# [MMF104] MODELLING AND SIMULATION

## GENERAL INFORMATION

| | | | | | |
|---|---|---|---|---|---|
| **Studies** | MASTER'S DEGREE IN BIOMEDICAL TECHNOLOGIES | | | **Subject** | ? |
| **Semester** | 1 | **Course** | 2 | **Mention / Field of specialisation** | |
| **Character** | OPTIONAL | | | | |
| **Plan** | 2023 | **Modality** | Face-to-face | **Language** | EUSKARA/CASTELLANO |
| **Credits** | 3 | **Hours/week** | 2.83 | **Total hours** | 51 class hours + 24 non-class hours = **75 total hours** |

## PROFESSORS

*(No professor appointed)*

## REQUIRED PREVIOUS KNOWLEDGE

| Subjects | Knowledge |
|---|---|
| *(No specific previous subjects required)* | *(No previous knowledge required)* |

## LEARNING RESULTS

| LEARNING RESULTS | KC | SK | AB | ECTS |
|---|---|---|---|---|
| **MMRA19** - Constructing biomedical signal processing algorithms for diagnosis and prognosis in the healthcare field | | x | | 1,5 |
| **MMR126** - To apply the knowledge acquired and your problem-solving skills in new, little-known or changing environments within broader (or multidisciplinary) contexts related to your area of study | | x | | 1,5 |
| | | | **Total:** | 3 |

*KC: Knowledge or Content / SK: Skills / AB: Abilities*

## SECONDARY LEARNING RESULTS

**RMM311** **[!]** ***Demostrar capacidad para la gestión de la Investigación, Desarrollo e Innovación tecnológica***

| LEARNING ACTIVITIES | CH | NCH | TH |
|---|---|---|---|
| Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams | 8,5 h. | 8 h. | 16,5 h. |
| Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects | 12 h. | | 12 h. |
| Carrying out exercises and solving problems individually and/or in teams | 5 h. | 4 h. | 9 h. |

| EVALUATION SYSTEM | W | MAKE-UP MECHANISMS |
|---|---|---|
| Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems | 100% | Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems |

**CH - Class hours:** 25,5 h.
**NCH - Non-class hours:** 12 h.
**TH - Total hours:** 37,5 h.

**RMM312** **[!]** ***Poseer y comprender conocimientos que aporten una base u oportunidad de ser originales en el desarrollo y/o aplicación de ideas, a menudo en un contexto de investigación***

| LEARNING ACTIVITIES | CH | NCH | TH |
|---|---|---|---|
| Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams | 8,5 h. | 8 h. | 16,5 h. |
| Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects | 12 h. | | 12 h. |
| Carrying out exercises and solving problems individually and/or in teams | 5 h. | 4 h. | 9 h. |

| EVALUATION SYSTEM | W | MAKE-UP MECHANISMS |
|---|---|---|
| Presentation and defence of exercises, case studies, computer practical work, simulation practical work, | 100% | Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, |

| | |
|---|---|
| laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems | term projects, end of degree project, master's thesis, challenges and problems |

**CH - Class hours:** 25,5 h.
**NCH - Non-class hours:** 12 h.
**TH - Total hours:** 37,5 h.

## CONTENTS

[!]

*1. INTRODUCCIÓN AL DOE*

*2. DISEÑO FACTORIAL COMPLETO*

*3. DISEÑO FACTORIAL FRACCIONADO*

*4. METODO TAGUCHI*

## LEARNING RESOURCES AND BIBLIOGRAPHY

### Learning resources

[!] *Apuntes de la asignatura*

### Bibliography

BOX, GEORGE E.P.; HUNTER, WILLIAM G.; HUNTER, J. STUART. Estadística para investigadores. Ed. Reverté, Barcelona, 1988

PRAT, ALBERT; TORT-MARTORELL, XAVIER; GRIMA, PERE; POZUETA, LOURDES. Métodos Estadísticos. Control y mejora de la calidad. Ed. UPC, Barcelona, 1997. ISBN 84-8301-222-7

PHADKE, MADHAV S. Quality Engineering using robust design. Ed. AT&T Bell Laboratories, 1989. ISBN 0-13-745167-9.

TAGUCHI G.; ELSAYED A. E.; HSIANG T. Quality Engineering in Production Systems. Mc Graw Hill, 1989. ISBN 0-07-062830-0.

HIRANO, Hiriyuki. Poka Yoke. Mejorando la calidad del producto evitado los defectos. Productivity Press, Inc. ISBN: 84-87022-73-1