

Degree class: Information Engineering		First level (three years) degree: Computer Science and Automation Engineering		Academic year: 2014 - 2015	
Type of course Characterizing	Disciplinary area: Telecommunication Engineering	Scientific Discipline Sector: Telecommunications (ING-INF/01)		ECTS Credits: 6	
Title of the course: Telecommunication Networks	Code: 2176	Type of course: Mandatory in Curriculum of TLC-Telecommunication		Year: third	Semester: second
LECTURER: Prof. Gennaro Boggia (Associate Professor)					
HOURS OF INSTRUCTION: 48 hours of theory (6 ECTS).					
PREREQUISITES: Background on signal theory and digital/analog communications.					
AIMS: Basic knowledge about telecommunication networks (both packet and circuit switching networks). Moreover, basic ability on network design and performance evaluation. In particular, to provide knowledge about networks based on TCP/IP protocol architecture.					
CONTENTS: <ul style="list-style-type: none"> - General introduction on communications networks. The ISO/OSI model. The TCP/IP protocol stack. - ARQ Data link protocol; HDLC; PPP. Multiple access protocols. - Local Area Networks and the IEEE 802 standard. - 802.3 protocol. - Wireless networks and 802.11 standard. - IP protocol and addressing. - Routing protocols: RIP, OSPF, some about BGP. - Transport layer; TCP and UDP protocols. Flow and congestion control. 					
TEACHING METHODS: Lessons using computer slides.					
EXPECTED OUTCOME AND SKILLS: Knowledge about main telecommunication networks (in particular, TCP/IP networks). Ability on protocol analysis. Ability on IP network design and configuration.					
TEACHING AIDS: Computer slides. Other information available at http://telematics.poliba.it/reti					
EXAMINATION METHOD: Oral examination.					
BIBLIOGRAPHY: A. Pattavina, Reti di Telecomunicazione, Networking e Internet, Seconda Edizione, McGraw-Hill, 2007 (in Italian)					
FURTHER BIBLIOGRAPHY: <ol style="list-style-type: none"> 1) J. F. Kurose, K. W. Ross, Computer Networking: a top-down approach, VI ed., Pearson, 2013. 2) Behrouz A. Forouzan, Data Communications and Networking, McGraw-Hill, 2012 3) J. Walrand, P. Varaiya, High-Performance Communication Networks- Second edition, Morgan Kaufmann Publishers, 2000. 4) W. R. Stevens, TCP/IP Illustrated, Volume 1, Addison-Wesley, 1994. 5) L. L. Peterson, B. S. Davie, Computer Networks, V ed., Morgan Kauffmann Pub., 2005. 6) Halsall, Computer Networking and the Internet, Addison-Wesley, 2005. 7) Comer Douglas E., Internetworking with TCP/IP, vol. 1, VI ed., Addison-Wesley, 2013. 					
FURTHER INFORMATIONS: Department of Electrical and Information Engineering (DEI), Politecnico di Bari (http://dei.poliba.it), Via Orabona 4, 70125, Bari, Italy. Lecturer room at 2th floor, DEI. E-mail: g.boggia@poliba.it ; Ph.: +39 080 5963913.					