

Course Description

Course name #812 - Practical Antenna Design For Wireless Products

Duration 4 days

Format Public Classroom, Inhouse Event and Online

Overview

To stay competitive in today's fast evolving business environment, faster time to market is necessary for wireless communication products. Playing a critical role in determining the communication range of products, RF design, particularly the antenna design, becomes crucial to the success of the introduction of new wireless products. Competence in advanced antenna designs can definitely strengthen the competitive edge of RF product design or manufacturing companies.

Course Content

This 4-day online course aims to provide participants with technical insights on the vital aspects of antenna design from a practical and industrial perspective. It covers the fundamental antenna concepts and definitions, specifications and performance of different types of commonly used and advanced antennas in RF products. Simulation tools will be introduced and discussed. Practical implementation strategies in RF products for optimum antenna performance will also be presented.

A complimentary book - 'Practical Antenna Design for Wireless Products', authored by the Speaker, will be distributed to each participant.

Who should attend?

Antenna designers, RF designers, wireless product designers, field application engineers, business development engineers and managers, design managers, and related professionals.

Course Daily Schedule

Day 1 & 2

Fundamental Concepts

1. Antenna Fundamental

- ◆ Basic types of Antenna
 - ✧ Dipole, Monopole, helical, loop, printed PCB
- ◆ Radiation Mechanism
 - ✧ Source of radiation
 - ✧ Characteristics of radiation

2. Specification and Performance

- ◆ Radiation pattern
- ◆ Antenna efficiency, aperture
- ◆ Impedance and circuit matching
- ◆ Directivity, gain
- ◆ Friis Transmission Equation

3. Antenna Elements

- ◆ Dipole antenna
- ◆ Monopole antenna
- ◆ Multi-band antenna
- ◆ Miniature chip type antenna

Loop antenna

Day 3 & 4

Advanced Antenna Elements

4. Miniature antenna for portable electronics

- ◆ Patch, inverted-L, inverted-F
- ◆ Meandered line, multi-band

5. CAD Design and Simulation

- ◆ CAD tools

- ◆ Design strategies
- ◆ Limitations
- ◆ Case studies

Practical implementation strategies

6. How to design good antennas

- ◆ Understand the requirements
- ◆ Selection of antenna type, size and geometry
- ◆ Location and placement

7. Team work with product designers, electronic engineers and mechanical engineers

- ◆ Why it matters

Case studies on designing good antennas

Instructor Biography

Mr. Henry Lau received his M.Sc. and MBA degrees from UK and USA respectively. He has more than 27 years of experience in designing RF systems, products and RFICs in both Hong Kong and US. He worked for Motorola and Conexant in US as Principal Engineer on developing RFICs for cellular phone and silicon tuner applications. Mr. Lau holds five patents, all in RF designs. He is currently running Lexiwave Technology, a IoT and wireless solutions company in Hong Kong and US designing and selling RFICs, RF modules, Radar and IoT solutions. He has also been teaching numerous RF-related courses internationally.