Professional Training Program

Modern Wireless Technology
About Program
Introduction

• This course helps wireless professionals get recognized as having the required knowledge, skill, and ability to meet today and tomorrow’s wireless challenges.

• Some areas of expertise are addressed in the course:
  • RF Engineering, Propagation,
  • Wireless Access Technologies from WLAN to Mobile Networks;
  • Mobile Network and Service Architecture;
  • Mobile Network Infrastructure;
  • Mobile Communications Policies and Regulations;
  • Mobile Network Planning Process
  • Heterogeneous Wireless Networks
Program Overview

Objectives

What can Do for You?
Mobile & Wireless Systems

The main core of the track is to shrink the gap between the market need and the undergraduate course in the field of Mobile Telecommunication Systems.

- Review of the main concepts for wireless access networks, such as TDMA, WCDMA, HSPA, OFDMA, coding process, network load and most important stages in the physical channels.
- This part will ensure the participant a proper understanding of the important modern wireless communication network concepts, and no time will be lost on useless theoretical details.
- In addition, more advanced topics like handover operation, power control and load control are explained.
- Detailed Sessions are covering WLAN Networks: Design, Operation and Implementation scenarios.
- Complete evolution process are explained for different technologies such as: WLAN, 3G, HSPA, LTE networks.
Mobile & Wireless Systems

- Link budget and most popular radio propagation models, for different Radio Access Network.
- In addition, the high speed data service concepts are illustrated in detail,
- Multiple guided exercises will ensure a swift processing of the acquired knowledge by all participants.
- Wireless Network Planning Concepts and practical examples are conducted for various technologies.
- In addition, as integration for the whole wireless network integrity are investigated via Heterogeneous Wireless Networks.
Modern Wireless Technology

Objectives

1. This course helps wireless professionals get recognized as having the required knowledge, skill, and ability to meet today and tomorrow’s wireless challenges.

Some areas of professional expertise are addressed in the course:
- RF Engineering, Propagation,
- Wireless Access Technologies from WLAN to Mobile Networks;
- Mobile Network and Service Architecture;
- Mobile Network Infrastructure;

2. Advanced areas of professional expertise are addressed in the course:
- Mobile Communications Policies and Regulations;
- Mobile Network Planning Process
- Heterogeneous Wireless Networks
Modern Wireless Technology

Objectives

4

The attributes and realities of LTE-Advanced / Roadmap today and in the next several years – what, why, how, when

Evolution path for Small Cells, HetNets and associated technologies, communication coordination & interference management, machine-type communication, and virtualization

5

6

The need and the means for multi-dimensional technology transformations in phases to keep up with demand, and on the Road to 5G. In addition, Self-Organizing Networks (SON) technologies and standards, their synergy, realities & success, related technologies, and their evolution path

Talented Graduates will have the opportunity to Join “Seeds For The Future” Program offered by Huawei Technologies co. to enhance their knowledge to promote greater understanding towards the most advanced ICT technologies, through professional and customized seminars in Huawei HQ China which they cover expenses.
Who May Apply?

Process Details

Program Process
Who May Apply?

Electronics and Communications Engineers
Fresh graduates
Basic Digital Communications
Mobile Communication Basics
Ambitus and talent to work in the field
Modern Wireless Technology
Fresh grades who are interested in understanding GSM/3G/LTE / LTE-Advanced end to end roadmap in preparation for 5G.
- Eligible candidates of the program are those following the applying criteria and admission rules.
- Applicants must follow the online admission procedures to complete the admission process.
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Prospective learners are also required to be examined and have an interview with a member of the scientific departments staff to clarify educational objectives and determine the learner’s capabilities.
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Prospective learners are also required to be examined and have an interview with a member of the scientific departments staff to clarify educational objectives and determine the learner’s capabilities.

- Building the capacity required in the competitive global environment that exists today through an English program, specially prepared for the engineers of Computer, Communications and Information Technology.
- Enhancing Engineers Soft skills to keep a job not just get it.
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-Enhancing Engineers Soft skills to keep a job not just get it.

The track program helps wireless professionals get recognized as having the required knowledge, skill, and ability to meet today and tomorrow’s wireless challenges.
The track recipients will have a great opportunity to use what they learned in an applied project hence implement and execute all the learned skills including working in a team, project planning, time management, problem solving until final project report writing.

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Screening

Admission

Technical

Applied Project

On Job Training
Screening

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Technical

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Applied Project

Gain practical experience required according to the actual needs of the labor market.

On Job Training

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Enhancing Engineers Soft skills to keep a job not just get it.

Admission

The track program helps wireless professionals get recognized as having the required knowledge, skill, and ability to meet today and tomorrow’s wireless challenges.

National Telecommunication Institute
**NTL Program Process**

**Screening**
- Eligible candidates of the program are those following the applying criteria and admission rules.
- Applicants must follow the online admission procedures to complete the admission process.

