STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Traffic Control in Packet Networks**		Code **1010803111010824615**
Field of study **Communications Technologies**	Profile of study (general academic, practical) **general academic**	Year /Semester **1 / 1**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**
Cycle of study: **Doctoral studies**	Form of study (full-time,part-time) **full-time**	

No. of hours				No. of credits
Lecture: **15** Classes: **-** Laboratory: **-** Project/seminars: **-**				**2**

Status of the course in the study program (Basic, major, other) **other**	(university-wide, from another field) **university-wide**

Education areas and fields of science and art **technical sciences** 　　　　**Technical sciences**	ECTS distribution (number and %**)** **2　100%** 　　**2　100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Has a basic knowledge of network devices, packet switching and traffic control methods in packet networks
2	**Skills**	Is able to determine tasks performed by switching devices
3	**Social competencies**	Is able to independently develop his/her knowledge and discuss research topics, also in English

Assumptions and objectives of the course:

Presenting the current research problems, related to traffic control in packet networks as well with the methods of designing and analysis of traffic control mechanism.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has an advanced-level knowledge of general nature about traffic control methods in packet networks - [SD-W01]

2. Is acquainted with important unsolved problems in the area of traffic control mechanism in packet networks - [SD-W03]

3. Has a basic knowledge of scientific research methods used in traffic control doimain - [SD-W04]

Skills:

1. Is able to define the basic problem in the area of traffic control in packet networks - [SD-U01]

2. Is able to obtain and evaluate information related current research topics in the area of traffic control mechansisms - [SD-U01]

3. Is able to evaluate research methods used/proposed for solving selected problem in traffic control in packet networks - [SD-U04]

Social competencies:

1. Is able to justifiy necessisty of introducing advanced methods of traffic control in packet networks - [UD-K03]

2. Is aware of current and future changes in traffic structure in packet networks - [SD-K01]

3. Is aware of the need for continuous improvement of professional competences - [SD-K02]

Assessment methods of study outcomes

Faculty of Electronics and Telecommunications

Exam: written or oral

Course description

1. Summary of basic knowledge related to traffic control mechanisms and to differentiation of quality of service parameters in packet networks:

?Architectures of packet networks with differentiated quality of service

?Methods for description of traffic sources

?Methods for signalling required quality of service parameters

2. Current research problems in the area of resource management in packet networks

?Call Admission Control in wired and wireless networks

?Traffic shaping

?Usage paremeters control

?Current research problem in the area of modelling and designing of network resource management

3. Current research topics in the area of packet scheduling

?Packet scheduling algorithms in wired and wireless networks

?Methods for efficiency assessing of packet scheduling methods

?Current research problems in the area of modelling and designing of packet scheduling algorithms

4. Current research topics in the area of buffer memory management

?Buffer memory management algorithms in nodes of the networks with differentiated quality of service

?Methods for analysis of buffer memory management algorithms

?Current research problems in the area of modelling and designing of buffer memory management

5. Current research topics in the area of congestion control

?Mechanisms for flow control in packet networks

?Mechanism for congestion avoidance in packet networks

?Methods for analysis of flow and congestion control in packet networks

?Current research problems in the area of modelling and designing of congestion control mechanisms

6.Current research topics in the area of multi-criteria routing

?Multi-criteria routing algorithms

?Methods for designing multi-criteria routing protocols

?Methods for evaluating multi-criteria routing algorithms

?Current research problems in the area of modelling and designing of multi-criteria routing algorithms

Basic bibliography:

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Lectures	15
2. Literature search and self-study	15
3. Preparation of presentation	5
4. Consultation	5
5. Preparation to exam	10
6. Exam	2

Student's workload

Source of workload	hours	ECTS
Total workload	52	2
Contact hours	22	1
Practical activities	0	0