



European Tree Technician Curriculum



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Definition

A **European Tree Technician** is defined as a person employed in, or aspiring to, junior or middle management, or taking a supervisory role in arboriculture.

European Tree Technicians are skilled in operations on and in amenity trees with the aim of keeping them healthy and safe whilst bearing in mind the demands of biodiversity. In particular they act on the basis of current best practice within arboriculture, conservation, environmental protection and work safety.

Their field of competence will also include technical knowledge, organisational and supervisory skills.

Curriculum

- 1 Foundations of tree management**
 - 1.1 Function, structure, development, growth stages and physiological processes of trees
 - 1.2 Environmental factors - the effects of soil and site location factors on growth and development of trees
 - 1.3 Plant quality assessment - species and nursery stock selection
 - 1.4 Environment and ecology
 - 1.5 Amenity and social value of the trees
 - 1.6 Aesthetics and criteria for species choice
 - 1.7 Tree and shrub planting and aftercare
 - 1.8 Tree care and remedial operations
 - 1.9 Diagnosis and evaluation of tree damage

- 2 Practical procedures in tree maintenance and remedial measures**
 - 2.1 Work site safety and risk assessment when carrying out tree work
 - 2.2 Work site organisation
 - 2.3 Supervision of practical tree work
 - 2.4 Tree site improvement and remedial measures
 - 2.5 Tree climbing/mobile elevating work platform
 - 2.6 Tree felling

- 3 Law, economy and social studies**
 - 3.1 Performance description or specifications for tree maintenance and remedial tree work
 - 3.2 Call for tenders and costing
 - 3.3 Completion and approval, invoicing and guarantee period
 - 3.4 Setting up of legal transactions and liability rights
 - 3.5 Legal regulations for carrying out tree maintenance
 - 3.6 Professional organisations and trade unions at European and national levels

1. FOUNDATIONS OF TREE MANAGEMENT

1.1 Function, structure, development, growth stages and physiological processes of trees

1.1.1 Tree function and structure

The European Tree Technician must be able to

- * Appreciate the basics of tree biology and their relevance to modern arboricultural practice
- * Recognise the external features (morphology) of trees
- * Identify and describe the anatomical and physiological features and functions of the tree
- * Give a detailed account of the lateral branch to trunk union, and describe how pruning techniques must be adapted to this feature
- * Describe the processes of callus and wound-wood production as a response to injury
- * Describe the main defence mechanisms of the tree with reference to injury, including compartmentalisation
- * Highlight the influence of environmental factors on tree physiological processes
show a basic understanding of rootplate architecture and morphology and how it affects the stability of trees
- * Show an understanding of crown structure, wind-sail factors and crown balance
- * Explain the positive and negative features of co-dominant stems and multiple stem attachments

1.1.2 Tree Development and Growth Stages

The European Tree Technician must be able to ...

- * Point out the principal areas of growth and development in a tree
- * Identify the different growth phases of a tree
- * Explain the differences in development and growth stages. Establish evaluation criteria based on these stages to describe maintenance and remedial measures

1.2 Environmental Factors - the Effects of Soil and Site Location Factors on Growth and Development of Trees

1.2.1 Soil Science

The European Tree Technician must be able to ...

- * Assess the physical, chemical, and biological characteristics of soils
- * Identify soil texture by tactile and mechanical means
- * Describe the role and importance of mycorrhizae for the tree
- * Test for soil PH values and assess their relevance

1.2.2 Site Selection

The European Tree Technician must be able to ...

- * Compare different site conditions for urban and countryside trees
- * Choose a tree according to prevalent edaphic factors on site
- * Implement soil composition improvement methods where necessary
- * Select trees for specific site conditions

1.3 Plant Quality Assessment - Species and Nursery Stock Selection

The European Tree Technician must be able to ...

- * Identify the genus and species (and varieties and cultivars where relevant) of plants commonly used in arboriculture in Europe
- * Identify the factors to look for in good quality nursery stock.
Describe pre-transport handling and on-site delivery inspection
- * Explain quality control regulations relevant to retail/wholesale plants

1.4 Environment and Ecology

1.4.1 Nature Conservation and Environmentally Friendly Practices

The European Tree Technician must be able to ...

- * Show knowledge of the ecological importance of trees
- * Demonstrate knowledge of conservation and wildlife habitats that may be affected by tree work and remedial measures
- * Show an understanding of the need to maintain trees in their natural state with respect to plant and animal biodiversity
- * Use environmentally friendly tools and machinery and stress the benefits of integrated biological control methods

1.5 Amenity and Social Value of Trees

1.5.1 The Amenity and Monetary Value of Trees

The European Tree Technician must be able to ...

- * List the various methods of calculating the monetary value of amenity trees
- * Understand the principles of amenity valuation and establish an amenity valuation form

1.5.2 The Social Value of Trees

The European Tree Technician must be able to ...

