



Course	Fiber to the X –FTTx: Next Generation Access Networks				
Overview	<p>As copper has already begun showing its limitations – notwithstanding the various DSL technology enhancements – optical access networks have recently attracted a lot of attention. The main competing technologies for supporting the so-called Fiber-to-the-x (FTTx) are currently Active Ethernet and Passive Optical Networks (PONs). Active Ethernet is a direct application of the well-known Ethernet paradigm to the access network and employs an active switch to distribute traffic from a Central Office (CO) to a number of customers using the standard Ethernet framing. PONs are a cost-effective solution based on a tree-like topology where user terminals or even whole buildings (Optical Network Terminations - ONTs) are located at the branches, while at the other end resides the Optical Line Termination (OLT) (located at the CO) which provides connectivity to the rest of the network. Downstream traffic is broadcast from the OLT to all ONTs as the optical signal is split using a passive coupler, while upstream traffic is sent in a time division multiple access (TDMA) fashion regulated by the the OLT.</p> <p>Implementations of Active Ethernet, Gigabit-PON (GPON) and Ethernet-PON (EPON) systems have already taken place in various countries, offering an increase of over one order of magnitude in the bandwidth offered to the end user. For the exact choice of an optical access technology, several criteria must be taken into account, including desired geographical coverage, scalability, deployment / operation and maintenance costs, offered bandwidth and quality of service per user.</p> <p>This course gives an overview of the optical access network enabling technologies and provides an in depth understanding of their concept of operation, their individual characteristics (pros and cons) and their potential for deployment.</p>				
Objectives	The course objective is to provide an overview of optical access technologies and an understanding of the design, implementation, and techno-economic issues associated with optical access network solutions. It is designed as an introductory/intermediate course on the topic.				
Who should attend	<p>This Short Course is addressed to:</p> <ul style="list-style-type: none"> ■ Managers/engineers/professional scientists working for operators and equipment manufacturers involved in network, system and subsystem design, operation and maintenance of telecommunications networks as well as business development & strategy planning ■ Students and individuals who seek to advance their personal and/or professional status through Learning 				
Prerequisites	<ul style="list-style-type: none"> ■ Basic knowledge on communications networks. 				
Dates & Duration	<ul style="list-style-type: none"> ■ April 04,05,06, 2012 ■ 3 days ■ 24 teaching hours 	Class Daily Time Schedule			
		Hr	Starts	Ends	Intervals
		1	9:30	10:15	
		2	10:15	11:00	11:00-11:15
		3	11:15	12:00	
		4	12:00	12:45	12:45-13:00
		5	13:00	13:45	
		6	13:45	14:30	14:30-14:45
		7	14:45	15:30	
		8	15:30	16:15	
Instructors	Course Led by Dr. I. Tomkos, AIT Professor Dr. K. Kanonakis, AIT, Researcher				
Training Methodology	<ul style="list-style-type: none"> ■ International & Local Case studies ■ Research Project Results ■ LabvDemos 				
Course outline	<p>Day 1:</p> <ul style="list-style-type: none"> ■ The need for FTTx ■ Worldwide deployment situation and plans ■ Overview of FTTx architectures and technologies ■ Business models for FTTx ■ Case studies of FTTx deployments <p>Day 2:</p> <ul style="list-style-type: none"> ■ Elements of an optical communication system ■ How to engineer an optical access network ■ Requirements from optical components ■ Design parameters ■ Description of multiple access techniques (TDMA, WDMA, CDMA, SC-MA) <p>Day 3:</p>				



	<ul style="list-style-type: none">■ Star-based Active Ethernet■ Home-run Active Ethernet■ The standardized PON Variants (BPON, GPON, EPON)■ Quality of Service (QoS) in PONs■ The importance of the PON MAC layer■ Latest advances in PON technology■ Hybrid PONs■ WDM PONs■ Next-Generation PONs■ Protection Issues■ Evaluation and comparison of the various alternatives
Expression of Interest	excedu@ait.gr please send your contact info, including program title in email subject line
Registration Form	http://hermes.ait.gr/registrations/multiple.php?prog=327
Venue	Classroom 1B, Level, AIT, Building B7, INTRACOM Campus, 19 km, Markopoulou Av, Peania 190 02 How to Reach AIT: http://www.ait.edu.gr/ait_web_site/how_to_reach_us.jsp
Tuition Fee	Single Participation: € 790,00 This course is also available for in-house training for 4-10 participants @ competitive pricing OAED funding may reach up to 100%, for more information please contact us. Discount Policy Cancellation Policy
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