



# Syllabus. Basic guide to installation and preparation of football fields

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# Objectives

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## General objectives

- **Acquire the knowledge and tools to prepare football fields for competitions endorsed by CONMEBOL in a professional manner.**
- **Develop the ability to always opt for the best construction or remodeling method that will confer the highest quality to the turf.**
- **To know the annual services of maintenance and operation of the court during tournaments.**

## Specific objectives

- To know the variables that must be considered for the construction and remodeling of football fields to achieve their standardization.
- To know all the variables involved in the project to calculate the cost of the project.
- Knowing which specialists to call on for different aspects of the project.
- Acquire the tools to be able to make decisions such as the choice of the grass, the time to do it.
- Know the annual maintenance services.
- Know the court operation services during tournaments.
- Develop decision-making skills.

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# Competencies

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## Generic competencies

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**Ability to organize and guide the construction or remodeling project of a court.**

**Ability to organize maintenance work.**

**Autonomy and proactivity in the search for solutions**

## Specific competencies

- Quality management
- Ability to work in international contexts

- Ability to formulate and manage projects
- Ability to identify and solve problems
- Ability to make decisions
- Ability to organize and plan time

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# Glossary

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## **Aeration** —

Operations performed to optimize the turf by physical methods to improve drainage, air exchange and promote better root development.

## **Cutting height** —

The height above ground level at which the grass is cut.

## **Sand** —

Granular mineral material ranging from 0.05 to 2 mm in diameter.

## **Clay** —

Soil particles smaller than 0.002 mm in diameter. Soils rich in clay usually have unsatisfactory drainage characteristics and retain a lot of water.

### **Perennial ryegrass** —

A cold-weather grass species (*Lolium perenne*). In English, *perennial ryegrass*.

### **Gravel** —

Fragments of rock or small pebbles with a diameter between, usually, 2 and 10 mm.

### **Sandy Layer** —

A mixture of sand and soil or sand and organic matter used as a growing medium for the plant.

### **Vertical cutting** —

Use of machine with vertical rotating blades that cut the grass to remove the grass mat or cut stolons.

**Disease** —

A pathological condition, usually arising from a fungal infection, usually associated with environmental stress, that affects turf quality.

**Tubular drainage** —

Trench containing a drainage pipe earthed with suitable gravel.

**Vertical drainage equipment** —

A tractor-powered lawn aerator that can break up compacted soil with the use of augers.

**Weeds** —

Undesirable grasses or round-leaved plants.

**Brush** —

A piece of equipment consisting of bristles arranged in a suitable structure used to sweep the lawn.

**Dragging mat** —

A trailed flexible steel mat for working on hedges, most especially undulating turf surfaces.

**Fertilizer formula** —

The percentage of nitrogen, phosphorus and potassium, plus other turf nutrients, found in a fertilizer.

**Fungicide** —

Any chemical that controls or destroys the growth of a fungus.

**Lawn** —

Any of various plants with elongated leaves characteristic of the botanical family GRAMINEAE.

**Bermuda Grass** —

Type of grass for warm climates (*Cynodon* species).

**Insects** —

Small arthropod animals of the class *insecta* with an adult level characterized by three pairs of legs and a body segmented into head, thorax and abdomen and usually having two pairs of wings. Insects include, for example, flies, crickets and beetles.

**Irrigation** —

The controlled application of water to the lawn.

**Cutting machine** —

Lawn mowing machine.

**Helical cutting machine** —

A lawn mowing machine in which the helical cutting blades move in a vertical plane and cut due to the action of the blades against the ground.

**Vertical Cutting Machine** —

Machine that cuts vertically the stolons and the mattress layer with a blade.

**Line marker** —

Machine for marking white lines on a court.

**Stone** —

Large particles of mineral matter or rock usually larger than 10 mm in diameter.

**Drilling machine** —

Machine used to create perforations for ventilation in the lawn, in sheet format.

**Pesticide** —

Any substance or mixture of substances to prevent or control undesirable species of plants and animals and includes all substances to be used as a growth regulator, exfoliant or desiccant.

**Laminar Punch** —

Punch in foil format.

**Solid Punch** —

Punch to create perforations in the turf surface during aeration work.

**Hollow Punch** —

A form of aeration in which cylindrical coring is used to remove soil cylinders.

**Sprayer** —

Machine with a line of nozzles on elongated arms for spraying liquid chemicals on the lawn.

**Roots** —

The part of a lawn located below ground that functions as a support, removes minerals and water from nearby soil, and sometimes stores nutrients.

**Remodeling** —

Repair of a lawn area by cultivation, leveling and reseeding, performed especially at the end of the match season.

