



# PhD in INGEGNERIA MECCANICA / MECHANICAL ENGINEERING - 39th cycle

**THEMATIC Research Field: MANUFACTURING AND DEMANUFACTURING PROCESSES  
AND SYSTEMS**

**Monthly net income of PhDscholarship (max 36 months)**

**€ 1400.0**

In case of a change of the welfare rates during the three-year period, the amount could be modified.

## Context of the research activity

**Motivation and objectives of the research  
in this field**

Circular economy is changing the way companies conceive, produce, de-produce, and reproduce their products. Not only circular economy is supporting the preservation of the environment and reducing energy consumption but it can become profitable for companies that can recover the function and/or materials of their products. New processes and new systems are required to make the described change operational together with new business models. Moreover, processes should be designed to allow strict cooperation between humans and automation. Therefore research and innovation are at the cornerstone of the circular revolution.

**Methods and techniques that will be  
developed and used to carry out the  
research**

Topics to be addressed are new processes to recover materials, new disassembly/reassembly processes to recover functions new system design to allow to cope with the variability of the cores and with the variability of the volumes. In particular methods and techniques for: the control of new processes and systems, design of cyber-physical systems, performance modeling of manufacturing/demanufacturing systems configuration and management of new manufacturing systems are to be studied to be addressed.

**Educational objectives**

The goal is to create an expert in the circular economy who is able on the one side to understand processes and on the other side to cope with manufacturing systems



	design and analysis
<b>Job opportunities</b>	Our last survey on MeccPhD Doctorates highlighted a 100% employment rate within the first year and a 35% higher salary, compared to Master of Science holders in the same field.
<b>Composition of the research group</b>	1 Full Professors 1 Associated Professors 1 Assistant Professors 15 PhD Students
<b>Name of the research directors</b>	Proff. Tolio, Colledani, Urgo

<b>Contacts</b>
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<b>Additional support - Financial aid per PhD student per year (gross amount)</b>	
<b>Housing - Foreign Students</b>	--
<b>Housing - Out-of-town residents (more than 80Km out of Milano)</b>	--

<b>Scholarship Increase for a period abroad</b>	
<b>Amount monthly</b>	700.0 €
<b>By number of months</b>	6

<b>Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information</b>
<p>Financial aid is available for all PhD candidates (purchase of study books and materials, funding for participation in courses, summer schools, workshops and conferences) for a total amount of euro 5.707,13.</p> <p>Our candidates are strongly encouraged to spend a research period abroad, joining high-level research groups in the specific PhD research topic, selected in agreement with the Supervisor. An increase in the scholarship will be applied for periods up to 6 months (approx. 700 euro/month- net amount).</p> <p>Teaching assistantship: availability of funding in recognition of supporting teaching activities by the PhD candidate. 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>

