

## SYLLABUS

### 1. Data about the program of study

1.1 Institution	Technical University of Cluj-Napoca
1.2 Faculty	Faculty of Electronics, Telecommunications and information Technology
1.3 Department	Applied Electronics
1.4 Field of study	Electronic Engineering, Telecommunications and Information Technologies
1.5 Cycle of study	Bachelor of Science
1.6 Program of study / Qualification	Applied Electronics / Engineer
1.7 Form of education	Full time
1.8 Subject code	6.00

### 2. Data about the subject

2.1 Subject name	Applied Informatics		
2.2 Subject area	Theoretical area Methodological area Analytic area		
2.3 Course responsible	Assist. Prof. Jano Rajmond, PhD Eng. <a href="mailto:Rajmond.Jano@ael.utcluj.ro">Rajmond.Jano@ael.utcluj.ro</a>		
2.4 Teacher in charge with seminar / laboratory / project	Assist. Prof. Jano Rajmond, PhD Eng. <a href="mailto:Rajmond.Jano@ael.utcluj.ro">Rajmond.Jano@ael.utcluj.ro</a> Eng. Ilies Adelina Ioana, PhD Stud. <a href="mailto:Adelina.Ilies@ael.utcluj.ro">Adelina.Ilies@ael.utcluj.ro</a>		
2.5 Year of study	I	2.6 Semester	1
2.7 Assessment	V	2.8 Subject category	DF/DI

### 3. Estimated total time

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 seminar / laboratory	2
3.4 To Total hours in the curriculum	125	of which: 3.5 course	28	3.6 seminar / laboratory	28
Distribution of time					hours
Manual, lecture material and notes, bibliography					28
Supplementary study in the library, online specialized platforms and in the field					28
Preparation for seminars / laboratories, homework, reports, portfolios and essays					7
Tutoring					2
Exams and tests					4
Other activities: .....					-
3.7 Total hours of individual study	69				
3.8 Total hours per semester	125				
3.9 Number of credit points	5				

### 4. Pre-requisites (where appropriate)

4.1 curriculum	
4.2 competence	- Basic principles of computer operation - Basic principles of text editing in dedicated applications

### 5. Requirements (where appropriate)

5.1. for the course	Amphitheatre, Cluj-Napoca
5.2. for the seminars / laboratories / projects	Laboratory, Cluj-Napoca

### 6. Specific competences

Professional competences	<p>C4. Design and use of low complexity hardware and software applications specific to the applied electronics</p> <ul style="list-style-type: none"> <li>• C4.1 Defining the concepts, principles and methods used in the fields: computer programming, high-level and specific languages, CAD techniques for making electronic modules, microcontrollers, computer systems architecture, programmable electronic systems, graphics, reconfigurable hardware architectures</li> <li>• C4.4 Use of appropriate performance criteria for the evaluation, including by simulation, of hardware and software of dedicated systems or of service activities in which microcontrollers or computing systems of reduced or medium complexity are used</li> </ul> <p>C6. Solving technological problems in the fields of applied electronics</p> <ul style="list-style-type: none"> <li>• C6.1 Defining the principles and methods underlying the manufacture, adjustment, testing and troubleshooting of the appliances and equipment in the fields of applied electronics</li> <li>• C6.2 Explaining and interpreting the production processes and maintenance activities of the electronic equipment, identifying the test points and the electrical quantities to be measured</li> </ul>
Cross competences	N.A.

### 7. Discipline objectives (as results from the key competences gained)

7.1 General objective	Development of competences in the field of the use of computers as productivity tools in the field of engineering
7.2 Specific objectives	<ol style="list-style-type: none"> <li>1. Assimilation of theoretical knowledge regarding operation and troubleshooting of computers</li> <li>2. Obtaining the skills for creating documents with a professional aspect and processing and presenting the data obtained from experimental results using the computer</li> </ol>

### 8. Contents

8.1 Lecture (syllabus)	Teaching methods	Notes
Software concepts. The structure and functioning of an operating system. Disk partitioning. Choosing and installing the operating system. Initial configurations. Troubleshoot problems during installation.	Presentation. Discussions	Projector

