Course guide
270725 - CPP - Constraint Processing and Programming

Last modified: 21/07/2022

Unit in charge: Barcelona School of Informatics
Teaching unit: 723 - CS - Department of Computer Science.

Degree: MASTER'S DEGREE IN ARTIFICIAL INTELLIGENCE (Syllabus 2017). (Optional subject).

Academic year: 2022 **ECTS Credits:** 4.5 **Languages:**

LECTURER

Coordinating lecturer: FRANCISCO JAVIER LARROSA BONDIA

Others: Primer quadrimestre:
FRANCISCO JAVIER LARROSA BONDIA - 10

PRIOR SKILLS

Basic Algorithmics

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEA1. Capability to understand the basic principles of the Multiagent Systems operation main techniques , and to know how to use them in the environment of an intelligent service or system.
CEA13. Capability to understand advanced techniques of Modeling , Reasoning and Problem Solving, and to know how to design, implement and apply these techniques in the development of intelligent applications, services or systems.

Generical:
CG1. Capability to plan, design and implement products, processes, services and facilities in all areas of Artificial Intelligence.

Transversal:
CT6. REASONING: Capability to evaluate and analyze on a reasoned and critical way about situations, projects, proposals, reports and scientific-technical surveys. Capability to argue the reasons that explain or justify such situations, proposals, etc..

TEACHING METHODOLOGY

There will be theory classes to introduce the fundamental theoretical concepts, classes of problems to exercirtar to use, and laboratory classes where you will see the actual technology

LEARNING OBJECTIVES OF THE SUBJECT

1.Ability to model optimally a discrete optimization problem and solve it using the proper tools.

STUDY LOAD

Type	Hours	Percentage
Self study	72,0	64.00
Hours large group	40,5	36.00

Total learning time: 112.5 h

CONTENTS

Modeling combinatorial problems

Solving with Constraint Programming

ACTIVITIES

Modeling

Specific objectives:
1

Related competencies :
CG1. Capability to plan, design and implement products, processes, services and facilities in all areas of Artificial Intelligence.
CEA1. Capability to understand the basic principles of the Multiagent Systems operation main techniques , and to know how to use them in the environment of an intelligent service or system.
CEA13. Capability to understand advanced techniques of Modeling , Reasoning and Problem Solving, and to know how to design, implement and apply these techniques in the development of intelligent applications, services or systems.
CT6. REASONING: Capability to evaluate and analyze on a reasoned and critical way about situations, projects, proposals, reports and scientific-technical surveys. Capability to argue the reasons that explain or justify such situations, proposals, etc..

Full-or-part-time: 65h
Theory classes: 8h
Practical classes: 8h
Laboratory classes: 8h
Guided activities: 1h
Self study: 40h

Constraint Programming

Specific objectives:
1

Related competencies :
CG1. Capability to plan, design and implement products, processes, services and facilities in all areas of Artificial Intelligence.
CEA1. Capability to understand the basic principles of the Multiagent Systems operation main techniques , and to know how to use them in the environment of an intelligent service or system.
CEA13. Capability to understand advanced techniques of Modeling , Reasoning and Problem Solving, and to know how to design, implement and apply these techniques in the development of intelligent applications, services or systems.
CT6. REASONING: Capability to evaluate and analyze on a reasoned and critical way about situations, projects, proposals, reports and scientific-technical surveys. Capability to argue the reasons that explain or justify such situations, proposals, etc..

Full-or-part-time: 40h 30m
Theory classes: 5h
Practical classes: 5h
Laboratory classes: 5h
Guided activities: 0h 30m
Self study: 25h

GRADING SYSTEM

Along the course several programming assignments will be evaluated. They will weight between 5% and 20% of the final grade depending on their difficulty. There also will be a final exam whose weight will be around 30%