

International class

Final year of the Professional Bachelor 's Degree
in Computer Networks and Telecommunications
specialising in Computer networks, mobility, security

Licence Professionnelle (Troisième année)
Métiers des Réseaux et Télécommunications
Parcours : Réseaux informatique, mobilité, sécurité

More information:

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COURSES	Number of hours 420 + projects	ECTS
1st SEMESTER	360	30
General courses		6
M11: Communication skills	25	2
M13: Language skills (English / Français Langue Étrangère...)	30	2
M14: Project management	30	2
Fundamental scientific and technological courses		9
M21: Computer Networks	30	2
M23: System administration	30	2
M24: Digital communications and trans. medium	40	3
M25: Network Security	30	2
Specialised Scientific and technological courses		10
M31: VOIP – real time flows	15	1
M32: Mobile Transmission systems	40	3
M33: Security of networking infrastructures	30	2
M34: Advanced Computing Networks	30	2
M35: Wireless Networks	30	2
4PT1: Academic project		5
2nd SEMESTER	60	30
M12: Introduction to Internet Legislation	20	2
M22: Database management systems	40	2
4PT2: Academic project audit		1
4ST: Industrial placement in a company or research laboratory		25
<ul style="list-style-type: none"> • 1st semester: 360 hours tuition in the (26 ECTS) + academic project or thesis (5 ECTS), • 2nd semester (option2 only) : 60 hours tuition in the 2nd semester (4 ECTS) + 2nd part of Academic project (1 ECTS) +work placement in a company/ research laboratory (25 ECTS) 		30 ECTS per semester

Reference	M11	Hours	25	ECTS	2
Name of the module (English)			Communication skills		
Name of the module (French)			Communication		
Pre-requisites		No pre-requisites			
Content of the module (English)		<p>Programme</p> <p>This course aims at learning how to use communications tools, for oral presentation, written report, and also some considerations on how to prepare an application for a job in an international context.</p> <p>It also aims to use communication skills to debate about cultural and technological issues, in oral presentation, or to resolve conflicts in different situation (using theatrical skills).</p>			
Keywords					

Reference	M13	Hours	30	ECTS	2
Name of the module (English)			French as a foreign language		
Name of the module (French)			Français Langue Etrangère		
Pre-requisites		No pre-requisites			
Content of the module (English)		<p>Objectives</p> <p>This is a basic course in French language (Français Langue Etrangère/French as a foreign language).</p> <p>The objective of this module is:</p> <ul style="list-style-type: none">- to enable students to function in French in everyday situations- to encourage students to further their knowledge of France and its culture <p>Programme</p> <p>The course will be adapted to the students' standard in spoken French.</p> <p>1°Survival French - Basic communication skills in everyday French including introductions/ description techniques etc.</p> <p>2° Talks (in English) on the French/European economic environment.</p> <p>Competences</p> <p>basic communication skills</p>			
Keywords					

Reference	M13	Hours	30	ECTS	2
Name of the module (English)			Language skills : english		
Name of the module (French)			Anglais		
Pre-requisites		No pre-requisites			
Content of the module (English)		Programme This course aims at learning how to use communications tools, for oral presentation, written report, and also some considerations on how to prepare an application for a job in an international context.			
Keywords					

Reference	M14	Hours	30	ECTS	2
Name of the module (English)			Project management		
Name of the module (French)			Gestion de projet		
Pre-requisites		No pre-requisites			
Content of the module (English)		<p>Objectives</p> <p>The purpose is to initiate students with the project management.</p> <p>Programme</p> <p>This course is also practically implemented in the academic project which should be resolved by students.</p>			
Keywords					

Reference	M21	Hours	30	ECTS	2
Name of the module (English)			Computer networks		
Name of the module (French)			Réseaux informatiques		
Pre-requisites		Binary encoding Basic computing knowledges about computers			
Content of the module (English)		Objectives Knowing the bases of computer networks technologies Programme This course deals with computer networks. Topology: bus, ring, star, meshed networks Circuit and packet switching: Connection and connectionless networks Elements of theory: Bandwidth and throughput Encapsulation: OSI model Layer 1: supports Layer 2: Ethernet and IEEE standards, MAC layer – Medium access - LLC TCP/IP: Addressing – routing – elements of dynamic routing - associated services: ICMP ARP Services: DNS, Web, mail Competences / labs: The underlying Operating System is mainly Linux. TCP/IP configuration – Elements of OS management (accounts – rights...) Domain Name Service (Bind) Web services (Apache)			
Keywords		TCP/IP, LAN, Network administration			

