INSTITUTO POLITÉCNICO DE BRAGANÇA

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| Course Unit | Multimedia Systems | | | | | Field of study | Computer Science | | | | | | | | |
| Bachelor in | Multimedia | | | | | School | School of Public Management, Communication and Tourism | | | | | | | | |
| Academic Year | 2021/2022 | Year of study | 1 | | | Level | 1-1 | ECTS credits | 6.0 | | | | | | |
| Type | Semestral | Semester | 2 | | | Code | 9213-656-1205-00-21 | | | | | | | | |
| Workload (hours) | 162 | Contact hours | T | - | TP 60 | PL | - | TC | - | S | - | E | - | OT | - | O | - |

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s): Joao Miguel Pinto Candeias

## Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Know the main elements of a computer system and its importance in the production and visualization of multimedia contents.
2. Know different types of equipment used in multimedia systems.
3. Use a computer system and optimize it according to the requirements.
4. Know different choices for data storage and to know how to ensure its integrity and availability.
5. Understand the functioning of communication networks.
6. Know the main applications and network protocols in multimedia systems.
7. Know the requirements of acommunication network for multimedia content distribution and to know the performance issues to avoid.
8. Know how to choose the right hardware components for a multimedia system.

## Prerequisites

Not applicable

## Course contents

1. Computer systems 2. Operating systems 3. Data storage 4. Communication systems 5. Multimedia application requirements 6. Multimedia systems

## Course contents (extended version)

1. Computer systems
   - Internal components
   - Capture devices
   - Display devices
   - Workstations
   - Servers
   - Mobile devices
   - IoT systems
   - Cloud computing
   - Emerging technologies
2. Operating systems
   - Types of operating systems
   - Graphic interface
   - Command Line
   - Tools
   - Maintenance and optimization
   - Virtualization
3. Data storage
   - File systems
   - Local storage
   - Remote storage
   - NAS
   - Redundancy and backups
4. Communication systems
   - The Internet
   - Communication protocols
   - Local area networking technologies
   - Internet access technologies
   - Wireless communications
   - Network applications and services
5. Multimedia application requirements
   - Types of applications
   - Performance metrics
   - Quality of Service and Experience
   - Requirements in development and distribution
   - Hardware requirements
   - Network requirements
6. Multimedia systems
   - Multimedia definition and other associated terms.
   - . Representation of the information
   - Static and dynamic media types

## Recommended reading


1. Andrews, J. , Dark, J. , & West, J. (2015). CompTIA A+ guide to IT technical support (9th ed. ). Cengage Learning. ISBN-13: 978-1305266438
2. EMC. (2012). Information Storage and Management (2nd ed. ). John Wiley & Sons. ISBN-13: 978-1118094839
3. Hwang, J. (2009). Multimedia networking: From Theory to Practice (2nd ed. ). Cambridge: Cambridge University Press. ISBN-13: 978-0521882040
4. Möller, S. , & Raake, A. (2014). Quality of experience: Advanced concepts, applications and methods (14th ed. ). Cham: Springer International Publishing. ISBN-13: 978-3319026800
5. Ribeiro, N. (2004). Multimédia e Tecnologias Interactivas. FCA - Editora de Informática, . ISBN-972-722-415-6


## Teaching and learning methods

In order to stimulate the teaching-learning process, several strategies will be used aiming active learning. Task-based learning and group activities will be

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## Teaching and learning methods

complemented by frequent quizzes and discussions, and interleaved with small periods of interactive lecturing in contact hours. Computer labs, vídeos, simulators and e-learning platforms will be used.

## Assessment methods

1. Distributed assessment - (Regular, Student Worker) (Final)
   - Intermediate Written Test - 30%
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   - Practical Work - 40%
2. Alternative assessment - (Regular, Student Worker) (Supplementary, Special)
   - Final Written Exam - 100%
3. Erasmus students - (Regular, Student Worker) (Final, Supplementary, Special)
   - Final Written Exam - 100%

## Language of instruction

Portuguese

## Electronic validation

| Joao Miguel Pinto Candeias | Ana Lucia Jesus Pinto | Elisabete da Anunciacao Paulo Morais | Luisa Margarida Barata Lopes |
|---|---|---|---|
| 25-03-2022 | 27-04-2022 | 27-04-2022 | 04-05-2022 |

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