

Course of Study in  
**"Psychological sciences of human resources,  
of organisations and enterprises" - [L-24].**  
a.y. 2021/2022

**SUBJECT**  
**Information Technology**

SDS INF/01 - 6 ECT  
III YEAR; II SEMESTER

Lecturer: Prof. **Rosario Catelli**  
Disciplinary tutor: **Dr. Roberta Sodano**

<p><b>Qualification and scientific background of the teacher</b></p>	<p>PhD in Computer Engineering.  Post-doctoral Research Fellow at the Institute of High Performance Computing and Networking (ICAR) of the National Research Council (NRC).  Lecturer in the course "Big Data Processing" (SDS ING-INF/05) at the University of Naples Federico II.</p>
<p><b>Description of contents and subdivision of the programme into teaching modules</b></p>	<p><b>TABLE AND DEFINITION OF CONTENTS</b></p> <p>The course consists of <b>2 modules</b> and covers the following topics.</p> <ul style="list-style-type: none"> <li>➤ <b>Module 1 - Fundamentals of IT and Computer Networking</b> <ul style="list-style-type: none"> <li>▪ Understanding how the binary system works.</li> <li>▪ Assembling a computer from scratch.</li> <li>▪ Choosing and installing an operating system on a computer.</li> <li>▪ Understanding what the Internet is, how it works and the impact it has in the modern world.</li> <li>▪ Learn how applications are created and how they work under the cover of a computer.</li> <li>▪ To use common problem-solving methodologies and soft skills in an IT environment.</li> <li>▪ To describe computer networks in terms of a five-layer model.</li> <li>▪ To understand all standard protocols involved in TCP/IP communications.</li> <li>▪ To understand powerful network troubleshooting tools and techniques.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>▪ To learn about network services such as DNS and DHCP that help make computer networks work.</li> <li>▪ Understanding cloud computing, everything as a service, and cloud storage.</li> </ul> <p>➤ <b>Module 2 - Operating systems and infrastructure and IT security</b></p> <ul style="list-style-type: none"> <li>▪ Surfing in Windows and Linux filesystems using a graphical interface and a command line interpreter.</li> <li>▪ To set users, groups and permissions for account access.</li> <li>▪ To install, configure and remove software on Windows and Linux operating systems.</li> <li>▪ To configure disk partitions and filesystems.</li> <li>▪ Understanding how system processes work and how to manage them.</li> <li>▪ Working with system logs and remote connection tools.</li> <li>▪ To use knowledge of the operating system to solve common problems.</li> <li>▪ To use best practices when choosing hardware, suppliers and services for your organisation.</li> <li>▪ Understanding how the most common infrastructure services that maintain an organisation work.</li> <li>▪ Operation of an organisation and how to manage the infrastructure servers.</li> <li>▪ To understand how to make the most of the cloud for your organisation.</li> <li>▪ To manage an organisation's computers and users using directory services, Active Directory and OpenLDAP.</li> <li>▪ To choose and manage the tools your organisation will use.</li> <li>▪ Backing up the organisation's data and knowing how to recover the IT infrastructure in the event of a disaster.</li> <li>▪ To use knowledge of systems administration to plan and improve processes in IT environments. <ul style="list-style-type: none"> <li>▪ how the various cryptographic algorithms and techniques work and their benefits and limitations.</li> <li>▪ The various systems and types of authentication.</li> <li>▪ The difference between authentication and authorisation.</li> <li>▪ How to assess potential risks and recommend ways to reduce risks.</li> </ul> </li> <li>▪ Best practices for securing a network.</li> <li>▪ How to help others understand the concepts of safety and how to protect themselves.</li> </ul>
<b>Abstract</b>	<b>Module 1</b> aims to acquire the necessary skills to manage Information Technology (IT) tools: assembly of a Personal Computer (PC), wireless networking, installation of programmes, and so on.

