APPLIED INFORMATION TECHNOLOGY (AIT)

AIT 103 Online Seminar (1 credits)
This two-week course is designed to prepare students to effectively participate in an asynchronous learning environment. You will receive an introduction to Blackboard, the software Pace University uses to deliver courses for this online program, and will learn essential Internet concepts. There are usually several sections of this course available prior to the start of each semester, and you must successfully complete one of these sessions before regular classes begin.
Course Rotation: TBA.

AIT 107 Computer Applications for Telecommunications (4 credits)
This is an introductory course in basic orientation to computer hardware and implementation of software applications in telecommunications. Students will use various software packages to create documents, spreadsheets, graphs, and databases and will use the knowledge gained to solve problems and transfer information via electronic media.
Course Rotation: TBA.

Prerequisites: Open to students enrolled in an Online Accelerated Bachelor's Completion Degree Program. Permission of Director required. Contact Janet Kirtman at jkirtman@pace.edu for further registration information.

AIT 109 Global Telecommunications Essentials (4 credits)
This course will introduce the students to a board range of telecommunications concepts covering the wired and wireless environment. This covers the fundamentals of sound, the OSI model, carrier networks, TCP/IP and Internet basics. We will also introduce the concept of big data and cloud computing along with the growing impact of Voice Over IP (VoIP) in business, personal, and carrier environment. Basic radio and wireless concepts will be introduced. In addition, cyber security and impacts to the wired and wireless concepts networks will be discussed.
Course Rotation: Fall, Spring and Summer

Prerequisites: AIT 103. Student must be in the Nactel program.

AIT 111 AC/DC Electrical Circuits for Telecommunications (4 credits)
Course Rotation: TBA.

AIT 113 Solid State Devices and Circuits (4 credits)
Course Rotation: TBA.

AIT 114 Industrial Technology (4 credits)
Course Rotation: TBA.

AIT 120 Business and Technical Communications for Telecommunications (4 credits)
This course will provide students with the basic foundation on which to build and improve communication skills for the workplace. Students will create business and technical correspondence, technical reports, user manuals, and technical instructions. Emphasis will be placed on working collaboratively in an online environment.
Course Rotation: TBA.

AIT 196A Topic: Advanced PC Applications for Telecommunications: Word (1 credits)
Course Rotation: TBA.

AIT 196B Topic: Advanced PC Applications for Telecommunications: Excel (1 credits)
Course Rotation: TBA.

AIT 196C Topic: PC Applications for Telecommunication: Access (1 credits)
Course Rotation: TBA.

AIT 196D Topic: PC Applications for Telecommunications: PowerPoint (1 credits)
Course Rotation: TBA.

AIT 196E Topic: Voice Over Internet Protocol Technologies (2 credits)
Course Rotation: TBA.

AIT 196F Topic: Emerging Broadband Technologies (2 credits)
Course Rotation: TBA.

AIT 196G Topic: Fiber Optics (4 credits)
Course Rotation: TBA.

AIT 196H Topic: Emerging Wireless Technologies (2 credits)
This course will examine and analyze the wireless telecommunications industry through comprehensive coverage of major areas where wireless technologies are being developed and implemented. Topics include the wireless communications technologies evolution, frequency bands, radio and television networks, 2 way radio communications, microwave networks and applications, wireless local loop (WLL), satellite communications (GEO, LEO, MEO), and cellular telephony. Next Generation Wireless (3G) protocols and applications will also be examined and analyzed.
Course Rotation: TBA.

AIT 196J Introduction to SQL (1 credits)
This course introduces the syntax of structured query language. Students work with a small Microsoft Access database and practice with basic SQL commands to learn the fundamentals of the language. The course will provide students with multimedia presentations to reinforce the laboratory activities used to create the querying commands in addition to discussion boards.

AIT 223 Digital and Microprocessor Fundamentals (4 credits)
Course Rotation: TBA.

AIT 231 Cabling Technology (4 credits)
This course covers network and telecommunications cabling standards and procedures with particular emphasis on fiber optic cabling. Topics include safety considerations, signals and wires, copper media, fiber-optic media, testing fiber optic cables, cabling system components, structured cabling, cabling tools, installation techniques, rough-in phase, trim-out phase, finishing and customer support phases. Creating requests for proposals and cabling case studies are also discussed.
Course Rotation: TBA.

