



# PhD in INGEGNERIA MECCANICA / MECHANICAL ENGINEERING - 38th cycle

**Research Area n. 3 - Engineering Design and Manufacturing for the Industry of the Future**

**PNRR\_351\_TRANSAZ\_DIG\_AMB Research Field: IMPROVING MAINTENANCE SERVICES  
THROUGH DIGITAL TRANSFORMATION**

<b>Monthly net income of PhDscholarship (max 36 months)</b>
<b>€ 1325.0</b>
In case of a change of the welfare rates during the three-year period, the amount could be modified.

<b>Context of the research activity</b>	
<b>Motivation and objectives of the research in this field</b>	<p>Maintenance services are essential in the business of a company. Sometimes, guaranteeing an efficient and fast maintenance service might help a company sell a product compared to the competitors. For some years, companies have begun exploring ICT technologies to improve their maintenance services. However, the transition of a process that has been linked to traditional paper manuals for many years is not simple. It requires, in addition to introducing new technologies, that a new language, more suitable for the digital world, is introduced and the processes changed. This research activity will study the maintenance process of a company operating in the transport sector and try to transform it into its digital version.</p>
<b>Methods and techniques that will be developed and used to carry out the research</b>	<p>The methodology that will allow the digital transformation of the maintenance process will be based on the use of eXtended Reality (XR) technologies, i.e. Virtual, Mixed, and Augmented Reality technologies and Artificial Intelligence algorithms. The current process will be studied in its original state (AS-IS) and, together with experts in the company, and based on the most recent scientific literature on the subject, it will be transformed into a digital form.</p>



<b>Educational objectives</b>	At the end of the PhD programme, the candidate will acquire both soft and hard skills required to define, design and carry out original research programs by working in a team or leading a research group in the fields of design methods and tools and XR technologies.
<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>	3 Full Professors 6 Associated Professors 4 Assistant Professors 10 PhD Students
<b>Name of the research directors</b>	Prof. Francesco Ferrise

#### Contacts

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#### Additional support - Financial aid per PhD student per year (gross amount)

<b>Housing - Foreign Students</b>	--
<b>Housing - Out-of-town residents (more than 80Km out of Milano)</b>	--

#### Scholarship Increase for a period abroad

<b>Amount monthly</b>	662.5 €
<b>By number of months</b>	6

#### National Operational Program for Research and Innovation

<b>Company where the candidate will attend the stage (name and brief description)</b>	eSolutions Free2Move S.p.A.
<b>By number of months at the company</b>	6
<b>Institution or company where the candidate will spend the period abroad (name and brief description)</b>	Blekinge Institute of Technology
<b>By number of months abroad</b>	6

**Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information**



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 5.401, 42.

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.