- * Review the historical and cultural heritage of trees
- * Describe the various social and psychological effects of trees in an urban environment
- * Educate the public to the benefits of trees and necessary tree care operations

- * List the principal national and European professional bodies associated with arboriculture

1.6 Aesthetics and Criteria for Species Choice

The European Tree Technician must be able to...

- * Identify aesthetic, dendrological and arboricultural features of trees and assess their suitability for specific sites and positions based on these criteria

1.7 Tree and Shrub Planting and Aftercare

The European Tree Technician must be able to ...

- * Take existing landscape elements into account when planting trees and shrubs
- * Select fertilisers and other soil additives depending on plant requirements and environmental protection guidelines
- * Encourage mycorrhizae association by careful choice of site and tree and shrub species
- * Carry out correct tree planting and aftercare relevant to the prevailing site and environmental conditions
- * Explain the importance of weed control and mulching in the early years of tree establishment
- * Describe post-planting aftercare and formative pruning methods.
- * Describe the procedures involved in the lifting, transportation and planting of large and transplanted trees - from preparation through to execution and aftercare.

1.8 Tree Care and Remedial Operations

The European Tree Technician must be able to ...

- * Describe correct branch removal and the range of pruning techniques.
- * Prune trees bearing in mind the specific desired result
- * Choose the best period for pruning for the chosen species
- * Describe bracing, cabling, propping systems and their relevant methods of installation
- * List the constraints and risks involved in remedial treatment of cavities and areas of decay
- * Define the protection zone required around trees prior to construction and excavation work
- * Describe methods used to prevent damage to trees on construction and tree sites during remedial operations
- * Select the material, equipment, tools and machines required for soil decompaction, aeration, irrigation and draining
- * Describe the methods and materials used to under seed and under plant
- * Describe the theory and practical aspects of mulching
- * Make recommendations for relevant tree work operations

1.9 Diagnosis and Evaluation of Tree Damage

1.9.1 Abiotic Agents

The European Tree Technician must be able to ...

- * Identify abiotic and climatic factors affecting trees in a given environment
- * Recognise symptoms of climatic damage
- * Recognise urban pollution symptoms
- * Trace and identify root damage symptoms
- * Assess tree stability and mechanical resistance to bending, fracture and uprooting
- * Assess crown wind-sail factors and their affect on tree stability

1.9.2 Biotic Agents

The European Tree Technician must be able to ...

- * Identify the symptoms and organisms involved in tree health
- * Recognise factors favouring tree infections and infestations
- * Identify the agents of wood decay, cankers of the bark, and leaf diseases
- * Outline the biological cycles of fungal and insect species
- * Identify the main types of wood decay and wood decaying fungi on living trees
- * Outline the ways in which decay spreads within wood and explain trees defence mechanisms
- * Suggest suitable prevention and treatment measures for pests and diseases
- * Suggest treatments that are in line with European and national nature conservancy recommendations

1.9.3 Visual Tree Assessment and Hazard Analysis

The European Tree Technician must be able to ...

- * Undertake a visual analysis of trees for mechanical and biological defects
- * Appraise the merits of hand, electronic, sonic, and mechanical decay detection devices
- * Assess the biological health and structural strength of trees
- * List the advanced diagnostic methods available to arborists
- * Appraise the merits of data capture systems available

2. PRACTICAL PROCEDURES IN TREE MAINTENANCE AND REMEDIAL MEASURES

2.1 Work site safety and risk assessment when carrying out tree work

The European Tree Technician must be able to...

- * Understand the requirements and processes involved in risk assessment for tree work
- * Undertake a risk assessment for a tree work site

- * Identify safe equipment, working procedures and training requirements for Tree planting, Tree climbing and/or use of mobile elevating work platforms, Use of a chainsaw from a mobile elevating work platforms and/or rope and harness, Tree pruning, Tree dismantling, Tree felling, Installation of bracing & propping systems, chippers, stump grinders, other relevant machinery, first aid, etc. (in accordance with technical regulations)
- * Observe safety regulations as set out by relevant trade/professional association or other relevant authorities
- * Ensure all equipment is regularly maintained

2.2 Work Site Organisation

The European Tree Technician must be able to...

- * Explain the criteria for the checking and choice of materials, machinery, tools and PPE.
- * Explain the preparation and safety requirements for site operations
- * Establish procedures to secure the work site for third parties
- * Establish emergency procedures for the work site
- * Implement work safety and accident prevention procedures from current regulations

2.3 Supervision of practical tree work

The European Tree Technician must be able to...

- * Explain/demonstrate basic staff supervision techniques
- * Discuss the site risk assessment with the work team
- * Supervise the site organisation
- * Plan the work and allocate responsibilities with the work team
- * Supervise working procedures and the use of machinery and equipment
- * Communicate with the public while the work is being undertaken
- * Communicate with the client at the start and completion of the work

2.4 Tree site improvement and remedial measures

The European Tree Technician must be able to...

