

[MRC004] ROBOTIC CONTROL SYSTEM

GENERAL INFORMATION

Studies	Master's Degree in ROBOTICS AND CONTROL SYSTEMS		Subject	Robotics	
Semester	2	Course	1	Mention / Field of specialisation	AUTONOMOUS SYSTEMS - EIT
Character	OPTIONAL		Modality	Adapted Face-to-face	
Plan	2019	Hours/week	0	Language	ENGLISH
Credits	3	Total hours	50 class hours + 25 non-class hours = 75 total hours		

PROFESSORS

ARANA AREXOLALEIBA, NESTOR

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	(No previous knowledge required)

SKILLS

VERIFICA SKILLS

SPECIFIC

MRCE14 - Solving robotic manipulator control tasks in multiple contexts and different operating requirements

GENERAL

MRCG01 - Automating, controlling, maintaining and providing intelligence to industrial processes and autonomous systems while directing innovative projects that guarantee their availability, using and integrating cutting-edge technologies in both industrial and scientific environments, with the ability to deliver advice on the most appropriate alternatives considering the specifications of users and current regulations

CROSS

MRCTR1 - Ability to work in multidisciplinary teams and in a multilingual environment and to communicate, both orally and in writing, knowledge, procedures, results and ideas related to subjects related to the Master's degree

MRCTR2 - Ability to do their job with a cooperative and participatory attitude, while being socially responsible

BASIC

M_CB6 - To have and understand knowledge which provides a base or opportunity to be original in the development and/or application of ideas, often in an investigation context

LEARNING RESULTS

RA141 Designs a controller for a robotic application communicating the conclusions in an argued way

LEARNING ACTIVITIES

Individual and/or team computer simulation practice

CH

20 h.

NCH

15 h.

TH

35 h.

EVALUATION SYSTEM

Individual written and oral tests to assess technical skills of the subject

W

100%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject

Comments: All activities (control points, individual and group work, etc.) must have a minimum grade of 5 and an opportunity for recovery (except the PBL). In unapproved training activities (less than 5) the recovery is compulsory and the final grade will be the grade obtained in the recovery. In the activities carried out it is necessary to obtain a minimum mark of 4 to calculate the average mark of the learning result. Otherwise, the note of the learning result will be that of the suspended activity. The system will calculate the final grade with the RA, applying the percentages defined in IKOF.

CH - Class hours: 20 h.

NCH - Non-class hours: 15 h.

TH - Total hours: 35 h.

RA142 Designs a controller for a robotic application in a real or simulated context, innovating and collaborating actively to evaluate and assume the social responsibility implicit in the proposal

LEARNING ACTIVITIES	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	30 h.	10 h.	40 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISMS	
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	Individual written and oral tests to assess technical skills of the subject Comments: All activities (control points, individual and group work, etc.) must have a minimum grade of 5 and an opportunity for recovery (except the PBL). In unapproved training activities (less than 5) the recovery is compulsory and the final grade will be the grade obtained in the recovery. In the activities carried out it is necessary to obtain a minimum mark of 4 to calculate the average mark of the learning result. Otherwise, the note of the learning result will be that of the suspended activity. The system will calculate the final grade with the RA, applying the percentages defined in IKOF.	
CH - Class hours: 30 h. NCH - Non-class hours: 10 h. TH - Total hours: 40 h.			

CONTENTS

Optimal control theory
 Reinforcement learning
 Function approximation
 Policy gradient

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

(No resources)

Bibliography

(No bibliography)