

# PhD in DESIGN - 41st cycle

## INTERDISCIPLINARY Research Field: KNITWEAR DESIGN

Monthly net income of PhDscholarship (max 36 months)		
€ 1300.0		
In case of a change of the welfare rates during the	three-year period, the amount could be modified.	
Cor	itext of the research activity	
Motivation and objectives of the research in this field	Interdisciplinary PhD Grant The PhD research will be carried out in collaboration with research groups of the PhD programme in " <b>DESIGN</b> ". A well-established area in the fashion sector, knitwear is now being viewed with interest by other disciplines for its versatility, opportunities for customization, and waste reduction. The research aims to broaden the intervention area of the knit designer to other fields, starting with architecture, where they can contribute upstream in the creative process by designing yarns, stitches, and textile structures to improve performance, production processes, and sustainability. The transition from fashion design to architecture presents unique challenges, such as complex structural requirements, larger dimensions and durability, and different conditions of use and perception of volumes and colors. The objective of the research is to develop a new design practice to achieve a significant change of scale, integrating the design method of knit design and the sustainability practices currently being experimented with in the fashion supply chain with the architectural approach, in search of optimal solutions in terms of materials, structure, and aesthetics, with a view to optimizing production in a zero-waste perspective. This will require in-depth research into materials and techniques to meet the needs of new applications of knitted fabric at the component scale for buildings, with a view to environmental and economic sustainability.	

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Methods and techniques that will be developed and used to carry out the research	The methodology integrates qualitative design approaches and knitting techniques with computational and performance-based methods for ultra-lightweight and reversible building components in textile architecture ( <i>doing more with less, time-based design, performative</i> <i>design</i> ), incorporating tools for verifying the environmental impacts of the solutions to be developed.
Educational objectives	<ul> <li>Expanding Knit Design Expertise: Broadening the application of knit design from fashion to architecture.</li> <li>Fostering Interdisciplinary Integration: Combining knit design methods with architectural approaches.</li> <li>Promoting Sustainable Practices: Integrating sustainability principles from the fashion industry into architectural design.</li> <li>Addressing Technical Challenges: Overcoming structural, dimensional, and durability challenges in architectural applications of knitwear.</li> <li>Developing Innovative Design Practices: Creating new design practices for knitwear in architecture that optimize material use and minimize waste.</li> <li>Advancing Material and Technique Research: Conducting in-depth research on materials and techniques for sustainability.</li> <li>Integrating Computational Methods: Combining design and knitting techniques with computational methods for high-performance components and their application on different scales.</li> <li>Emphasizing Environmental Impact Assessment: Incorporating tools to assess the environmental impacts of design solutions.</li> </ul>
Job opportunities	<ul> <li>Knitwear Designer in Architecture: Designing knitted textile components for buildings /Integrating textile materials and structures into architectural designs.</li> <li>Sustainable Building Materials Consultant: Advising on the use of sustainable knitwear in construction and in diverse fields of design as fashion, product, interior.</li> </ul>

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	<ul> <li>diverse fields of design as fashion, product, interior.</li> <li>Computational Designer: Developing computational methods for knitwear design and performance analysis in architecture and fashion.</li> <li>Research and Development Scientist: Conducting research on new materials and techniques for knitwear in diverse applications.</li> <li>Academic/Researcher: Teaching and conducting research in the field of knitwear applied to fashion design and architecture at universities or research institutions.</li> <li>Product Designer: Creating innovative products/building components using knitwear and textile technologies.</li> </ul>
Composition of the research group	1 Full Professors 2 Associated Professors 1 Assistant Professors 1 PhD Students
Name of the research directors	Martina Motta, Carol Monticelli

#### Contacts

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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	
Housing - Out-of-town residents	

Scholarship Increase for a period abroad		
Amount monthly	650.0 €	
By number of months	6	

Stage and period abroad	
Institution or company where the candidate will spend the period abroad (name and brief description)	
By number of months abroad	0

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

Educational activities (purchase of study books and material, funding for participation in courses,

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summer schools, workshops and conferences): financial aid per PhD student: 5.300,25 € for 3 years. Teaching assistantship: availability of funding in recognition of supporting teaching activities by the PhD students. There are various forms of financial aid both for research and teaching activities. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.

Computer availability: each research group may supply phd student with a laptop/desktop PC, if necessary.

Desk availability: each research group may supply phd student with a desk.