- * Improve tree sites in accordance with technical regulations
- * Carry out operations such as soil decompaction, soil aeration and soil replacement
- * Install irrigation and aeration systems
- * Use, select and apply fertilizers and other soil improvement mediums
- * Cover and protect root zone from potential damage
- * Carry out inspections and aftercare/establishment operations
- * Produce and implement a management plan

2.5 Tree Climbing/Mobile Elevating Work Platform

The European Tree Technician must be able to ...

- * Select the right techniques and necessary equipment to access and move safely in and around the tree

- * Show competence with the use of rope and harness, mobile elevating and static work platforms and ladders
- * Select the tools best adapted for the work at hand
- * Ensure the proper maintenance of tools and equipment

When choosing Tree Climbing..

- * To select the best point of access into a tree taking into account any local site constraints
- * Be aware of current best practice with respect to use of the chainsaw at height.

See EAC leaflet „Aerial Tree Work Operations“

When choosing Mobile Elevating and/or Static Work Platforms or ladders

- * To be aware of current national and European legislation with respect to use of Mobile Elevating/Static Work Platforms.
- * Be aware of current best practice with respect to use of the chainsaw in conjunction with a Mobile Elevating/Static Work Platform. See EAC leaflet „Aerial Tree Work Operations“

2.6 Tree Felling

The European Tree Technician must be able to ...

- * Describe the various methods for straight and sectional felling
- * Select appropriate equipment necessary for straight and sectional felling operations
- * Ensure correct tool and equipment maintenance
- * Comply with relevant PPE requirements

3 LAW, ECONOMY AND SOCIAL STUDIES

3.1 Performance description or specifications for tree maintenance and remedial tree work

The European Tree Technician must be able to...

- * Describe the contents of a works specification and its legal and economic significance
- * Describe the legal requirements concerning the workforce and sub-contractors on the work site and on the employer's premises.
- * Describe liability regulations covering the safety of people and property on the work site and on the employer's premises.

3.2 Call for tenders and costing

The European Tree Technician must be able to...

- * Explain the basic procedure of a call for tenders
- * Explain even spread costing and make relevant calculations
- * Discuss the importance of time performances in pricing a job
- * Calculate tender prices

- * Calculate intermediate costing and plan ahead for needs in machinery, manpower and technical resources
- * Explain the criteria for allocation of tree maintenance contracts
- * Carry out a costing exercise and prepare an offer to a tender document specification

3.3 Completion and approval, invoicing and guarantee period

The European Tree Technician must be able to...

- * Explain basic procedures concerning completion of works and final approval, invoicing and implementation of guarantee period

3.4 Setting up of legal transactions and liability rights

3.4.1 Setting up of legal transactions

The European Tree Technician must be able to...

- * Discuss the basics of civil law
- * Explain the unanimous declaration of intent (as a prerequisite for legally valid settlement of a contract)

3.4.2 Liability

The European Tree Technician must be able to...

- * Explain the legal classification of the tree as a construction
- * Explain the basics of liability law in particular with respect to damage caused by trees and quote the regulations concerning liability in connection with occasional injury to trees
- * Explain and assess procedures for securing evidence

3.5 Legal regulations for carrying out tree maintenance

3.5.1 Civil Law regulations

The European Tree Technician must be able to...

- * Explain the legal categorisation of tree care operations as construction work
- * Explain the content, structure and legal importance of regulations governing construction contracts
- * Explain contents and legal importance of specific standards, legislation and contractual constituents as they affect tree care operations
- * Show a basic understanding of Civil Law where it concerns neighbours

3.5.2 Public Law and Traffic regulations

The European Tree Technician must be able to...

- * Show a basic understanding of Public Law
- * Show understanding of the aims and principles of environmental legislation as far as they are relevant to trees in urban areas



- * Show an understanding of Traffic regulations pertaining to vehicles and trailers relevant to arboricultural

3.5.3 Application of Industrial Law, Company Law, Labour Law and social legislation

The European Tree Technician must be able to...

- * Show a basic understanding of Contract Law and Industrial Law
- * Explain the relevant social insurance system
- * Explain the content and legal importance of safety regulations relevant to arboricultural operations; draw conclusions about the practical applications of safety regulations as applicable to everyday working scenarios.
- * Show an understanding of employment law, social legislation and collective agreements
- * Show an understanding of regulations governing Work at Height and Lifting and Lowering

3.6 Professional organisations and Trade Unions at European and national levels

The European Tree Technician must be able to...

- * Show an understanding of the aims and responsibilities of the relevant arboricultural, horticultural and forestry associations and governing bodies
- * Show an understanding of the aims and responsibilities of other relevant and influential associations and governing bodies and of various public services that can affect city trees.

July 2016