



MSc Technologies and Infrastructures for Broadband Applications and Services

CALENDAR - Cycle 4 - Semester B' - Academic year 2017 - 2018

Week	Dates	Hours	Course ID	Classroom	Teacher	Lecture/Lab/EXAMS	Description
1	Friday 10/11/2017	4-7 pm	21	Lab 1	Sklavos Nicolas	Lecture	Introduction to Network and Computer Security
		7-10 pm	21	Lab 1	Sklavos Nicolas	Lecture	Advanced Topics in Cryptography
	Saturday 11/11/2017	9-12 am	21	Lab 1	Sklavos Nicolas	Lecture	Advanced Security Systems
		12-3 pm					
2	Friday 17/11/2017	4-7 pm	22	Lab 1	Politis Ilias	Lecture	Introduction to Network Convergence and All-IP Networks
		7-10 pm	22	Lab 1	Politis Ilias	Lecture	VoIP Technologies
	Saturday 18/11/2017	9-12 am	43	Lab 1	Voros Nikolaos	Lecture 1	An introduction to High level synthesis based design - IP based Design, Basic concepts of FSM and datapath design.
		12-3 pm	43	Lab 1	Keramidas Georgios	Lecture 2	Control flow and data flow based optimizations. Overview and Case Studies.
3	Friday 24/11/2017	9-12 am	22	Lab 1	Politis Ilias	Lecture	VoIP Signaling, VoIP Transport
		12-3 pm	22	Lab 1	Politis Ilias	Lecture	IMS, LTE
	Saturday 25/11/2017	4-7 pm	43	Lab 1	Keramidas G., Voros N.	Lecture 3	Introduction to Embedded Processor Design (instruction set architecture, software vs hardware, machine vs assembly language). Basic components of Data path and their interaction. Introduction to pipeline.
		7-10 pm	43	Lab 1	Keramidas Georgios	Lecture 4	Evolution of embedded systems, System-on-Chip (SoC). Software trends in embedded systems. Relevant research area in European academia and industry.
4	Friday 01/12/2017	4-7 pm	21	Lab 1	Kitsos Paris	Lecture	Hardware Security Attacks – Advanced Topics: Hardware Trojans. IC Design Flow and Hardware Trojan Insertion. Taxonomy. Detection, Deactivation. IC Counterfeiting. Effects. Detection Methods.
		7-10 pm	21	Lab 1	Kitsos Paris	Lab	Lab: Laboratory Training on FPGA hardware Trojan
	Saturday 02/12/2017	4-7 pm	32	Lab 1	Paximadis Kostas	Lecture & Lab	Bluetooth Voice Transmission
		7-10 pm	32	Lab 1	Paximadis Kostas	Lecture & Lab	IEEE 802.11a wireless local area network (WLAN) Physical Layer
5	Friday 08/12/2017	4-7 pm	21	Lab 1	Kitsos Paris	Lecture	Secure Hardware Design - Advanced Topics: Secure FPGA Design. Anti Tamper Solutions. Methodologies and Algorithms. Random number generators
		7-10 pm	21	Lab 1	Kitsos Paris	Lab	Lab: Laboratory Training on secure FPGA design.
	Saturday 09/12/2017	9-12 am	22	Lab 1	Stephanakis Ioannis	Lecture	Introduction to Lossless and Lossy Compression
		12-3 pm	22	Lab 1	Stephanakis Ioannis	Lecture	Image and Video Compression
	Friday	4-7 pm	32	Lab 1	Asaridis Ilias	Lecture & Lab	Maxwell equations, emission of electromagnetic waves, propagation of electromagnetic waves, attenuation of electromagnetic radiation, making experimental measurements, analysis and process of experimental measurements.

