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## ANNEX A

### PhD in Technologies and Innovation in Medicine (DOT22BZ455)

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<b>CUN Areas</b>	05 - Biological science 06 - Medical science 09 - Industrial and information engineering	
<b>E.R.C.</b>	PE5, PE6, PE8, LS1, LS7, LS9	
<b>Short description</b>	<p>The PhD Course in Technologies and Innovation in Medicine of the University of Molise aims to train a new generation of highly professional figures in the biomedical field, in particular in the field of diagnostics, therapy, surgery and, in general, of health protection.</p> <p>Also in line with the objectives of the PNRR, students will be provided with the scientific methods and skills necessary to tackle new problems of a highly multidisciplinary and transversal nature, with great impact in both the academic and industrial fields for the clinical management of patients and their pathologies, using advanced therapeutic approaches that make use of the support of mathematical/thermofluidodynamic models and of computational analysis. Technological and innovative aspects currently involved in surgical practice will also be addressed, a morphostructural and ultrastructural knowledge of the biological signals that are analysed by the main technologies applied to medicine will be provided and skills in bioengineering, biomaterials, biomechanics, biomedical devices and regenerative medicine will be acquired.</p> <p>The training objectives, therefore, are aimed at acquiring a mosaic of transversal skills in the medical, engineering and IT fields. Furthermore, the PhD student will develop design and experimental skills up to achieve a good and autonomous ability in research and project management. For this purpose, interventions are planned, aimed both at increasing the cultural background of the PhD students, through courses and seminars on innovative topics in the field of medicine and bio-engineering, and to provide practical skills through continuous interaction with professors on issues relating to specific research topics carried out by the PhD students. Particular emphasis will be placed on the collaboration with laboratories and qualified research structures, including foreign ones.</p>	
<b>Web Site</b>	<a href="http://dipmedicina.unimol.it/dottorato-in-tecnologie-e-innovazione-nella-medicina/">http://dipmedicina.unimol.it/dottorato-in-tecnologie-e-innovazione-nella-medicina/</a>	
<b>Course length</b>	01/11/2022 – 31/10/2025	
<b>Total available positions</b>	With ordinary scholarship	<b>2</b>
	With <b>DM 351/2022</b> (PNRR) scholarship	<b>1</b>
	Topic: Innovative solutions in the medical-engineering field for predictive and personalized medicine.	
	The research activity also includes a period of study and research abroad of 6 months.	
	With <b>DM 352/2022</b> scholarship	<b>2</b>
Topic: Engineering with biomechanical modelling and imaging of prostheses		
The research activity also includes a period of study and research abroad at a company of 6 months.		
<b>TOTAL positions with scholarship</b>		<b>5</b>
<b>of which with scholarship reserved to graduates in foreign universities</b>		<b>1</b>
<b>positions without scholarship</b>		<b>1</b>
<b>Admission requirements</b>	All specialized or master's degrees, or degrees of the system prior to that introduced with the D.M. 509/1999.	