Reference	M23	Hours	30	ECTS	2
Name of the module (English)			System administration		
Name of the module (French)			Administration des systèmes		
Pre-requisites		No pre-requisites			
Content of the module (English)		<p>Objectives</p> <p>Being able to administrate a local network managed by Windows Active Directory in virtual environments</p> <p>Competences / labs</p> <p>Installing and managing a virtual system on a station (Virtual Box)</p> <p>Windows systems administration</p> <p>Active directory and group policies</p> <p>WDS (Windows Deployment System) and MDT (Microsoft Deployment Kit)</p> <p>Supervision with SNMP</p> <p>Administration with PowerShell (application to VMWare server supervision)</p>			
Keywords		Active Directory, GPO, MDT, WDS, SNMP, PowerShell			

Reference	M24	Hours	40	ECTS	3
Name of the module (English)			Digital communications and trans. medium		
Name of the module (French)			Communications numériques et support		
Pre-requisites		mathematical functions (log, exp,...), trigonometric functions, complex numbers			
Content of the module (English)		<p>Objectives</p> <p>To differentiate the different telecommunication systems</p> <p>To understand the different analog and digital modulations used</p> <p>To understand the transmission protocols</p> <p>To choose and implement a transmission medium</p> <p>To characterize and measure signals in time and frequency domains</p> <p>To use measurement equipment associated to different telecommunication systems</p> <p>Programme</p> <ul style="list-style-type: none">- Introduction and history of the telecommunications- Signal concept- Time to frequency relation- Signal transmission and effect of the channel transmission- Copper cable (Impedance, attenuation, reflection, bandwidth, Reflectometry ...)- Fiber optic (Principles, attenuation, bandwidth, splice, connection, Reflectometry...)- Analog amplitude modulation and demodulation- Digital modulations- Signal multiplexing and introduction to protocols (SDH, OWM, FTTx ...) <p>Competences / labs</p> <ul style="list-style-type: none">- Analog Amplitude modulation and demodulation- ASK, FSK, PSK and QAM digital modulations- Optical and electrical reflectometry, electrical and optical cable analysis- base band coding			
Keywords		Telecommunication systems, digital, analog communications			

Reference	M25	Hours	30	ECTS	2
Name of the module (English)			Network security		
Name of the module (French)			Sécurité des réseaux		
Pre-requisites		Mainly networking (intermediate or advanced level), industrial computing			
Content of the module (English)		Objectives Be able to deploy, configure and maintain security software and devices in a network architecture in its environment, contributing to a global security policy.			
		Programme 1.Error detection 2. Technologies for security 3. Security thanks to ciphering 4. Security Protocols Labs • Firewall: installation and test of a firewall (filtering and address translations) • Cryptography with OpenSSL			
Keywords		Security, Firewalls, cryptography, codes			

Reference	M31	Hours	15	ECTS	1
Name of the module (English)			VOIP – real time flows		
Name of the module (French)			VOIP et flux temps réels		
Pre-requisites		No pre-requisites			
Content of the module (English)		<p>Objectives Understanding the VOIP and real time transmissions concepts. Set-up a professional IP telephony system and an IPTV infrastructure.</p> <ul style="list-style-type: none">- understand the real-time flows constraints- understand the main protocols- know basic QOS concepts (quality de service)- know multicast flow management and routing (IPTV flows)- set-up a professional IPTV setup. <p>Programme</p> <ul style="list-style-type: none">- Corporate telephony concepts- IP adaptation to IPTV- QOS concepts- Multicast streams			
Keywords		IPTV, Multicast, QOS, VOIP			