6	15/12/2017	7-10 pm					
	Saturday 16/12/2017	9-12 am	32	Lab 1	Asaridis Ilias	Lecture	Path loss (loss models), Fresnel and Fraunhofer zones, Doppler effect, wireless networks shading and temporary cessations, maximum distance for radio-coverage, theoretical exercises and applications.
		12-3 pm	32	Lab 1	Asaridis Ilias	Lecture	Diffraction of electromagnetic waves, conditions for diffraction, diffraction from a slot, Babinet principle, diffraction from two slots, diffraction from N slots, contribution to electromagnetic waves, experimental demonstrations, making experimental measurements, analysis and process of experimental measurements.
7	Friday 22/12/2017	4-7 pm					
		7-10 pm					
	Saturday 23/12/2017	9-12 am	43	Lab 1	Antonopoulos Christos	Lecture 5	Embedded System Architecture: Modern embedded systems architecture overview. CISC/RISC processors overview. Case studies of small RISC processors (ARM, MIPS, ARC, Intel 8051). Case studies of high-performance embedded systems (ARM, Intel).
		12-3 pm	43	Lab 1	Antonopoulos Christos	Lecture 6	Embedded system programming: Programming model, Memory management, Peripheral management, Utilizing of I/O subsystems (ADC, Timers, RTC, LCDs, Leds, Buttons etc.), Assembly embedded programming.
24/12/2017 - 04/01/2018	CHRISTMAS HOLIDAY						
8	Friday 05/01/2018	4-7 pm					
		7-10 pm					
	Saturday 06/01/2018	HOLIDAY					
	Friday 12/01/2018	4-7 pm	21	Lab 1	Fournaris Apostolos	Lecture	Basic principles of Advanced Asymmetric Key Cryptography: Number theory for cryptography, Elliptic Curve Cryptography, bilinear pairing based cryptography, identity based cryptography, secret sharing schemes and Threshold Cryptography.
		7-10 pm	21	Lab 1	Fournaris Apostolos	Lab	Basic principles of Advanced Asymmetric Key Cryptography: . Laboratory Training on the issues of the taught thematic areas of the course.
	Saturday 13/01/2018	9-12 am	32	Lab 1	Triantafillou Vassilis	Lecture	Routing in WSN: Challenges and Approaches.
		12-3 pm	32	Lab 1	Asaridis Ilias	Lecture & Lab	Interferometers, Defining techniques of wavelength, Radiation pattern, theoretical exercises and applications.
10	Friday 19/01/2018	4-7 pm	22	Lab 1	Politis Ilias	Lecture & Lab	Multimedia Streaming Protcols
		7-10 pm	22	Lab 1	Politis Ilias	Lecture & Lab	Multimedia Streaming Protcols
	Saturday 20/01/2018	9-12 am	22	Lab 1	Stephanakis Ioannis	Lecture	Multimedia Standards
		12-3 pm	22	Lab 1	Stephanakis Ioannis	Lecture	Multimedia Standards
11	Friday 26/01/2018	4-7 pm	22	Lab 1	Politis Ilias	Lecture	Video and Voice Quality Metrics
		7-10 pm	22	Lab 1	Politis Ilias	Lecture	3D Video Streaming and QoE
	Saturday 27/01/2018	9-12 am	32	Lab 1	Antonopoulos Christos	Lecture & Lab	Wireless Personal Area Networks (IEEE 802.15.4, ZigBee, Bluetooth)
		12-3 pm	32	Lab 1	Antonopoulos Christos	Lecture & Lab	Ad-Hoc WSN networks focusing on WSN OS, WSN platform and WSN programming Lab: Exercises using real WSN platforms
12	Friday 02/02/2018	4-7 pm	32	Lab 1	Paximadis Kostas	Lecture	Wideband Code Division Multiple Access (WCDMA) Physical Layer
		7-10 pm	32	Lab 1	Paximadis Kostas, Asaridis Ilias	Lab	Presentation of Project

