

## First Academic year – 1<sup>st</sup> Term

### PROGRAMMING FUNDAMENTALS I

Professor(s):

**Jesús Serrano Guerrero** (jesus.serrano@uclm.es)

**Building:** Fermín Caballero (ESI) **Room:** 2.05

Syllabus:

1. Elements of Programming and Languages
2. Introduction to Programming
3. Structured and modular Programming
4. Data structures
5. Recursion

### PHYSICS FOR COMPUTER SCIENCE ENGINEERING

Professor(s):

**Peter S. Normile** (peter.normile@uclm.es)

**Building:** Fermín Caballero (ESI) **Room:** 2.02

Syllabus:

1. Electric field and potential.
2. Electrostatics in conductors & dielectrics. Capacitors.
3. Electric current and direct current (dc) circuits.
4. Magnetic field and its source.
5. Magnetic properties of materials.
6. Electromagnetic induction.
7. Alternating current & theory of electric circuits.
8. Waves and information transfer.
9. Electrical conduction in semiconductors. Semiconductor devices.

## COMPUTER TECHNOLOGY

Professor(s):

<b>Antonio Adán Oliver</b> (antonio.adan@uclm.es)
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<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> A1.6
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Syllabus:

1. Introduction to Digital Circuits
2. Number systems and Representation of Information
3. Representation of integers
4. Logic Functions
5. Boolean Algebra
6. Combinational circuits (I). Gates
7. Combinational circuits (II). Modules & Modular Networks
8. Sequential Circuits (I): Flip-flops
9. Sequential Circuits (II): Analysis and Synthesis
10. Sequential Circuits (III): Registers and Counters
11. Combinational Circuits (III). Arithmetic & Logic Circuits

## First Academic year – 2<sup>nd</sup> Term

### PROGRAMMING FUNDAMENTALS II

Professor(s):

<b>Jesús Serrano Guerrero</b> (jesus.serrano@uclm.es)
<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> 2.05
<b>Aurora Vizcaíno Barceló</b> (aurora.vizcaino@uclm.es)
<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> 3.18

Syllabus:

1. Object Oriented Programming
2. Inheritance and Polymorphism
3. Exceptions
4. Event-driven Programming

### COMPUTER NETWORKS I

Professor(s):

<b>Fernando Rincón Calle</b> (fernando.rincon@uclm.es)
<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> 3.03

Syllabus:

1. Introduction to Computer Networks
2. Applications and services
3. TCP/IP Transport layer
4. Network technologies
5. Internet, IP protocol
6. IP addressing
7. Routing
8. Transmission media

**ALGEBRA AND DISCRETE MATHEMATICS**

Professor(s):

<b>José Ángel Martín Baos</b> (JoseAngel.Martin@uclm.es)
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<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> 1.10
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Syllabus:

1. Sets, relations and functions
2. Combinatorics
3. Arithmetic
4. Graph theory
5. Introduction to linear algebra

## Second Academic year – 1<sup>st</sup> Term

### DATA STRUCTURES

Professor(s):

<b>Jesús Fontecha Diezma</b> (Jesus.Fontecha@uclm.es)
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<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> Mod.A0.01
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Syllabus:

1. General concepts
2. Stacks
3. Queues
4. Lists
5. Trees
6. Graphs

### OPERATING SYSTEMS I

Professor(s):

<b>Ramón Hervás Lucas</b> (ramon.hlucas@uclm.es)
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<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> A0.01 (Maml Lab)
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Syllabus:

1. Introduction to Operating Systems
2. File Systems
3. Process Management
4. Main Memory Management
5. Input/Output Management

## Second Academic year – 2<sup>nd</sup> Term

### STATISTICS

Professor(s):

<b>Juan José Muñoz Muñoz</b> ( <a href="mailto:JuanJose.MunozMunoz@uclm.es">JuanJose.MunozMunoz@uclm.es</a> )
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<b>Building:</b> Politécnico (Industriales) <b>Room:</b> 2-B14
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<b>Víctor M. Casero Alonso</b> ( <a href="mailto:victormanuel.casero@uclm.es">victormanuel.casero@uclm.es</a> )
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<b>José Luis Espinosa Aranda</b> ( <a href="mailto:JoseL.Espinosa@uclm.es">JoseL.Espinosa@uclm.es</a> )
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<b>Building:</b> Politécnico (Industriales) <b>Room:</b> 2-A 15 (Victor) y Lab. 1.09.2 (Jose L.)
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Syllabus:

1. Introduction to Statistics.
2. Descriptive Statistics.
3. Introduction to Probability
4. Random Variables and Probability Distributions
5. Statistical Inference