Reference	M32	Hours	40	ECTS	3
Name of the module (English)			Mobile Transmission systems		
Name of the module (French)			Systèmes de transmissions mobiles		
Pre-requisites		No pre-requisites			
Content of the module (English)		<p>Objectives</p> <p>Understand and set-up cellular phone networks (GSM/GPRS/EDGE, UMTS, LTE), Understand the network structure and the protocol stack. To be able to operate on the maintenance, installation and management of these networks</p> <p>Programme</p> <p>Radio transmission concepts (antennas) Cellular communication introduction GSM protocol and physical layer GSM procedures Mobile Internet - GPRS/EDGE CDMA spread spectrum - OFDM 3G – UMTS and 4G – LTE introduction</p>			
Keywords		GSM, GPRS, EDGE, UMTS, CDMA, OFDM, LTE			

Reference	M33	Hours	30	ECTS	2
Name of the module (English)			Security of networking infrastructures		
Name of the module (French)			Sécurité des infrastructures		
Pre-requisites		Mainly networking (intermediate or advanced level), industrial computing, + Course M25			
Content of the module (English)		<p>Objectives</p> <p>Being able to design, maintain and audit a secure network architecture in its environment, contributing in the setting of a security policy</p> <p>Programme</p> <p>1. Introduction to dependability, principles of security (physical, exploitation, logical, application, telecommunications...)</p> <p>2. Strategies of attacks and organisms for security</p> <p>3. Strategies and policies for security</p> <p>4. Virus</p> <p>5. Intrusion detection systems</p> <p>Labs</p> <ul style="list-style-type: none">• Metasploit tools for attack• Audit, intrusion detection			
Keywords		Security, Risk analysis			

Reference	M34	Hours	30	ECTS	2
Name of the module (English)			Advanced Computing Networks		
Name of the module (French)			Réseaux informatiques avancés		
Pre-requisites		No pre-requisites			
Content of the module (English)		<p>Objectives</p> <p>Knowing how to configure some advances technologies in Computer networks</p> <p>Programme</p> <p>Dynamic routing: RIP / OSPF /BGP</p> <p>IPv6 Networks</p> <p>Filtering : Access-lists</p> <p>Cisco Networking Academy (CCNA 1-4)</p> <p>Competences / Labs</p> <p>IPv6 networks</p> <p>Dynamic routing and filtering</p>			
Keywords		Dynamic routing, ACL, RIP, OSPF, IPv6, Multicast			

Reference	M35	Hours	30	ECTS	2
Name of the module (English)			Wireless Networks		
Name of the module (French)			Réseaux sans fil		
Pre-requisites		No pre-requisites			
Content of the module (English)		<p>Objectives Being able to design and deploy a Wireless System and to design the proper security infrastructure</p> <p>Programme Physical Layer: Modulations Mac Layer: CSMA/CA Site Survey and deployment Security: Wep – 802.11i – WPA/WAP2 Elements on Mobile IP QoS</p> <p>Competences / labs Hotspot (Access Point + Radius + DBMS) 802.11i – WPA enterprise + Radius + EAP Wireless controllers</p>			
Keywords		WiFi, EAP, 802.1x, Hotspot, WiFi controllers, access-points, 802.11			

Reference	M12	Hours	20	ECTS	2
Name of the module (English)			Introduction to Internet Legislation		
Name of the module (French)			Introduction à la législation des réseaux		
Pre-requisites		No pre-requisites			
Content of the module (English)		Objectives Take into account law when designing and maintaining an information system			
		Programme civil and criminal liability: <ul style="list-style-type: none">- Communication freedom- Confidentiality- Property- Copyrights- Freeware, counterfeit, hacking Data security <ul style="list-style-type: none">- criminal liability Electronic business Digital signature Contracts			
Keywords					

