primarily intended for engineers, technicians and executives in the RF and wireless communications industry. The course is also suitable for new entrants to this field and for more experienced people who want to fill in knowledge gaps. Marketing and sales people in the field will also benefit from it.

Course Syllabus

Introduction

- What is an antenna
- How does it function
- Scientific and technological background
- References
- Software packages
- Israeli industry

The Radiation Mechanism

- Electromagnetic waves
- Diffraction and interference
- Current and field sources
- Maxwell equations
- Near field and far field
- Antenna arrays

Main Parameters

- Power density radiated by an antenna
- Beamwidth
- Directivity and Gain
- Effective area and efficiency
- Radiation pattern and beamwidth
- Aperture tapering and side lobes
- Polarization and polarization Loss
- Impedance matching
- Bandwidth
- Noise temperature

Wire Antennas

- Dipole
- Monopole
- Loop
- Helix
- PIFA and miniaturized antennas
- Yagi-Uda array
- Log-periodic array
- Effects of ground plane

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Arrays

- Interference between 2 radiators
- Array factor
- Linear arrays/Planar arrays
- Weighted arrays and side lobes
- Mutual coupling between elements
- Beam tilt and beam scanning

Aperture Antennas

- Duality between currents and fields
- Apertures
- Slots
- Open waveguides
- Horns
- Reflectors
- Parabolic Dish

Printed Antennas

- Microstrip element
- Feeding techniques
- Linear and planar arrays
- Beam shifting
- Efficiency and bandwidth
- Polarization

Measurements

- Radiation patterns
- Gain and directivity
- Coordinate systems
- Polarizations
- Antenna ranges

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Instructor



Prof. Ely Levine

Prof. Ely Levine is a well known expert in antennas and radio engineering. He holds a BSEE and a MSEE degrees in Electrical Engineering from the Technion, Haifa, Israel and PhD in applied physics from the Weizmann Institute of Science, Rehovot, Israel.

Prof. Levine held senior development positions in leading electronics companies (Elta, Elop and others).

He joined Afeka Academic College of Engineering, Tel Aviv in 2006 where he teaches Communications, Antennas, Microwave systems and components, Wireless radio and Radar systems.

He published more than 65 papers and conference proceedings and co-authored two books.

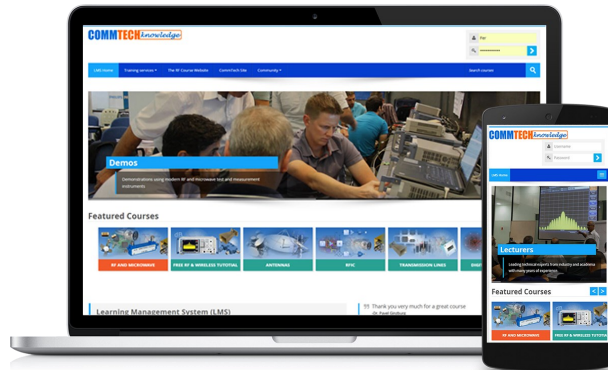
Our Certification confirms your enhanced technical skills.

The certificate is highly appreciated by the industry.



Learning Management System — LMS

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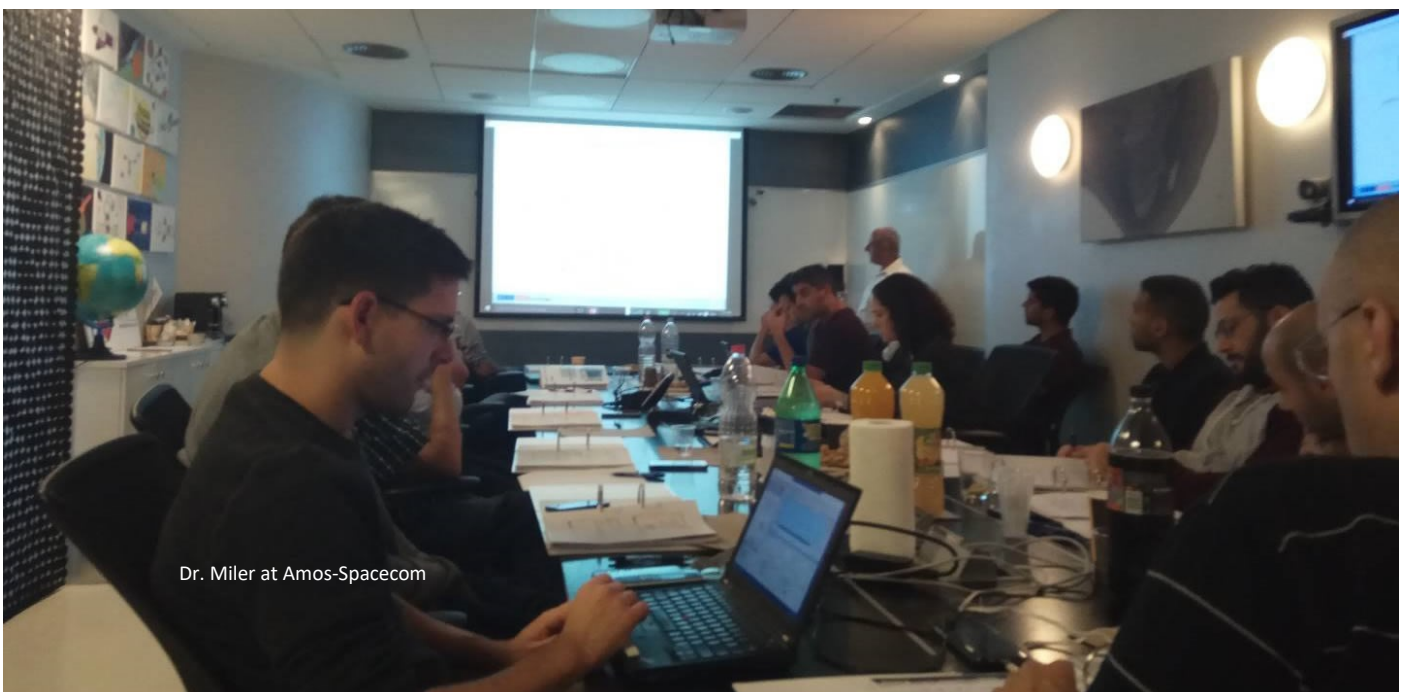
Access any time from any device

Dedicated Course for Your Company

The course is delivered exclusively for your organization.

If necessary, both the content (syllabus) and the duration of the course can be tailored to the specific requirements of the company.

Please contact us (by email or phone or via the “Corporate Training Request Form”) to detail your specific requirements and we will be happy to get back to you with a suggestion for your reference.



Dr. Miler at Amos-Spacecom

Enrollment link

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