### PROGRAMMING METHODOLOGY

Professor(s):

<b>Jesús Fontecha Diezma</b> ( <a href="mailto:Jesus.Fontecha@uclm.es">Jesus.Fontecha@uclm.es</a> )
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<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> Mod.A0.01
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Syllabus:

1. Analysis of algorithms
2. Divide and conquer algorithms
3. Graph algorithms
4. Greedy algorithms
5. Backtracking algorithms

**CONCURRENT AND REAL-TIME PROGRAMMING**

Professor(s):

**David Vallejo Fernández** ([david.vallejo@uclm.es](mailto:david.vallejo@uclm.es))**Javier Alonso Albusac Jiménez** ([javieralonso.albusac@uclm.es](mailto:javieralonso.albusac@uclm.es))**Building:** Fermín Caballero (ESI) **Room:** 2.01 (David) y 2.04 (Javier)

Syllabus:

1. Basic Concepts
2. Semaphores and Shared Memory
3. Message Passing
4. Other Methods of Synchronization
5. Scheduling Real-Time Systems
6. Reliability and Fault Tolerance

**DATABASES**

Professor(s):

**José A. Cruz Lemus** ([joseantonio.cruz@uclm.es](mailto:joseantonio.cruz@uclm.es))**Building:** Fermín Caballero (ESI) **Room:** 3.21

Syllabus:

1. Introduction to databases.
2. Data models
3. Relational model
4. Structured Query Language (SQL)

## Third Academic year – 1<sup>st</sup> Term

### COMPUTER ARCHITECTURE

Professor(s):

**Fernando Rincón Calle** ([fernando.rincon@uclm.es](mailto:fernando.rincon@uclm.es))

**Building:** Fermín Caballero (ESI) **Room:** 3.03

Syllabus:

1. Introduction to Computer Architecture and Programming Models
2. Computer Architecture and Software Performance
3. Introduction to ILP Processors
4. Static Scheduling in ILP Processors
5. Superscalar and VLIW Processors
6. Dynamic Scheduling in ILP Processors

### INTELLIGENT SYSTEMS

Professor(s):

**Luis Rodríguez Benítez** ([luis.rodriguez@uclm.es](mailto:luis.rodriguez@uclm.es))

**Building:** Fermín Caballero (ESI) **Room:** 2.05

Syllabus:

1. Introduction
2. Problem solving and search
3. Constraint satisfaction problems
4. Adversarial search
5. Planning
6. Knowledge based systems



**SOFTWARE ENGINEERING II**

Professor(s):

**Ismael Caballero Muñoz-Reja** (ismael.caballero@uclm.es)

**Building:** Fermín Caballero (ESI) **Room:** 2.16

Syllabus:

1. Software Development Processes and Methodologies
2. Software Quality Management
3. Configuration Management
4. Testing Management
5. Maintenance Management

## Fourth Academic year – 1<sup>st</sup> Term

### TECHNIQUES OF MACHINE LEARNING

Professor(s):

**Francisco P. Romero Chicharro** ([franciscop.romero@uclm.es](mailto:franciscop.romero@uclm.es))

**Building:** Fermín Caballero (ESI) **Room:** 2.19

Syllabus:

1. Introduction to Machine Learning
2. Unsupervised Learning
3. Supervised Learning
4. Reinforcement Learning
5. Projects of Machine Learning

## Fourth Academic year – 2<sup>nd</sup> Term

### COMPUTER GRAPHICS

Professor(s):

**Carlos González Morcillo** (carlos.gonzalez@uclm.es)

**Building:** Fermín Caballero (ESI) **Room:** 2.01

Syllabus:

1. Introduction
2. Fundamentals
3. Modeling
4. Logic Bricks
5. Scripting
6. Materials and Textures
7. Animation

### INFORMATION SYSTEMS AUDITING

Professor(s):

**Ignacio García Rodríguez de Guzmán** (ignacio.grodriguez@uclm.es)

**Building:** Fermín Caballero (ESI) **Room:** 3.26

Syllabus:

1. Information Systems Auditing: Introduction and basic concepts
2. Internal Control
3. Evaluation, Internal Control and Evaluation Methodologies
4. Review Areas
5. Legal concerns and regulations for information systems auditing
6. Auditing tools

## WEB SYSTEMS DEVELOPMENT

Professor(s):

<b>Manuel A. Serrano Martín</b> (manuel.serrano@uclm.es)
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<b>Building:</b> Fermín Caballero (ESI) <b>Room:</b> 3.11
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Syllabus:

1. Architectures and Web Platforms
2. Languages for Websystems
3. Web Engineering and Methodologies for Web Systems Development