Reference	M22	Hours	40	ECTS	2
Name of the module (English)			Database management systems		
Name of the module (French)			Systèmes de Gestion de Base de données		
Pre-requisites		Basic knowledge in development and/or databases			
Content of the module (English)		<p>Objectives</p> <p>Databases modelling DBMS administration and use</p> <p>Being able to</p> <ul style="list-style-type: none">- Build a model in a DBMS- Create a data BASE on a DBMS- Query and manage the DBMS- Create a simple WEB system to interact with the database. <p>Programme</p> <ul style="list-style-type: none">- Modelling and building a database (EA diagrams, integrity constraints)- SQL querying- Installing and managing the database- User access management- Web development bases (HTML)- Database access with PHP- Data security			
Keywords		DBMS, SQL, PHP, DataBases			

Reference	4PT1	Hours	20	ECTS	2
Name of the module (English)			Academic project		
Name of the module (French)			Projet tutoré		
Pre-requisites		Computer Networking and Project management skills			
Content of the module (English)		<p>Objectives</p> <p>Being able to design a middle-size network according to requirements.</p> <p>Programme</p> <p>The students will have to design a network with security aspects and a wireless extension, to implement it, and be audited by another group of students.</p> <p>This work is achieved as teams of 6 to 8 students, the students will have to organise themselves and take opportunity of the course on "project management".</p> <p>Some meetings with the teachers will be organised to validate the advancements of works.</p>			
Keywords					

Reference	4PT2	Hours		ECTS	1
Name of the module (English)			Academic project audit		
Name of the module (French)			Projet tutoré : audit		
Pre-requisites		Networking, operating systems, wireless networks, security audit			
Content of the module (English)		<p>Objectives</p> <p>Being able to identify the main characteristics of a network and to analyse the main security parameters.</p> <p>Programme</p> <p>This module concerns the security audit of a network designed by another group of students during academic projects, using vulnerabilities tools and analysing the provided documentation.</p>			
Keywords					

Reference	5ST	Hours	ECTS	1
Name of the module (English)			Industrial placement in a company or research laboratory	
Name of the module (French)			Stage	
Pre-requisites	No pre-requisites			
Content of the module (English)	<p>Objectives</p> <p>The purpose is to get a professional experience, and an opportunity to apply the knowledge and know-how (competences) acquired during the courses, on a practical situation.</p> <p>In company, the training period could ideally be connected as a part of a project, or several projects. It can also be a participation in the everyday life of the company, if the student can get new competences from this experiment.</p> <p>Programme</p> <p>A teacher is responsible for the contact with the company (one visit during the training period, or one phone call if the student is very far from Grenoble).</p> <p>Some opportunities are proposed all around Europe, and sometimes outside Europe, for students in the international programme.</p>			
Keywords				

How to apply ?

If you are interested by our course for the 2017-2018 academic year, you need to provide :

The [application form](#), duly completed

A cover letter explaining your motivations for the content of the course (describing also your present competences in the field of networking/telecommunications and in operating systems)

Documents attesting your results, certified copies of results and diploma.

A document attesting your level in English (for example TOEIC, or TOEFL or BULATS ...)

A copy of your passport.

Please send all these documents to : denis.lubineau@univ-grenoble-alpes.fr

Application deadline: the last date for the documents to be received in Grenoble is Friday 8th May 2016 for 2016-2017 Academic year.

The admission jury will meet within two weeks after this date and you can ask for feedback by e-mail to me around 1st June 2016. If you are selected you will be required to provide certified copies of your official documents (in English or in French).

COMPLEMENTARY PROCEDURE

From 30 th June to September 1st :

Complementary Procedure and admissions : A few places are still available.

Please contact Denis Lubineau, denis.lubineau@univ-grenoble-alpes.fr

Practical information

Coming to study in Grenoble?

ISSO - International Students and Scholars Office de l'Université de Grenoble

This office welcomes and helps international students planning to come to Grenoble, or those who have just arrived. People there will help you out with accommodation, visa and residence permits, everyday life (banking, health, transports).

ISSO is open Mondays to Fridays, 9am -5 pm :

Service Accueil International - ISSO

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Domaine universitaire

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To get there, get off the tram (lines B or C) at "Bibliothèques universitaires" station : the office is right on the other side!

If you have any question, visit their [website](#) or contact them: isso@univ-grenoble-alpes.fr

We selected for you the most useful documents and web pages below. Please note that the website covers information about Grenoble, but also Valence, Chambéry, and Annecy.