MASTER ID3266 - EDITION I

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LOCATION
DEPARTMENT OF ARCHITECTURE,
BUILT ENVIRONMENT, AND
CONSTRUCTION ENGINEERING
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EXPRESSION OF INTEREST

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OFFICIAL WEBPAGE FOR ENROLLMENT
https://www.polimi.it/en/education/specializing-masters-and-postgraduate-programmes/master-detail/3266

SCIENTIFIC PATRONAGE

TensiNet European Association

SITdA Italian Society of Architectural Technology

ISTeA Italian Society of science,Technology and Engineering of Architecture

TECHNICAL PARTNERS
Do you want to become a technical partner: write us at the following email: master-tensart-dabc@cise-polimi.it

technet GmbH - Software & Expertise

FORMFINDER Software

DABCLab - System of Research Labs
TEXTILESHUB Interdepartmental research Lab
Living Lab "too cool to go wasted" - MUSA PNRR @Politecnico di Milano

2nd Level Specialising Master

TENS.ART

Textile Architecture and Tensile Structure Design

Art, Technologies and Materials for Lightweight Structural Systems

POLITECNICO MILANO 1863 | DEPARTMENT OF ARCHITECTURE BUILT ENVIRONMENT AND CONSTRUCTION ENGINEERING

2nd Level Specialising Master in Textile Architecture and Tensile Structure Design

INTRODUCTION

The ecological transition demands new ways of designing with less material, lower environmental impact and greater adaptability. Textile architecture and tensile structures embody this vision, combining lightness, efficiency and innovation to create sustainable building systems.
The Master promotes an interdisciplinary approach that integrates architecture, engineering, design and material science. Collaboration with leading companies and manufacturers ensures a strong connection between academic research, technological innovation and professional practice.

LEARNING OBJECTIVES

The Master trains professionals capable of designing and developing lightweight and tensile structures from concept to construction. The programme combines theoretical knowledge, design studios, advanced digital tools, structural analysis and environmental assessment, together with seminars led by international experts and internships in specialised firms and industries. Students gain expertise in membrane technologies, fabrication processes, innovative materials and Life Cycle Assessment (LCA), supported by site visits and direct engagement with the sector.

CAREER OPPURTUNITIES

Graduates will be prepared for careers in architecture and engineering firms, specialised manufacturers, construction companies and research centres working with membrane systems and lightweight structures.
Opportunities include design, project management, BIM, technical consulting and material innovation, as well as applications in temporary architecture, sports facilities, urban regeneration, mobility and exhibition design.

LEARNING JOURNEY

online kickoff → intensive working weeks → online monthly lessons → proof of concept technical visits specialists'reviews → master ceremony

DIDACTIC CONTENTS

01 MEMBRANE BASIC KNOWLEGDE

Legacy of membranes, materials and techquiques
Form finding and architectural shapes of tensile structures
Structural logic and basic systems of membranes
Design to construction overwiew, Life cycle thinking approach
Shaping & calculating: physical vs computational approaches
Fundamentals of mathematic, Physic and mechanics for membranes

02 DESIGNING

Architectural design, Structural design, Statical Analysis
Data drive design for unconventional materials and structures
Building physics: Thermal, optical, acoustic performacences
Detail design, Construction and installation
Temporary buildings vs permanent buildings
Sustainability, comfort and LCA

03 MANUFACTURING

Technical visits and site visits: on coated menbrane, ETFE cushion, temporary lightweight structure
Cutting-pattern generation
Details and connections design, Packaging and delivering issues
Maintenaince, monitoring, repairing

04 PRACTICE

EU standards, Eurocodes, buildign codes
Advanced conputational design, part 1: Hybrid systems, cable nets
Advanced conputational design, part 2: Pneumatics
BIM: approaches & tools
Specifications and tendering
Management of the work flow: from design to construction
End-of-life: dismantle, reuse, recycle, upcycle

05 INNOVATION

Material and chemistry advancements
Industrial symbiosis between Fashion and Architecture
Knitting technology, climatic sheltering
Nature-based solutions and bio-based materials
Natural fibers and temporary structures

OUTPUT

FIND your TOPIC
PLAN your PROOF OF CONCEPT
MASTER your MIND

KEY INFORMATION AND DATES

Application period
6 July - 09 October 2026

Enrollment completion period
10 September - 9 November 2026

10 November 2026
online Kickoff Meeting

FOUR INTENSIVE SESSIONS:

01 27 Jan - 3 Feb 2027
8 days of working session,
Politecnico di Milano, Milan

02 19 Apr -26 Apr 2027
(MILAN DESIGN WEEK) in Milan

03 3 Oct - 17 Oct 2027
week 40 at Politecnico di Milano, Milan (ARCH WEEK)
week 41 at University of Vienna

04 week 15 and 16 of 2027
proof of concept development and exhibition
(MILAN DESIGN WEEK) in Milan

CONTINUOUS TEACHING
Online lesson, per month, on Wednesday,
from 4 pm to 6 pm

TECHNICAL VISITS
manufacturing and work site visits
in Italy, Austria and Germany
reviewing your proof of concept with specialists

End of the Master Ceremony
5 May 2028, Politecnico di Milano, Milan