**Technical Skills**
- Building the capacity required in the competitive global environment that exists today through an English program, specially prepared for the engineers of Computer, Communications and Information Technology.
- Enhancing Engineers Soft skills to keep a job not just get it.

**Applied Project**
- The track recipients will have a great opportunity to use what they learned in an applied project hence implement and execute all the learned skills including working in a team, project planning, time management, problem solving until final project report writing.

**On Job Training**
- Gain practical experience required according to the actual needs of the labor market.

**Graduation**
- The track program helps wireless professionals get recognized as having the required knowledge, skill, and ability to meet today and tomorrow’s wireless challenges.

**Admission**
- Prospective learners are also required to be examined and have an interview with a member of the scientific departments staff to clarify educational objectives and determine the learner’s capabilities.
Program Architecture

Program Courses

Program Structure

Program Practice
NTL Program Architecture

**English for Engineers**
Building the capacity required in the competitive global environment that exists today through an English program, specially prepared for the engineers of Computer, Communications and Information Technology.

**Softskills**
Enhancing Engineers Soft skills to keep a job not just get it.

**Technical Training**
Technical education in the field of advanced mobile and wireless technologies. It helps professionals to get recognized as having the required knowledge, skill, and ability to meet today and tomorrow's wireless challenges.

**Applied Project**
The track recipients will have a great opportunity to use what they learned in an applied project hence implement and execute all the learned skills including working in a team, project planning, time management, problem solving until final project report writing.

**On Job Training**
Gain practical experience required according to the actual needs of the labor market.
Supportive Skills

English Program for Engineers
• Identify common key vocabulary about modern technology.
• Take notes while listening/reading
• Identify the various parts of a C.V
• Write a C.V
• Write a Cover Letter
• Write a Report
• Practice writing business emails and/letters
• Practice role play situations

Soft Skills Program
• Communication skills
• Presentation skills
• Teamwork
• Leadership skills
• Negotiation skills
• Problem solving & decision making
• Business writing
• Time management
• Project management essentials
• Career development “CVs & interviewing skills”
Technical Program Courses

Main Knowledge
- Concepts and operation of wireless networks
- Evolution for different mobile communication networks
- Link budget
- Radio propagation models
- 3G/HSPA Networks
- WiMAX Networks
- LTE Networks
- WLAN Networks: Design, Operation and Implementation
- WiGig, White Field, HaLow,
- Wireless regional area networks,
- Network virtualization, Cognitive radio,
- Software defined Networks,
- IoT and new technologies
- Wireless Network Planning
- Heterogeneous Wireless networks (HetNets)

Software/Hardware
- Wireless network planning
- WLAN System Design
- RF Power Measurements

Essentials
- Mobile Communications
Hardware

- CDMA Radio Access
- CDMA Core Network
- OSS Principles and Operation System
- Cognitive radio lab
- RF exposure Level Measurement Tools
- RF Signal Strength Field Survey

Software

- Lab View software defined networks
- Network virtualization Tools
- Gns3 and packet tracers ...
Who is Who?
Graduates History
Job Profiles

Job 1: BSS (Base Station Subsystem) Engineer

• Operation & Maintenance of all 2G/3G Technology BSS (BTS, Node B, RBS, MW, DXX, TN, Antenna, MC, CE) equipment within a region.
• Report all field related aspects concerning routine visit and remarks on GSM network associated sub-system environment.
• Under the direction of the local NOC, ensure that all the equipment associated and peripheral systems under stated responsibility is operated and maintained in such a way as to meet operator standards
• Responsible for the physical condition of the premises and equipment in stated area
• Maintain Mobile network performance standards at or better than Company objectives.
Job 2: RF Engineer

- The RF Engineer participates in several deployment processes: - Radio planning (Pré-Wimax / Wimax / 4G (TD-LTE))
- Radio optimisation (saturation /capacity / Coverage / Events )
- Network Deployment (site-selection, site-construction & site-commissioning)
- Administrative tasks (Environmental permits, Meeting local authorities, Reporting …)
This course is a good guide to have the following International Industrial Certificates

Program will qualify graduates to be certified with

- Implementing Cisco Wireless Network Fundamentals WIFUND
Appendix
Courses

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- Evolution for different mobile communication networks
- Link budget
- Radio propagation models
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- WiMAX Networks
- LTE Networks
- WLAN Networks: Design, Operation and Implementation
- WiGig, White Field, HaLow,
- Wireless regional area networks,
- Network virtualization, Cognitive radio,
- Software defined Networks,
- IoT and new technologies
- Wireless Network Planning
- Heterogeneous Wireless networks (HetNets)
Instructors

• Prof. Hesham El Badawy
• Prof. Mohsen Tantawy
• Assistant Prof. Reem Hamed
• Assistant Prof. Asmaa Safaan
• Dr. Iman Serag
• Dr. Mohamed Safwat
• Eng. Kareem Abo Bakr
• Eng. Mohamed Taha