	For candidates who have acquired the qualification abroad, the latter must have characteristics of equivalence with those indicated above.
<b>Assessable qualifications and relative score</b>	<p>List of assessable qualifications up to a maximum of <b>25/100</b>:</p> <ul style="list-style-type: none"> <li>- <i>Curriculum vitae et studiorum</i>;</li> <li>- Final degree mark. If the candidate has not obtained the degree at the time of submission of the application, instead of the graduation mark, the weighted average of the marks of the exams will be taken into consideration (max 9 points)</li> <li>- Qualifications proving the candidate's education and skills (research activity at universities and research centres, scholarships, research grants, awards, study and research experiences abroad) (max 5 points)</li> <li>- Scientific publications on international/national journals with peer review (max 4 points)</li> <li>- Oral communications and posters to national/international conferences (max 3 points)</li> <li>- Other qualifications certified by higher educational institutions (second level degrees, specialization courses) (max 4 points)</li> </ul>
<p><b>Examination themes and interview</b></p> <p><i>Please note that the project proposal illustrated in the report, (annex 5), prepared for the competition, is not necessarily the project that will be carried out during the PhD program. If admitted, the research project that will in fact be carried out will be subsequently defined and approved by the Program Faculty Board after the start of the PhD Program.</i></p>	<p><b>Research project (qualifications up to a maximum of 25/100)</b></p> <p>Candidates are asked to actively discuss the research topics of the PhD Program through the submission of a research project, an integral part of the application form, dated and signed by the candidate and drawn up in accordance with Annex 5. This project, consistent with the candidate's second level degree, should be focused on one of the research topics of the Doctorate, briefly listed below:</p> <ul style="list-style-type: none"> <li>• Topic: Innovative solutions in the medical-engineering field for predictive and personalized medicine DM 351/2022 (PNRR) <ul style="list-style-type: none"> <li>• Period abroad of n. 6 months at an institution to be defined</li> </ul> </li> <li>• Topic: Engineering with biomechanical modelling and imaging of prostheses (DM 352/2022) <ul style="list-style-type: none"> <li>• Period abroad of at least 6 months at: l'Exactech Arena (University of Florida and Exactech research center) in Stephen C. O'Connell Center, 250 Gale Lemerand Dr, Gainesville, Florida 32611, USA</li> </ul> </li> <li>• Topic: Innovative technologies in medicine (ordinary scholarship)</li> </ul> <p><b>Interview (qualifications up to a maximum of 50/100)</b></p> <p>The oral exam will consist in the oral presentation of the research proposal and in a discussion of the technical and scientific topics related to it. The English language knowledge will also be checked. For this purpose, candidates can choose to make their presentation and related discussion in English.</p>
<b>Criteria for the evaluation</b>	<p>The evaluation of the Candidates is divided into two phases: the first one concerns assessable qualifications and the project proposal. Passing this step is a prerequisite for admission to the oral exam (second phase). The results of the first phase of evaluation will be published, as soon as they are available, on the University website at <a href="https://www2.unimol.it/dottorato/">https://www2.unimol.it/dottorato/</a></p> <p>To be admitted to the oral exam, the candidate must report a score of not less than <b>25/100</b> (given by the sum of the evaluation of assessable qualifications and the project proposal).</p> <p>The maximum score achievable by each candidate is 100/100, based on the following breakdown:</p> <ul style="list-style-type: none"> <li>• <b>25/100 assessable qualifications</b></li> <li>• <b>25/100 evaluation of the project attached to the application</b> <ul style="list-style-type: none"> <li>○ Consistency of the project proposal with the topics reported in the call (max 6 points)</li> </ul> </li> </ul>





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	<ul style="list-style-type: none"> <li>○ Originality of the project and the contribution to knowledge in the area (max 7 points)</li> <li>○ Clarity used to identify and describe the research objectives (max 4 points)</li> <li>○ Project structure and feasibility (max 4 points)</li> <li>○ Organization and synthesis (max 4 points)</li> </ul> <ul style="list-style-type: none"> <li>● <b>50/100 oral presentation concerning the discussion of the presented project</b> <ul style="list-style-type: none"> <li>○ Clarity and mastery of knowledge in the area of the project - state of the art (max 17 points)</li> <li>○ Clarity of the candidate to expose and describe the objectives, originality, expected results, contribution to the knowledge of the area and any application implications of the proposed research (max 18 points)</li> <li>○ Candidate's ability to discuss the structure of the project, including methods (max 15 points)</li> </ul> </li> </ul> <p>The results of the second phase of evaluation will be published, as soon as they are available, on the University website at the link: <a href="https://www2.unimol.it/dottorato/">https://www2.unimol.it/dottorato/</a></p>
<b>Ranking</b>	Candidates with an overall score of at least <b>50/100</b> points will be included in the overall merit ranking.
<b>Date of the Interview</b>	<p>Date: <b>September 8, 2022, at 9:30 (Rome Time)</b> according to the timetable defined by the Commission on the basis of the number of people admitted to the interview.</p> <p>Place: for those who choose to take the oral exam</p> <ul style="list-style-type: none"> <li>● <b>on-site:</b> Room: S3; III Building, University of Molise, Via Francesco de Sanctis, 86100 Campobasso (CB), ITALY.</li> <li>● <b>on-line:</b> Google Meet at <a href="https://meet.google.com/afo-oaap-zxt">meet.google.com/afo-oaap-zxt</a></li> </ul>

