

**T.C.
GAZIANTEP UNIVERSITY
NURDAGI VOCATIONAL SCHOOL**



**PLANT AND ANIMAL
PRODUCTION DEPARTMENT**

**MEDICINAL AND AROMATIC
PLANTS PROGRAM**

COURSE CURRICULUM

**PLANT AND ANIMAL PRODUCTION DEPARTMENT
MEDICINAL AND AROMATIC PLANTS PROGRAM COURSE CURRICULUM**

| FIRST SEMESTER | | | | | | |
|---|----------------------------------|-------------|-----------|----------|-----------|-----------|
| Course Code | Course name | Lesson Type | T | A | Credits | ECTS |
| NUTA101 | CHEMISTRY-I | C | 3 | 0 | 3 | 4 |
| NUOT103 | BOTANICAL | C | 2 | 2 | 3 | 4 |
| NUOT105 | PLANT PHYSIOLOGY | C | 3 | 0 | 3 | 4 |
| NUOT107 | SOIL INFORMATION | C | 3 | 0 | 3 | 3 |
| NUPS109 | AGRICULTURAL ECOLOGY | C | 2 | 2 | 3 | 4 |
| NUPS111 | COMPUTER-I | C | 2 | 2 | 3 | 3 |
| GME100 | GENERAL AND PROFESSIONAL ETHICS* | CC | 2 | 0 | 2 | 2 |
| YDBI101 | ENGLISH-I* | CC | 2 | 0 | 2 | 2 |
| TURK101 | TURKISH LANGUAGE-I* | CC | 2 | 0 | 2 | 2 |
| TDP101 | SOCIAL SENSITIVITY PROJECT-I* | P | 1 | 0 | 1 | 1 |
| GOS*** | GENERAL COMMON ELECTIVE COURSES* | CE | 1 | 1 | 0 | 1 |
| TOTAL | | | 23 | 7 | 25 | 30 |
| GENERAL ELECTIVE COURSES | | | | | | |
| GOS112 | BASIC SPORTS PRACTICS | CE | 1 | 1 | 0 | 1 |
| GOS118 | HEALTHY LIFE AND SPORTS | CE | 1 | 1 | 0 | 1 |
| GOS123 | MUSIC | CE | 1 | 1 | 0 | 1 |
| GOS124 | TURKISH FOLK DANCES | CE | 1 | 1 | 0 | 1 |
| *Courses Not Included in Term Course Load | | | | | | |
| C: Compulsory E: Elective CC: Common Compulsory CE: Common Elective P: Prerequisite Course | | | | | | |

| SECOND SEMESTER | | | | | | |
|---|---|-------------|-----------|-----------|-----------|-----------|
| Course Code | Course name | Lesson Type | T | A | Credits | ECTS |
| NUTA102 | CHEMISTRY-II | C | 3 | 0 | 3 | 3 |
| NUTA104 | MICROBIOLOGY | C | 3 | 0 | 3 | 3 |
| NUTA106 | SYSTEMATICS OF MEDICINAL AND AROMATIC PLANTS | C | 3 | 0 | 3 | 3 |
| NUTA108 | MEDICINAL AND AROMATIC PLANT. CULTIVATION TECHNIQUE-I | C | 2 | 2 | 3 | 3 |
| NUOT108 | PLANT NUTRITION AND FERTILIZATION | C | 2 | 2 | 3 | 3 |
| NUPS112 | COMPUTER-II | C | 2 | 2 | 3 | 3 |
| NUOT114 | ENTREPRENEURSHIP | C | 2 | 2 | 3 | 3 |
| KRY100 | CAREER PLANNING* | CC | 0 | 2 | 1 | 1 |
| YDBI102 | ENGLISH-II* | CC | 2 | 0 | 2 | 2 |
| TURK102 | TURKISH LANGUAGE-II* | CC | 2 | 0 | 2 | 2 |
| TDP102 | SOCIAL SENSITIVITY PROJECT-II* | P | 1 | 2 | 2 | 2 |
| NUSD*** | ELECTIVE COURSES | CE | 0 | 1 | 0 | 2 |
| TOTAL | | | 22 | 13 | 27 | 30 |
| SEÇMELİ DERSLER | | | | | | |
| MUP100 | PROFESSIONAL PRACTICE PROJECT | CE | 0 | 1 | 0 | 2 |
| NUSD100 | SUMMER INTERNSHIP | CE | 0 | 1 | 0 | 2 |
| *Courses Not Included in Term Course Load | | | | | | |

