



Politecnico di Milano

PhD Programme in Mechanical Engineering

Research Area n. 4: Additive Manufacturing

Research Field: Product and Process Innovation in the dental equipment industry through additive manufacturing

Scholarship and Financial support	
Monthly net income of PhD scholarship (max 36 months)	€ 1200 (In case of a change of the welfare rates during the three-year period, the amount could be slightly modified)
Number of scholarships	1
Beginning of PhD	01/05/2017
Deadline for application	10/03/2017
Context of the research activity	
Motivations and objectives of the research in this field	The Medical/Dental market is characterized by the presence of many players that require annual production batches of a few hundred pieces but with the strong desire for customization. This scenario collides with the current production paradigm, which involves the use of thermoplastic or aluminum injection molds. This research aims at exploiting the potential of additive manufacturing technologies in the development and production process in order to provide customized products reducing the costs of

	investment in equipment and the related development times.
Methods and techniques that will be developed and used to carry out the research	<p>The research activity will be developed in cooperation with Faro company (www.faro.it) that designs and produces equipment for the manufacturer of dental units, dental cabinets and dental laboratories.</p> <p>The PhD candidate will combine engineering design methods for the ideation and development of innovative solutions with knowledge and tools for additive manufacturing to explore the integration of these technologies in the company's industry.</p>
Educational objectives	<p>Operational competences on up-to-date methodologies and technologies for the development of innovative and user-friendly products. Capability to interpret technology evolution and the dynamics of product innovation. R&D skills for scientific and industrial applications. Soft skills about delivery of scientific talks, drafting of project reports and scientific papers, delivery of presentations to industry.</p>
Job opportunities	<p>The research experience in this area will nurture the ability to develop research activities within an academic and/or an industrial context, according to the specific objectives of the thesis. Therefore, career opportunities will be related to university research and educational position, industrial R&D departments, key roles in the product development cycle such as product manager, process manager etc.</p>
Composition of the research group	<p>http://www.mecc.polimi.it/en/research/research-lines/methods-and-tools-for-product-design/</p> <p>http://www.mecc.polimi.it/en/research/research-lines/manufacturing-and-production-systems/</p>
Names of the research directors	<p><i>Prof. Gaetano Cascini</i> <i>Prof. Bianca Maria Colosimo</i></p>
E-mail address, phone number and web-page	<p>gaetano.cascini@polimi.it biancamaria.colosimo@polimi.it</p>
List of Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research	Faro Spa

Additional support

<p><u>Funding for educational activities</u> (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): funding per PhD student per year</p>	<p><i>2nd year: per student € 1370</i> <i>3rd year: per student € 1370</i></p>
<p><u>Teaching assistantship:</u> availability of funding in recognition of support to teaching activities by the PhD student</p>	<p>There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.</p>
<p><u>Computer availability:</u></p>	<p><i>1st year: individual use</i> <i>2nd year: individual use</i> <i>3rd year: individual use</i></p>
<p><u>Desk availability:</u></p>	<p><i>1st year: individual use</i> <i>2nd year: individual use</i> <i>3rd year: individual use</i></p>