

<b>טכנולוגית WiFi -Wireless LAN</b>	שם הקורס:
16 שעות	משך זמן מומלץ:
2020	מספר קורס:
מהנדסי תקשורת המעוניינים בהכרת המאפיינים, התכונות והיכולות העיקריות של טכנולוגיות Wireless LAN.	קהל היעד:
בקורס יסקרו התכונות העיקריות של הטכנולוגיה: ממשק האוויר - PHY, הגישה לערוץ MAC ויכולות בתחום ה-QoS ה-Security והניידות.	

## תוכנית הקורס

### 1) Introduction to Wireless LAN

- Introduction- intentions, motivations and applications
- Basic Terminology
- Requirements and basic functionality
- Network elements and basic architectures
- Infrastructure vs. ad hoc operation
- Overview of the main properties of the Wireless LAN/ 802.11x versions

### 2) The PHY

- The Spectrum used in Wireless LAN
- Modulation schemes used in Wireless LAN
- Access methods: DSSS, OFDM
- PHY overview of: 802.11a, b, g, n
- Calculation of maximum throughput
- Spectrum, interference and co- existence issues

### 3) The wireless LAN architecture

- Thick access point solutions
- Thin access point solutions
- Centralized access point solutions
- Point-to-point and point-to-multipoint solutions

### 4) 802.11 Medium Access and QoS

- Medium access principles; CSMA;
- Hidden Node problem, RTS/CTS
- Scanning, Joining, authentication, association
- Power saving methods
- The QoS problem in wireless IP and CSMA networks
- MAC support of QoS in 802.11e and WMM
  - Quality of service provisions
  - Key components and configurations
- Service differentiation and prioritization
  - EDCF
- Support of Voice Over WirelessLAN

## 5) Security in Wireless LAN

- Authentication and encryption overview
- 802.1x operation and authentication types
- WEP vs. WPA vs. 802.11i
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- 802.1x operation and authentication types
- WEP vs. WPA vs. 802.11i
- Corporate security solutions

## 6) WiFi Metro Networks

- Special aspects of outdoor WiFi
- Interference Mitigation
- Radio design of outdoor Wireless LAN

## 7) WiFi – Cellular Convergence

- The concept
- System elements and architecture
- From UMA to 3GPP