POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Integrated networks [N1EiT1>SZ]

Course

Field of study Electronics and Telecommunications	**Year/Semester** 3/6
Area of study (specialization) –	**Profile of study** general academic
Level of study first-cycle	**Course offered in** polish
Form of study part-time	**Requirements** elective

Number of hours

Lecture 20	**Laboratory classes** 10	**Other (e.g. online)** 0
Tutorials 0	**Projects/seminars** 0	

Number of credit points

4,00

Coordinators	Lecturers
prof. dr hab. inż. Grzegorz Danilewicz grzegorz.danilewicz@put.poznan.pl	

Prerequisites

S(he) knows the terms characterizing telecommunications and computer networks and understands the technical meaning of these terms. Can obtain information from literature, databases, and other sources in Polish or English; can integrate the obtained information, interpret it, draw conclusions, and justify opinions. S(he) can communicate in Polish or English in a professional environment. S(he) knows the limitations of his own knowledge and skills and understands the need for further training.

Course objective

Familiarizing students with the construction, functions, and principles of operation of integrated networks and the services offered in these networks. Indication of various areas and levels of integration in ICT networks.

Course-related learning outcomes

Knowledge:
1. (S)he has an ordered knowledge of the architecture and construction of integrated networks
2. (S)he has an ordered knowledge of the standards concern integrated networks
3. (S)he knows the directions of development of ICT networks

Skills:
1. (S)he can identify problems in network operation in user access to the network
2. (S)he can check the correctness of operation of network devices in user access to the network
3. (S)he can assess the usefulness of specific solutions in terms of user requirements

Social competences:
1. (S)he is aware of the importance of telecommunication networks in the functioning of society
2. (S)he knows the limitations of her/his own knowledge and skills, understands the need for further training

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Laboratories. The following components are assessed: student's knowledge before the exercise, answers to questions during the exercise, written reports on the implementation of the exercise, and written test at the end of the semester.
The final evaluation from the laboratory is the result of the component evaluations, each of which must be positive. For the component grades and for the final grade, there is a scale of grades from 2 (insufficient – negative grade) to 5 (very good).
Lecture. Knowledge is verified during a written and/or oral exam. The written exam is a 40- to 60-question test with four suggested answers. One proposed answer is correct. A correct answer is worth one point, an incorrect answer is zero points. Mastering the knowledge is sufficiently confirmed by obtaining more than 50% of the points in the exam.

Programme content

Lectures:
Specialized networks and their history, telecommunications networks, and methods of information transfer in the network. Networks of integrated services and principles of integration. Conditions for the introduction of digital networks with integrated services. ISDN networks. Reference model. Services on different networks. Modern integrated network solutions on the example of 5G network solutions. Contemporary integrated services on the example of voice transmission services in packet networks (VoIP, VoLTE, VoWiFi).
Lab:
Principle of operation of the control panel. Subscriber and internode signaling analysis. The principle of operation of commutation fields on the examples of spatial, temporal, and space-time fields.

Teaching methods

Lecture with the use of a whiteboard/projector, seminar lecture, experiment, text preparation.

Bibliography

Basic
1. W. Kabaciński, Standaryzacja w sieciach ISDN, Wydawnictwo Politechniki Poznańskiej, 2001
2. W. Kabaciński, M. Żal: Sieci Telekomunikacyjne, WKŁ, 2008.
3. G. Danilewicz, W. Kabaciński: System sygnalizacji nr 7, WKŁ, 2005.
Additional
Asymmetrical Space-Conversion-Space SCS1 Strict-Sense and Wide-Sense Nonblocking Switching Fabrics
for Continuous Multislot Connections / Grzegorz Danilewicz (WEiT) // IEEE Access - 2019, vol. 7, s. 107058-107072
Supplement to "Asymmetrical Space-Conversion Space SCS1 Strict-Sense and Wide-Sense Nonblocking Switching Fabrics for Continuous Multislot Connections" - the SCS2 Switching Fabrics Case / Grzegorz Danilewicz (WEiT) // IEEE Access - 2019, vol. 7, s. 167577-167583

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	40	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	60	2,00