

- Purposes of the course

The purpose of European Innovation Programme on Urban Forestry 4.0 is to contribute to the development of UF entrepreneurial and innovation opportunities and attitudes by improving interdisciplinary skills. Uforest therefore, responds to the needs of a changing political and social economy, creating opportunities for new careers, fostering UF, through interdisciplinary learning and cross- sectors research-business cooperation.

The first part of the course “Nature in the City: Turning Knowledge into Urban Forestry Practice”, will provide innovative and transdisciplinary knowledge on urban forestry topics. In the second part, called “Greening your city: Develop your Urban Forestry Project” will be provided advanced knowledge and specific competencies and abilities on Urban Forestry to train a new breed of professionals. This part is developed with a project-based approach: students are required to develop in groups a project on the design of an urban forest, that will be discussed and evaluated in an oral final exam.

- Expected learning outcomes

On successful completion of the EU- wide e-learning courses, learners will be able to:

- Understand, explain and discuss the concept of Urban Forestry (UF) and its key characteristics and provide a broad yet comprehensive overview of key concepts in smart and sustainable city planning
- Recognize complex nature of urban forest governance, the roles of different actors and stakeholders and how to engage them to be participative
- Develop a positive attitude towards new and challenging demands developing a lively interest in novelty, an openness to experience, to exchange, actively explore and discover new areas
- Apply the methodology for Urban and Peri-urban Forestry (UPF) design in the designing process and create a basic plan for a selected urban forest case
- Integrate urban forestry and urban planning in the development of the project, given a specific site, combining theory and reality with a foresight eye design
- Recognise ecosystem services provided by urban forests, differentiate between different ES and identify and integrate the demand of ES/the areas with lower ES provision.
- Define and develop objectives and strategies to build the general vision for own project idea
- Write an original text of a primarily functional and technical nature describing own project work
- Collaborate with colleagues in developing a project work respecting specific given indications

- topics covered

The course: Uforest - European Innovation Programme on Urban Forestry 4.0 (<https://www.uforest.eu/>)

The megatrends are clear: by 2050, 84% of the European population will live in urban areas, while air pollution and climate change will continue to harm the health of European citizens. Despite minor improvements, pollution levels that regularly exceed the European Union (EU) limits, and heatwaves, endanger the lives of young and elderly people. Urban forests are effective Nature-Based Solutions (NBS) that help mitigate the effects of climate change while improving air quality, urban temperature, and the lifestyle of modern cities. Main global cities are setting challenging urban reforestation targets while struggling to face related costs and citizens' engagement to meet current and future needs. On the other hand, urban planning and forestry sciences have failed to provide interdisciplinary training to engage with innovative public-private urban forestry (UF) initiatives and trends.

The European Innovation Programme on Urban Forestry 4.0 aims to contribute to the development of UF entrepreneurial and innovation opportunities and attitudes by improving interdisciplinary skills. Uforest therefore, responds to the needs of a changing political and social economy, creating opportunities for new careers, and fostering UF, through interdisciplinary learning and cross-sector research-business cooperation.

In this scenario, the European Innovation Programme on Urban Forestry 4.0 aims to provide knowledge, skills, and competencies, both theoretical-methodological and technical, specialized and interdisciplinary. The programme is led and designed by the Uforest alliance, composed by Politecnico di Milano, Transilvania University of Brasov, School of natural Sciences of Trinity College Dublin, University Autonomous of Barcelona (UAB), Ente Regionale per i Servizi all'Agricoltura e alle Foreste (ERSAF), ETIFOR | Valuing Nature, European Forest Institute (EFI), CREA, Agresta, SC Forest Design SRL, The Nature-Based Solutions Institute, Green City Watch.

The programme is structured in 2 different components:

- **“NATURE IN THE CITY: TURNING KNOWLEDGE INTO URBAN FORESTRY PRACTICE”** is organized in 6 modules of transdisciplinary and innovative lessons, held entirely online on the Polimi Open Knowledge platform ([www.pok.polimi.it](http://www.pok.polimi.it)):

*Week 0 - Introduction to the course*

*Week 1- History of urban forestry*

*Week 2 – Urban Forestry planning and design*

*Week 3 – Urban forest ecology*

*Week 4 – Socioeconomics- Governance and community engagement*

*Week 5 – Entrepreneurship and innovation*

Each *Week* is formed by asynchronous video lessons, webinars, quizzes, discussions and activities to reflect with peers.

- **“GREEN YOUR CITY: DEVELOP YOUR URBAN FORESTRY PROJECT”** is designed with a project-based approach: each one of the four modules of the course corresponds to a project on Urban Forestry thematic held and developed by each Uforest university.

The four projects are:

*Module 1 by Polimi) Design an Urban Forestry project*

*Module 2 by UAB) Assessing Urban Forest Ecosystem Services (UFES) through Earth Observation and local data*

*Module 3 by UNITBV) Mapping and monitoring the dynamics of the urban tree/forest ecosystem*

*Module 4 by TCD) Strategic Leadership of the Nature-based Enterprise*

*Module 5) A final module is dedicated to submitting the project work developed for the final assessment*

- **SDGs goals**
  - SDG3 - GOOD HEALTH AND WELLBEING
  - SDG11 - SUSTAINABLE CITIES AND COMMUNITIES
  - SDG13 - CLIMATE ACTION

the objective of the course is to introduce the concept of urban forestry within the university curricula and with other disciplines complementing and enriching the subject. Urban Forestry, in particular, tackles sustainable development in cities, urban forestry is particularly relevant to the increase in biodiversity in cities and the physical and mental health of the urban inhabitants.

- Assessment

The course assessment will be based on readings, quizzes, project development, and an oral exam. Marks will be given based on the result of a project developed in groups and on the oral exam. The students will have to demonstrate to have acquired an overall, in-depth and critical knowledge and understanding of the issues examined. The evaluation of students' engagement in the course, including lecture attendance and MOOC results, will be integral to the final mark.

- Bibliography

- Guidelines on urban and peri-urban forestry. F Salbitano, S Borelli, M Conigliaro, Y Chen - FAO Forestry Paper 178, 2016. <https://www.fao.org/3/i6210e/i6210e.pdf>
- Urban Forests and Trees: a reference book. January 2005. Publisher: Springer. Editor: Cecil C. Konijnendijk, Kjell Nilsson, Thomas B. Randrup, Jasper Schipperijn. ISBN: 978-3-540-25126-2 (Print) 978-3-540-27684-5 (Online)
- Hansen, Rieke & Rall, Emily & Chapman, Eleanor & Rolf, Werner & Pauleit, Stephan. (2017). Urban Green Infrastructure Planning: A Guide for Practitioners. [https://www.researchgate.net/publication/319967102\\_Urban\\_Green\\_Infrastructure\\_Planning\\_A\\_Guide\\_for\\_Practitioners#fullTextFileContent](https://www.researchgate.net/publication/319967102_Urban_Green_Infrastructure_Planning_A_Guide_for_Practitioners#fullTextFileContent)
- Sustainable Urban and Peri-urban Forestry An Integrative and Inclusive Nature-Based Solution for Green Recovery and Sustainable, Healthy and Resilient Cities Policy Brief. UNECE, 2022. <https://unece.org/forests/publications/sustainable-urban-and-peri-urban-forestry-integrative-and-inclusive-nature>