12	Saturday 03/02/2018	9-12 am	22	Lab 1	Tsakanikas Vasilios	Lab	Asterisk, VoIP Monitoring, VoIP/Video Quality
		12-3 pm	32	Lab 1	Triantafyllou Vassilis	Lecture & Lab	Routing in WSN: Challenges and Approaches.
13	Friday 09/02/2018	4-7 pm	21	Lab 1	Fournaris Apostolos	Lecture & Lab	Principles of Hardware Security Attacks: Logical vs Physical attacks. Information Leakage attacks, Possible leakage channels. Side-channel attack analysis Time attack analysis. Simple power and differential power attack analysis, Fault Analysis attacks
		7-10 pm	21	Lab 1	Fournaris Apostolos	Lecture	Software Vulnerability and Trusted Systems: Software weakness in exploitation. Buffer overflow vulnerabilities, stack smashing, protection measures, Examples, Case studies. Definition of Trust in Computer Systems. Hardware Tokens for Trust establishment. <u>Security through Hardware Virtualization. Trusted Computing</u>
	Saturday 10/02/2018	9-12 am	43	Lab 1	Keramidas George	Lecture 6	Pipeline design. Dependencies and hazards, Pipeline optimizations, super pipeline. Techniques to increase ILP, branch prediction (static and dynamic techniques).
		12-3 pm	43	Lab 1	Mariatos Vaggelinos	Lecture 7	Sequential and Conditional statements. Functions and Procedures. Design styles and examples.
14	Friday 16/02/2018	4-7 pm	43	Lab 1	Gohringer Diana Voros Nikos	Lecture 8	Parallel processing in uncore architectures. Superscalar, SMT, VLIW and EPIC processors. Flynn classification and Amdahl's law, Gustafsons law and stone metric. Type of parallelism: instruction level parallelism (ILP), thread-level or task-level parallelism (TLP), data level parallelism (DLP) and transaction-level parallelism.
		7-10 pm	43	Lab 1	Gohringer Diana Voros Nikos	Lecture 9	Parallel processing in multicore processors (SIMD, MIMD, array and vector processors). Memory communication models (shared memory and message passing). Memory consistency models (lazy vs. eager models). The cache coherency problem and typical cache coherency protocols (snooping based, directory based, and list-based).
	Saturday 17/02/2018	9-12 am	43	Lab 1	Huebner Michael Voros Nikos	Lecture 10	Reconfigurable architectures (coarse-, medium- and fine-grained), FPGA architecture (Xilinx, Altera), Embedded Systems on an FPGA.
		12-3 pm	43	Lab 1	Huebner Michael Voros Nikos	Lecture 11	Softcore processors (MicroBlaze, Nios). Hardcores. Case study: Xilinx Zynq, Xilinx Embedded Development Kit (EDK), Examples of application scenarios.
15	Friday 23/02/2018	4-7 pm	43	Lab 1	Mariatos Vaggelinos	Lecture 12	Introduction to VHDL. Combinational and Sequential Circuits. Latch and Flip-Flops. VHDL types and objects. Definition of Behavioral and Structured modules and entities.
		7-10 pm	43	Lab 1	Mariatos Vaggelinos	Lecture 13	Signal and Variable declaration. IEEE Standard Libraries and their use. Design styles and examples.
	Saturday 24/02/2018	9-12 pm	21	Lab 1	Asimakopoulos Georgios	Lab	Internet security, Web application security
		12-3 pm	21	Lab 1	Asimakopoulos Georgios	Lab	Lab: Laboratory training and exams on the issues of the taught thematic areas of the lecture
16	Friday 02/03/2018	4-7 pm	21	Lab 1	P. Kitsos, A. Fournaris	Exam	Presentation of Project (Final Exams)
		7-10 pm	21	Lab 1	P. Kitsos, A. Fournaris	Exam	Presentation of Project (Final Exams)
	Saturday 03/03/2018	9-12 am					
		12-3 pm	32	Lab 1	Triantafyllou Vassilis	Lecture & Lab	Routing in WSN: Challenges and Approaches.
17	Friday 09/03/2018	4-7 pm	22	Lab 1	Politis Ilias	Exam	Final Exams
		7-10 pm	43	Lab 1	Keramidas G., Voros N.	Exam	Final Exams
	Saturday 10/03/2018	9-12 am	32	Lab 1	Asaridis, Antonopoulos, Paximadis	Exam	Presentation of Project (Final Exams)
		12-3 pm					