AIT 233 Wireless LANs (4 credits)
This course provides a hands-on guide to planning, designing, installing and configuring wireless LANs. The subject matter corresponds to that of the Certified Wireless Network Administrator (CWNA) certification. The course offers an in-depth coverage of wireless networks with extensive step-by-step coverage of IEEE 802.11 b/a/g/pre-n implementation, design, security, and troubleshooting. Material is reinforced with online projects using equipment from two of the principal wireless LAN vendors, Cisco and Linksys.

AIT 235 Telecommunications II: Signal Transmissions for Telecommunications (4 credits)
Concentration of this course will be on transmission and data communications. Students will study the electromagnetic spectrum, network models and standards, signals, decibels, modulation and transmission media. The course will also cover the study of data communications, LANs, LAN switching, the Internet and the World Wide Web. In addition, a study of wireless transmission, cellular telephony, satellite communications and an introduction to IP routing and routing protocols will be included. Students will have an understanding of how networks work at the infrastructure, network and applications layers; how they transfer data; how network protocols enable communication; and how lower network protocols support upper ones.
Course Rotation: Online: Fall, Spring

AIT 241 Telecommunications III (4 credits)
Course Rotation: TBA.

AIT 243 Video and Smart Technologies (4 credits)
This course deals with the concepts and applications of digital television. Emphasis is placed on digital television in the home environment and a thorough study is made of home theater techniques some entertainment systems, and home automation. Topics to be studied include analog and digital TV, satellite TV, HDTV, IPTV, audio systems, recording systems, gaming systems, and audio and video cabling techniques.
Course Rotation: Spring.

AIT 245 Telecommunications IV: Data and Emerging Communications Technology (3 credits)
Course Rotation: TBA.

AIT 253 Wireless Network Security (3 credits)
The purpose of this course is to provide a hands-on guide to defending wireless networks against attacks. It corresponds to the subject matter found in the Certified Wireless Security Professional (CWSP) certification from Planet3. The topics of WEP, WPA, and 802.11i security standards are fully discussed. Hands-on exercises are included, which allow students to practice skills as they are learned.

AIT 263 Mobile Technology (4 credits)
This course expands the previous examinations and reviews of mobile and cellular technologies, applications and services in AIT 109, AIT 170, AIT 235 and AIT 263. This course will achieve its objectives through a discussion of devices, applications, and implications in the ever-changing world of mobile. In completing this course, students will have the opportunity to increase and enhance their knowledge of mobile technologies and its impact in video, voice and data.

AIT 371 Fiber Optics (4 credits)
The telecommunications network has been evolving from one that is electronic in nature to an electro-optical networking system. Fiber optics technology is playing a major role in this evolution. In addition, further developments are expected to result in an all-optical core network with the highest transmission speeds. Technicians working in the field will need an understanding of this important subject matter. This course covers the fundamentals of fiber optics and related optical components. Additional discussion is given on how these devices are being used in current optical telecommunications networks. Topics include the physical principles governing optical fiber, fiber optic network architectures, optical switching and routing, and the impact of optical fiber on the telecommunications industry.

AIT 381 Emerging Broadband Technologies (4 credits)
This course covers topics of increasing importance in the area of broadband technologies. Following a review of TCP/IP protocols, the course examines the basics of network tunneling and security as applied to Virtual Private Networks (VPN). The latest tunneling technologies such as point-to-point tunneling protocol (PPTP) and layer 2 tunneling protocol (L2TP) are discussed. Security concepts such as threats and attacks, intrusion detection, firewalls, cryptography, authentication, and security key management are covered. The IPSec protocols and Quality of Service (QoS) concepts are also covered.
Course Rotation: TBA.

AIT 382 Voice Over Internet Protocol Technologies (4 credits)
This course covers Voice over IP and Internet Telephony. Extensive coverage of the emerging protocol standards H.323, Session Initiation Protocol (SIP), and Media Gateway Control Protocol (MGCP) is given. Voice transmission, voice digitization, voice coding and compression are discussed. Voice over IP network components, routers, and gateways are examined as are Voice over IP network examples and the current industry status in the USA.
Course Rotation: TBA.

AIT 383 Emerging Wireless Technologies (4 credits)
This course covers emerging wireless telecommunications including cellular telephony, next generation (3G) wireless technologies, and wireless LANs. Topics include antennas and propagation, signal encoding techniques, spread spectrum, error detection and correction, cellular wireless networks, wireless local loop, mobile IP and wireless application protocol (WAP), and the local area network IEEE 802.11 and Bluetooth protocols. Also considered are wireless security models, threats and solutions.
Course Rotation: TBA.