Università degli Studi di Cagliari

International PhD Programme in
INNOVATION SCIENCE AND TECHNOLOGY
in collaboration with Pushchino State University,
École Nationale Supérieure des Mines de Rabat
and Universidade de Aveiro

Curriculum 1: REGENERATIVE MEDICINE, BIOMEDICAL APPLICATIONS AND MANAGEMENT OF COMPLEX HEALTHCARE SYSTEMS
Curriculum 2: METHODS AND SYSTEMS FOR THE ENVIRONMENTAL PROTECTION
Curriculum 3: METHODOLOGIES AND PROCESSES FOR THE TRANSFORMATION AND USE OF MATERIALS

DISCIPLINARY SCIENTIFIC AREAS	06 – MEDICAL SCIENCES; 09 – INDUSTRIAL AND INFORMATION ENGINEERING; 03 – CHEMICAL SCIENCES; 05 – BIOLOGICAL SCIENCES; 04 – EARTH SCIENCES; 08b – CIVIL ENGINEERING
COORDINATOR	PROF. ROBERTO ORRÙ
HEAD DEPARTMENT	DEPARTMENT OF MECHANICAL, CHEMICAL AND MATERIALS ENGINEERING
DURATION	3 YEARS
LEARNING OUTCOMES AND RESEARCH TOPICS	The dramatic employment situation, which is even more pronounced in Sardinia, determines the need to activate instruments to restore the competitiveness of the economic and production system through an extensive dissemination of scientific and technological knowledge, both for the production of primary goods and for public and private services. This involves the implementation of specific actions to create more advanced qualifications, at various levels, of researchers and technicians; the aim is to broaden the labor market towards new skills for activities of technical and economic support for enterprises, such as valorization, transfer, control and management of the innovation process of a scientific and technological approach compatible with the necessary scientific and technological innovation. These objectives are the cornerstones of the three-year PhD course in Science and Technology for Innovation, which aims to introduce young graduates to the field of basic and applied research with reference to the general themes associated with the following routes: - regenerative medicine, biomedical engineering and management of complex healthcare systems - environmental science and engineering - materials science and technology. With respect to the year of reference, among the specific cognitive objectives of doctoral candidates, depending on the chosen route, the following ones, by way of example, can be taken into account. Cognitive objectives linked to the research activity in which the doctoral candidates will be involved will be defined in agreement with the tutor indicated by the faculty board. As for the topic related to the Environment: - acquisition of skills relating to microalgae processes for the

	production of bio-fuels - acquiring skills in innovative industrial processes - acquiring skills in processes for the exploitation of renewable resources As for the Synthesis of innovative materials topic: - acquiring skills related to understanding the working principle of mechanical milling technology - acquiring skills in model simulation of comminution, grinding and mechanical alloying processes. As for the topic Biomedical Engineering: - acquiring skills in the design of biomaterials and supports for regenerative medicine - acquiring skills in artificial liver - acquisition of expertise in the bio-engineering of small-diameter vessels. The occupational and professional outlets envisaged for doctors in science and technology for innovation refer mainly to scientific research and development, other professional, scientific, and technical activities, education as well as other activities related to the production of goods and services. Therefore, the possible employments concern universities, research centers, the productive and institutional world, at regional, national, and international levels, where doctoral students will be able to make use of the technical and scientific skills they have acquired. In particular, the PhDs will be able to promote innovation at the highest level by encouraging the application of the principles of basic, industrial and pre-competitive research in sectors of particular scientific and technological impact, such as regenerative medicine, biomedical engineering, management of complex healthcare systems, environmental science and engineering, materials science and technology, in order to contribute to the growth of the production fabric in the socio-economic context where they will be involved.
ELIGIBILITY AND OTHER REQUIREMENTS FOR CANDIDATES (ART. 2 - NOTICE OF COMPETITION)	EVERY ITALIAN 2ND CYCLE DEGREE (*LAUREA MAGISTRALE/SPECIALISTICA/VECCHIO ORDINAMENTO*) AND EQUIVALENT AND SUITABLE FOREIGN ACADEMIC DEGREES
ADMISSION TESTS	ASSESSMENT OF QUALIFICATIONS AND CURRICULUM VITAE, AND VIDEO CONFERENCE INTERVIEW. The interview will be aimed at ascertaining the candidate's ability to orienting himself/herself on the main fields of study inherent to the PhD programme and verifying its analytical, processing and communication skills, as well as discussing a research project possibly already carried out by the candidate or in progress. The interview can also be conducted in English.
ADMISSION TESTS FOR FOREIGN CANDIDATES APPLYING FOR RESERVED POSITIONS SUPPORTED BY A SCHOLARSHIP	ASSESSMENT OF QUALIFICATIONS AND CV, VIDEO CONFERENCE INTERVIEW The interview can also be conducted in English. Reference letters must be written in English, using the form available on the webpage https://unica.it/dottoratiricerca (How to apply for PhD selection: Guidelines and forms- Annex C), by a university professor or an expert in the research fields of the PhD programme, on

	letterhead of their institution, dated and signed. Evaluators will send their letters directly to the email address phdcall_referenceletter@unica.it (object: surname and name of the candidate being evaluated and name of the PhD programme for which he/she is applying).
POSITIONS	5
SCHOLARSHIPS	2 FUNDED BY MUR "2019-2020 PLANNING EX ART. 1 D.M. N. 435/2020 STATE UNIVERSITIES" 2 FUNDED BY MUR PL, 1 OF WHICH RESERVED FOR FOREIGN CANDIDATES HOLDING A FOREIGN DEGREE.
POSITIONS WITHOUT SCHOLARSHIP	1
REFERENCE PERSON	PROF. ROBERTO ORRÙ EMAIL: roberto.orru@dimcm.unica.it - TEL. +39 070/6755076
WEBSITE	http://sites.unica.it/internationalphdist/