

Kierunek studiów:

Field of study:

ELEKTRONIKA I TELEKOMUNIKACJA

Electronics & Telecommunications

Studia stacjonarne drugiego stopnia prowadzone w języku angielskim

Graduate studies in English

ZAGADNIENIA NA EGZAMIN DYPLOMOWY MAGISTERSKI

ISSUES AND PROBLEMS ON GRADUATION EXAM

Lp. Item	Zagadnienie Issues and problems
1.	Linear and nonlinear effects in optical channel
2.	Optical amplifier technology (EDFA) and significance for fiber optic systems
3.	WDM technology and its significance in optical systems
4.	Fiber coherent systems, modulation formats of optical carrier frequency
5.	Optical modulators and modulation formats
6.	Numerical integration procedures,
7.	Numerical differentiation procedures,
8.	Continuous numerical optimization problems
9.	Differential equations solving methods
10.	Linear prediction
11.	Adaptive filters
12.	Filter banks
13.	Rules for the implementation of confidentiality, data integrity and authentication in cryptographic systems
14.	Block and stream encryption rules
15.	Implementation of security principles in wireless systems
16.	Baseband signal processing in wireless communications
17.	Turbo codes
18.	Bit-interleaved coded modulation
19.	Radio channel models
20.	Cellular Radio Network Planning Stages
21.	Cellular Systems Modelling
22.	Application lifecycle and the related AppDelegate methods
23.	Types, role and the lifecycle of view controllers in iOS application
24.	Creating adaptive user interface using AutoLayout and size classes
25.	MVC application architecture
26.	Persistent data storage in iOS - sandboxing, file manipulations and use of Core Data
27.	Recognizing and handling gestures in iOS. Types of gestures
28.	Types and scheduling of notifications in iOS

Lp. Item	Zagadnienie Issues and problems
29.	Android application components
30.	Way of defining user interface for Android application
31.	Android application project structure in AndroidStudio
32.	Basic properties of 2G/3G/4G cellular systems
33.	Rules of operation of spread spectrum systems and CDMA
34.	Rules of operation of cellular systems
35.	MIMO systems and their basic properties
36.	Downlink and uplink transmission in LTE
37.	Multiple access methods
38.	Communication protocols
39.	Layered models of communication systems for inter- and intra-system communication
40.	Integrated services based on IP
41.	Protection and restauration in telecommunication networks
42.	Buffering in packet switching nodes
43.	Switching nodes' functions and architectures
44.	Routing in switching nodes and telecommunication networks
45.	Functions, properties and operation of switching networks (switching fabrics)
46.	The functionality of five areas of network management
47.	SNMP and NetFlow protocols
48.	Service Level Agreement
49.	Firewalls
50.	Itrusion Detection systems
51.	Security in LAN
52.	Microwave link planning
53.	Microwave network planning
54.	Radio link equipment
55.	Frequency planning and interference analysis
56.	Detection of object features in images
57.	Object classification
58.	Tracking objects in video sequences
59.	Image and video compression
60.	Audio and video quality assessment
61.	Audio signal processing and coding
62.	Gradient-based optimization methods
63.	Advanced hardware description languages (SystemVerilog, MyHDL, migen)
64.	Optimization techniques for FPGA devices
65.	Functional primitives in FPGA devices
66.	System DVB of digital television
67.	Compression of multimedia data
68.	Multimedia in internet
69.	Analysis of visual data
70.	QoS parameters in packet networks
71.	Call admission control in packet networks
72.	Traffic shaping mechanisms in packet networks

Lp. Item	Zagadnienie Issues and problems
73.	Scheduling algorithms in packet networks
74.	Buffer memory management in packet networks
75.	Flow control and congestion control in packet networks
76.	Integrated Services
77.	Differentiated Services
78.	MPLS, MPLS-TP, Carrier Ethernet
79.	Sensing in cognitive radio
80.	The idea of SDR (including USRP architecture)
81.	Cognitive Cycle
82.	Decision Making in cognitive radio
83.	Information source coding methods
84.	Error correction coding methods
85.	Concept of channel coding
86.	Channel coding classifications
87.	Finite field algebra
88.	Wireless channel path loss models
89.	Wireless channel coherence time and bandwidth: source, calculation and influence on wireless systems design