UNIVERSITÀ DELLA CALABRIA | DIPARTIMENTO DI **MATEMATICA E INFORMATICA**

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PH.D. IN MATHEMATICS AND COMPUTER SCIENCE

COURSE SCHEDULE

ACADEMIC YEAR 2022/2023

DECLARATIVE PROBLEM-SOLVING WITH ANSWER SET PROGRAMMING

LECTURERS: SIMONA PERRI, FRANCESCO RICCA
UNIVERSITY OF CALABRIA

18 - 25 MAY

ANSWER SET PROGRAMMING (ASP) IS A POWERFUL AI FORMALISM FOR KNOWLEDGE REPRESENTATION AND REASONING THAT HAS BEEN DEVELOPED IN THE FIELD OF LOGIC PROGRAMMING AND NONMONOTONIC REASONING. AFTER MORE THAN TWENTY YEARS FROM THE INTRODUCTION OF ASP, THE THEORETICAL PROPERTIES OF THE LANGUAGE ARE WELL UNDERSTOOD AND THE SOLVING TECHNOLOGY HAS BECOME MATURE FOR PRACTICAL APPLICATIONS. THE HIGH MODELLING POWER OF ASP MAKES IT IDEAL FOR SOLVING SEVERAL COMPLEX PROBLEMS ARISING IN BOTH ACADEMIC AND INDUSTRIAL APPLICATIONS OF AI.

PROBLEMS ARE MODELLED AND SOLVED IN A DECLARATIVE FASHION BY SPECIFYING A SET OF LOGIC RULES AND RESORTING TO AN ASP SYSTEM TO COMPUTE SOLUTIONS. IN THIS COURSE, WE FIRST PRESENT THE BASICS OF THE ASP LANGUAGE AND ASP SOLVING TECHNIQUES AND, THEN, WE CONCENTRATE ON ITS USAGE FOR KNOWLEDGE REPRESENTATION AND REASONING IN SEVERAL CONTEXTS. IN PARTICULAR, WE ILLUSTRATE METHODOLOGIES AND TOOLS FOR THE DEVELOPMENT OF ASP-BASED APPLICATIONS, POSSIBLY MENTIONING SOME RELEVANT EXTENSIONS OF ASP FOR ONTOLOGICAL REASONING, COMBINATORIAL OPTIMISATION, PLANNING, NEURAL-SYMBOLIC REASONING, EXPLAINABLE AI AND MORE. WE ALSO REPORT ON THE DEVELOPMENT OF BOTH ACADEMIC AND INDUSTRY-LEVEL APPLICATIONS OF ASP DEVELOPED WITH THE ASP SYSTEM DLV.

CLASS SCHEDULE:

THU 18/05 10:00 - 13:00 RICCA - AULA COLLABORATIVA
THU 18/05 15:00 - 18:00 PERRI - AULA COLLABORATIVA
FRI 19/05 10:00 - 13:00 RICCA - AULA COLLABORATIVA
THU 25/05 15:00 - 18:00 PERRI - MT 14

LINK TEAMS: HTTPS://BIT.LY/3O5P1CW