Course name: "Electro magnetic waves“
Course code:CCE372

Course contents:

- Optical fiber communication module.
- Transmission lines (T.L.) module.
- Antennas module.
- Wave propagation module.

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Optical fiber module

- Optical Fibers History.
- Light frequency spectrum bands
- Optical fiber definition.
- Optical fiber attenuation curve versus wave length
- Typical block diagram of optical fiber communication system.
- Optical fiber structure.
- How does optical fiber work? . How does signal propagate via optical fiber?
- Optical fiber types.
- Optical fiber advantages and disadvantages.
- Optical fiber parameters definitions and calculations.
- FTTx schemes
- SEA ME WE series
- Erbium doped fiber amplifier (EDFA).

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Antenna module

- Antenna definition.
- Types of antennas.
- Main parameters of antenna.
- Some examples of antennas.

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Transmission line module

- Transmission line definition.
- Types of transmission lines.
- Equivalent circuit of Transmission line.
- Parameters of transmission line.
- Performance of transmission line.

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Wave propagation module

- Atmosphere definition and main layers.
- Ground wave propagation.
- Space wave propagation.
- Sky wave propagation.

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Practical part:

- Measurement of optical fiber losses: connector, fiber, filter and copuler).
- Measurement of antenna radiation pattern.
- Measurement of antenna gain.
- Measurement of transmission line voltage reflection coefficient and voltage standing wave ratio(VSWR)