Introduction to Microsoft Word 365. Formatting characters. Formatting paragraphs. Sections. Headers and footers.		
Advanced formatting techniques in Microsoft Word 365. Styles. Multilevel lists. Tables. Insert photos. References and bibliography.		
Advanced productivity techniques in Microsoft Word. Working with Office Clipboard. Editing equations. Table of contents. Final revision and formatting.		
Advanced data processing techniques in Microsoft Excel. Data entry and autocomplete. Formatting cells. Use of formulas. Tables, sorting and filtering. Data validation.		
Advanced data representation techniques in Microsoft Excel 365. Conditional formatting. Graphics.		
Information presentation techniques using Microsoft PowerPoint 365. Guide for oral presentations. Animations. Templates and slide master.		
Other utilities in the Microsoft Office 365 suite. Microsoft Visio, Outlook, OneNote.		
Online resources. Data storage on the cloud. Online applications Microsoft Office WebApps and Google Docs.		
Collecting and processing opinions. Creating opinion studies. Using the Google Forms utility.		
Networking concepts. Types of networks. Common equipment for creating and managing computer networks. Creating and configuring a local network.		
Data transmission. Safety concepts in computer networks.		
<b>Bibliography</b> <ol style="list-style-type: none"> <li>1. S. M. Freund, M. Z. Last, P. J. Pratt, et al, „Discovering Computers &amp; Microsoft Office 365 Office 2016 – A Fundamental Combined Approach”, ~2017, Cengage Learning, ISBN 978-1-305-87180-9</li> <li>2. J. Walkenbach, „Microsoft Excel 2016 Bible”, 2016, Wiley, ISBN 978-1-119-06751-1</li> <li>3. R. Tidrwo, J. Boyce, J. Shapiro, „Windows 10 Anniversary Update Bible”, 2017, Wiley, ISBN 978-1-119-35633-2</li> </ol>		
<b>8.2 Seminar / laboratory / project</b>	<b>Teaching methods</b>	<b>Notes</b>
Introduction of laboratory equipment. Use of computer systems. Writing formal emails.	Presentation. Discussions	Computer, Microsoft Office 365 suite, browser
Disassembly, maintenance, troubleshooting and reassembly of a computer system.		
Application of thermal paste to the processor.		

Installing the Microsoft Windows 7/10 operating system. Hard disk partitioning. Initial configuration of the operating system.		
Advanced Microsoft Word formatting techniques. Character level formatting. Formatting at paragraph level.		
Advanced Microsoft Word formatting techniques. Document level formatting. Tables and pictures.		
Advanced Microsoft Word formatting techniques. Defining and modifying some styles. Working with headers and footers. Generation of bibliography and table of contents.		
Advanced techniques for data collection, processing and representation in Microsoft Excel 365. Data entry. Formulas and graphs.		
Questions and exercises. Assessment of knowledge.		
Advanced techniques for data collection, processing and representation in Microsoft Excel. Conditional formatting.		
Advanced techniques for data collection, processing and representation in Microsoft Excel. Graphic representations.		
Questions and exercises. Assessment of knowledge.		
Create an oral presentation on Microsoft PowerPoint support.		
Use of Google Forms to create an online opinion study, collate, interpret and represent the results received.		
Creating and configuring a local computer network and configuring the necessary equipment: switch, router, modem.		
Questions and exercises. Assessment of knowledge.		
<p><b>Bibliography</b></p> <ol style="list-style-type: none"> <li>1. S. M. Freund, M. Z. Last, P. J. Pratt, et al, „Discovering Computers &amp; Microsoft Office 365 Office 2016 – A Fundamental Combined Approach”, –2017, Cengage Learning, ISBN 978-1-305-87180-9</li> <li>2. J. Walkenbach, „Microsoft Excel 2016 Bible”, 2016, Wiley, ISBN 978-1-119-06751-1</li> <li>3. R. Tidrwo, J. Boyce, J. Shapiro, „Windows 10 Anniversary Update Bible”, 2017, Wiley, ISBN 978-1-119-35633-2</li> </ol>		

**9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field**

The discipline content and the acquired skills are in agreement with the expectations of the professional organizations and the employers in the field, where the students carry out the internship stages and/or occupy a job (in the field of Applied Informatics), and the expectations of the national organization for quality assurance (ARACIS).

### 10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	The level of acquired theoretical knowledge and practical skills	Evaluation during the semester (written and practical)	20%
10.5 Seminar/ Laboratory	The level of acquired knowledge and abilities	Two evaluations during the semester (written and practical)	40% 40%
10.6 Minimum standard of performance			
<b>Quality level:</b> Minimum knowledge: <ul style="list-style-type: none"> <li>✓ Knowledge of advanced formatting techniques in Microsoft Office</li> <li>✓ Knowledge of networking concepts, types of networks</li> <li>✓ Knowledge of data transmission, safety concepts in computer networks</li> </ul> Minimum competences: <ul style="list-style-type: none"> <li>✓ Troubleshoot the hardware problems of a computer system (PC)</li> <li>✓ Troubleshoot software problems of a computer system (PC)</li> <li>✓ Install and configure the necessary hardware for creation of a simple local area network (LAN): modem, switch, router</li> </ul> <b>Quantitative level:</b> <ul style="list-style-type: none"> <li>✓ Perform all laboratory work</li> <li>✓ The exam and laboratory marks must be at least 5</li> </ul>			

Date of filling in:	Responsible	Title Surname NAME	Signature
21.06.2024	Course	Assist. Prof. Jano Rajmond, PhD eng.	
	Applications	Assist. Prof. Jano Rajmond, PhD eng.	
		Eng. Ilies Adelina Ioana, PhD Stud.	

Date of approval in the Department of Applied Electronics 28.06.2024	Head of Department Prof. Dorin PETREUS, PhD Eng.
Date of approval in the Council of Faculty of Electronics, Telecommunications and Information Technology 11.07.2024	Dean Prof. Ovidiu Aurel POP, PhD Eng.