	<p><b>Module 2</b>, on the other hand, aims to teach how to manage these tools in an end-to-end manner, starting from the identification of problems through to their resolution and debugging, using tools such as Linux, Domain Name Systems, Command-Line Interface and Binary Code, with a focus on the indispensable IT security aspects.</p>
<b>Learning objectives</b>	<p>Module 1 proposes to acquire the necessary skills to manage Information Technology (IT) tools: assembly of a Personal Computer (PC), wireless networking, installation of programmes, etc.</p> <p>Module 2, on the other hand, aims to teach how to manage these tools in an end-to-end manner, starting from the identification of problems through to their resolution and debugging, using tools such as Linux, Domain Name Systems, Command-Line Interface and Binary Code, with a focus on the indispensable aspects of IT security.</p>
<b>Expected learning outcomes</b>	<ul style="list-style-type: none"> <li><b>A.</b> Knowledge and understanding of the IT world and its specificities</li> <li><b>B.</b> Applied knowledge and understanding of IT tools</li> <li><b>C.</b> Autonomy of judgement with regard to the choice of suitable tools for solving typical IT problems</li> <li><b>D.</b> Communication skills using the correct terminology in order to communicate properly with different stakeholders</li> <li><b>E.</b> Learning skills aimed at demonstrating flexibility in the use of constantly changing and updated operating environments and tools.</li> </ul>
<b>Skills to be acquired</b>	<p><b>EXPECTED RESULTS</b></p> <ul style="list-style-type: none"> <li><b>A.</b> Use of advanced textbooks, knowledge of some cutting-edge topics within the subject studied. But above all, the ability to exploit the Internet and the resources made available.</li> <li><b>B.</b> A professional approach to work and possession of appropriate skills to devise arguments, support them and solve problems within the subject studied. Ability to collect and interpret data to make independent judgements. Flexibility in the use of different tools depending on the computer platform used.</li> </ul>

	<p><b>C.</b> Ability to communicate information, ideas, problems and solutions to specialists and non-specialists. In particular, use of the correct terminology in order to be able to communicate correctly with the different stakeholders.</p> <p><b>D.</b> Ability to undertake further studies with a high degree of autonomy. Ability to use what has been learned in different contexts, independently and with knowledge.</p>
<b>Didactics organisation</b>	<p><b>DIDACTICS PROVISION</b></p> <ul style="list-style-type: none"> <li>➤ 6 hours of recorded video lessons available on the platform.</li> <li>➤ 2 synchronous meetings on the platform.</li> <li>➤ Podcasts of all the above-mentioned video lessons.</li> </ul> <p><b>INTERACTIVE DIDACTICS</b></p> <ul style="list-style-type: none"> <li>➤ 1 course orientation forum.</li> <li>➤ 2 thematic follow-up forums (1 per module).</li> <li>➤ Possibility to carry out work in groups.</li> <li>➤ 2 structured <i>e-activities</i> (as described in the section "<i>in itinere assessment methods</i>").</li> </ul> <p><b>SELF-LEARNING</b></p> <p>Teaching materials are provided for each module: in-depth thematic studies, articles and slides by the lecturer, open access readings, online resources, reference bibliography, etc.</p>
<b>Recommended examination texts</b>	Material provided by the lecturer.
<b>In itinere assessment methods</b>	<p>Access to the final examination is subject to the following <b>2 e-activities</b>:</p> <ul style="list-style-type: none"> <li>- <b>Etivity 1</b> - Problem solving (Module 1)</li> <li>- <b>Etivity 2</b> - Problem solving (Module 2)</li> </ul>
<b>Procedure for the final examination</b>	<p>The assessment of learning will take the form of an oral interview on the course contents and on the final report submitted, if any. The grade (min 18, max 30 with possible honours) is determined by the level of performance for each of the following dimensions of the oral interview: mastery of contents, appropriateness of definitions and theoretical references, clarity of argument, command of specialist language.</p>

Language of instruction	Italian
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