**Rotary** —

A motorized mower that cuts grass by the high-speed impact of rotating blades on a horizontal cutting plane.

**Sowing** —

Adding seed to the soil to produce new turf.

**Seed** —

The reproductive structure of a plant containing an embryo, nutrients and protective shell. The seeds are used for sowing grass.

**Limo** —

Fine particles of intermediate size between 0.002 and 0.5 mm in diameter.

**Drainage system** —

A drainage network to remove excess water from a field.

**Soil** —

The natural medium for grass growth consisting of mineral particles mixed with organic matter.

**Peat** —

Material consisting of totally or partially decomposed organic material accumulated under conditions of excessive moisture. Normally used to improve water and nutrient retention.

**Rotary with suction** —

Suction equipment used primarily to lift grass clippings and other debris from the ground surface.

**Sweeping unit** —

Machine normally with a rotating brush and collector.

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# Module 1

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## Introduction

### Unit 1

Climatic regions of South America

Specialized consulting

### Unit 2

#### Construction of the court

Installation standard

Construction planning

Construction methods

- Court with piped drainage system and natural soil
- Court with sandy layer on a gravel drainage mattress

#### Irrigation installation and management

Installation

Irrigation water quality

Irrigation system maintenance

Water storage and replenishment

Stadium irrigation projects

### **Floor leveling**

### **Lawn**

Choice of turf

Sod installation methods

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# Module 2

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## Unit 1

### Renovation of old courts

Situation of the field to be renovated

Deadlines for execution

Renovation budget

Post-reform management

Installation of all systems

### Drainage of old courts

Irrigation in old fields

Replanting of existing fields

## Unit 2

## **Annual and end-of-season maintenance**

Turf renovation

Removal of excess turf cushion

Purpose

Equipment

Soil aeration

Purpose

Equipment

Aeration with deep vertical drainage

Aeration with surface drills

Coverings for leveling

Purpose

Materials

Equipment

Weed, disease and insect control

Weeds

Diseases

Insects

Turf bun changes

Winter seed sowing

Establishment of new turf from seed

## **Unit 3**

### **Maintenance and regulation of machines**

Calibration of spraying equipment

Fertilizer Spreader Calibration

Adjustment of lawn mowers

Cutting height adjustment on helical machines

Basic requirements for good helical machine performance

Preventive maintenance

Cutting unit settings and configurations

Sharpening of cutting equipment

Grinding and backlapping

Preventive maintenance of equipment

Preventive maintenance program

Lubrication

Fats

Washing

Oil and filter change

Belts

Tire pressure

Lawn mowers

Aerators

Sprayers

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# Module 3

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## Unit 1

### Marking of the court according to official measures

Purpose

Materials

Equipment

Tools

## Unit 2

### Court management during the playing season

Work planning

Soil analysis

Provide for product stockpiling

Overhaul of all equipment

Preparation of the turf for training and matches

Weekly or biweekly fertilization plan

Define frequency of cuts

Agricultural defensives application plan

Details of the processes to be performed

Cut

Purpose

Types of cutting equipment

Cutting operation

Irrigation

Purpose

Irrigation operation

Fertilizer application

Purpose

Materials and equipment

Application of granular fertilizer

Application of liquid fertilizers

Winter sowing (overseeding)

Cleaning and removal of waste after court use

Purpose

Equipment

Suction or rotary cutting

Purpose

Lawn brushing

Purpose

Hole correction

Weed, disease or insect control

Minor renovations during the gaming season

Scarification/vertical cutting

Surface or localized aerations

Application of sand in coating - topdressing

Routine lawn maintenance equipment

Court personnel

Team training prior to the start of the season

Operations personnel

Lawn foreman

Other specialized professionals

Intensity of court use

### **Unit 3**

#### **Match day**

Checks to be performed by the Delegate

Protocols to be followed according to the Match Countdown

MD-2 - List of activities to be performed

MD-1 - List of activities to be performed

MD - List of activities to be carried out, in sequence

Operation during the match

Pre-warm-up and pre-match irrigations

Hole correction

Replacement of flagpoles and poles

Post-game repairs

Information flow

Pre-match work planning

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# Module 4

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## Unit 1

### Use of the stadium for major events

Public grass cover

Stage turf cover

Post-event management

## Unit 2

### Technologies for court construction

Vacuum drainage and ventilation

Supplementary lights

Fiber floor reinforcement

## Unit 3

## Performance measures

Humidity

Soil compaction

Surface hardness

Turf traction

Turf height

Vertical rebound

Ball rolling test

Soil temperature

Root depth and density

Mattress thickness

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