المنهاج الخاص لامتحان الرصانه لطلبة شهادة الدكتوراه

اسم المادة	المصدر	المفردات	ت
OOP C++ Language	OOP with C++ / E. Balaguruswamy / 4th edition	Required chapters: 5, 6, 7, 8, 9	1
Computer Architecture	Morrise. M. Mano, Computer system architecture. 2007	Interested chapters: Ch9, Ch11, C12	2
Advanced Digital Signal Processing	Digital Signal Processing Fundamentals and Applications Li Tan DeVry University Decatur, Georgia AMSTERDAM	Signal Sampling and Quantization Analog-to-digital conversion, Digital-to-Analog Conversion, and Quantization System Representation Using Its Impulse Response Bounded-in-and-Bounded-out Digital Convolution Discrete Fourier Transform and Signal Spectrum DFT, FFT Discrete Fourier Transform Formulas The z-Transform Properties of the z-Transform Inverse z-Transform Basic Filtering Types,	3
Advanced Computer Networks	Larry L. Peterson, Bruce S. Davie, Computer Networks: A Systems Approach, Fifth Edition, 2011	**OSI and TCP/IP layers** **Internet Backbone and Underlying Technology** (LAN, Wireless Networks, 802.11 MAC, Bluetooth**)** **Network Layer Protocol** 1. Network layer services 2. Unicast Routing Protocols 3. Multicast Protocols 4. IPv4 and IPv6 Addresses and Interface Identifiers	4
Parallel Processing	Pawet Czarnul,“Parallel Programming for Modern High Performance Computing Systems,” Taylor & Francis Group, 2018 - Chapter four Hesham El-Rewini, Mostafa Abd-El-Barr, “Advanced Computer Architecture and Parallel Processing,” John Wiley & Sons Inc, 2005 - Chapters One, Two, Three, Four, Five NVIDIA, CUDA C++ Programming Guide, Retrieved from https://docs.nvidia.com/cuda/cuda-c-programming-guide , Chapter One and Two		5

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Cyber Security	Introduction to cyber security	Chapter 1: The Need for Cybersecurity 1- What is cyber security. page 3 2- CIA. page 6 Chapter 2: Attacks, Concepts and Techniques 1- Attacks, concept and techniques. page 14 2- Type of malware page 16-17 3- Phishing page 18 4- Firewalls page 34	6
	Principles of cyber security	Block 1: Cyber Security Essentials Unit 1: cyber security essentials page 2 1.2-What is cyber security page 3 1.3-Security concepts 1.4 page 6 Unit 2: Attack vectors, threat, risk and vulnerability 2.3- key terminologies. Page 16 2.4- Attacks page 17 2.5- Risk assessment page 24 Block 2: Network Defense Tools Unit 1: firewall and packet filter 1.2- firewall page 67 Unit 3: Attack on wireless network 3.4- wireless network page 97 Block 4: Introduction to Cyber Crime, Law and Investigation Unit 1: Type of cybercrime page 160-170	
Soft Computing	Topics Areas: 1. Artificial Neural Networks, Self-Organizing Maps, Recurrent Neural Network, Associative Memory. 2. Fuzzy Sets, Fuzzy Theory, Fuzzy Systems 3. Evolutionary Computing, Genetic Algorithms, Genetic Programming, Swarm Intelligent. 4. Hybrid Systems, Adaptive Neuro-Fuzzy Inference Systems, Evolutionary Neural Networks.		7
	1. Soft Computing and Intelligent Systems Design: Theory Tools and Applications, Fakhreddine O. Karray and Clarence de Silva, Pearson Education Limited	Ch2, Ch4, Ch7, Ch8	
	Fundamentals of the New Artificial Intelligence Neural, Evolutionary, Fuzzy and More, Toshinori Munakata, Springer-Verlag London Limited	Ch2, Ch3, Ch4, Ch5	
	Soft Computing New Trends and Applications, L. Fortuna, G. Rizzotto, M. Lavorgna, published by Springer-Verlag London Limited	Ch2, Ch3, Ch6, Ch9	

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Embedded Systems	1) M. Wolf, Computer as Components: Principles of Embedded Computing System Design. 3rdEdition,Morgan Kaufman Publishers 2012. ISBN 978-0-12-388436-7. 2) F. Vahid& T. Givargis, Embedded System Design. 1st Edition John Wiley 2002. ISBN 0-471-38678-2. 3) I. Scott MacKenzie, The 8051 Microcontroller. 3rd Edition Prentice-Hall. Inc. 1999. ISBN: 0-13-780008-8. 4) Z. Navabi, Embedded Core Design with FPGAs. McGraw-Hill, 2007. ISBN-13: 9780071474818 (ISBN-10: 0071474811).	What is an embedded system? Characteristics of embedded systems. Constraints of embedded systems. The categories of the embedded system core. Instruction set architectures. 8051 microcontroller's pins. Digital design using field programmable gate array.	8