| THIRD SEMESTER | | | | | | |
|---|--|-------------|-----------|-----------|-----------|-----------|
| Course Code | Course name | Lesson Type | T | A | Credits | ECTS |
| NUTA201 | MEDICINAL AND AROMATIC PLANT. CULTIVATION TECHNIQUE-II | C | 2 | 2 | 3 | 4 |
| NUTA203 | PREPARATION OF DROG | C | 2 | 2 | 3 | 4 |
| NUTA205 | PERFUME PLANTS AND EVALUATION TECHNIQUE. | C | 2 | 2 | 3 | 4 |
| NUOT207 | AGRICULTURAL BUILDINGS AND IRRIGATION TECHNIQUES | C | 2 | 2 | 3 | 3 |
| NUTA211 | SEED TECHNOLOGIES | C | 2 | 2 | 3 | 4 |
| NUSD*** | ELECTIVE COURSE-I | E | 2 | 2 | 3 | 3 |
| NUSD*** | ELECTIVE COURSE-II | E | 2 | 2 | 3 | 3 |
| NUSD*** | ELECTIVE COURSE-III | E | 2 | 2 | 3 | 3 |
| AIIT201 | ATATURK'S PRINCIPLES AND REVOLUTION HISTORY-I* | CC | 2 | 0 | 2 | 2 |
| TOTAL | | | 18 | 16 | 26 | 30 |
| *Courses Not Included in Term Course Load | | | | | | |

| FOURTH SEMESTER | | | | | | |
|---|--|------------|-----------|-----------|-----------|-----------|
| Course Code | Course name | Lesson Typ | T | A | Credits | ECTS |
| NUTA202 | PHYTOCHEMISTRY | C | 2 | 2 | 3 | 4 |
| NUTA206 | SPICE-PLEASURE PLANTS AND EVALUATION TECHNIQUES | C | 2 | 2 | 3 | 4 |
| NUTA210 | PHYTOTHERAPY AND AROMATHERAPY | C | 2 | 2 | 3 | 4 |
| NUOT212 | AGRICULTURAL MARKETING | C | 3 | 0 | 3 | 3 |
| NUTA216 | PLANT EXTRACTION METHODS | C | 2 | 2 | 3 | 4 |
| NUSD*** | ELECTIVE COURSE-I | E | 2 | 2 | 3 | 3 |
| NUSD*** | ELECTIVE COURSE-II | E | 2 | 2 | 3 | 3 |
| NUSD*** | ELECTIVE COURSE-III | E | 2 | 2 | 3 | 3 |
| AIIT202 | ATATURK'S PRINCIPLES AND REVOLUTION HISTORY -II* | CC | 2 | 0 | 2 | 2 |
| TOTAL | | | 19 | 14 | 26 | 30 |
| *Courses Not Included in Term Course Load | | | | | | |

| NURDAGI VOCATIONAL SCHOOL ELECTIVE COURSES | | | | | | |
|--|--|--------------------|----------|----------|----------------|-------------|
| Course Code | Course name | Lesson Type | T | A | Credits | ECTS |
| NUSD201 | PISTACHIO CULTIVATION | E | 2 | 2 | 3 | 3 |
| NUSD202 | LAND REGULATION | E | 2 | 2 | 3 | 3 |
| NUSD203 | CARE AND PRUNING TECHNIQUES FOR PLANTS | E | 2 | 2 | 3 | 3 |
| NUSD204 | PLANT BREEDING | E | 2 | 2 | 3 | 3 |
| NUSD205 | PLANT PESTS AND THEIR CONTROL | E | 2 | 2 | 3 | 3 |
| NUSD206 | MEADOW PASTURE AND FORAGE CROPS | E | 2 | 2 | 3 | 3 |
| NUSD207 | ENVIRONMENT AND ORGANIC FARMING | E | 2 | 2 | 3 | 3 |
| NUSD208 | SEEDLING AND SEEDLING GROWING TECHNIQUES | E | 2 | 2 | 3 | 3 |
| NUSD209 | ROSE SEEDLING GROWING | E | 2 | 2 | 3 | 3 |
| NUSD210 | BUSINESS ADMINISTRATION | E | 2 | 2 | 3 | 3 |
| NUSD211 | ORGANIC MUSHROOM PRODUCTION | E | 2 | 2 | 3 | 3 |
| NUSD212 | GREENHOUSE VEGETABLE GROWING | E | 2 | 2 | 3 | 3 |
| NUSD213 | LANDSCAPE AND ORNAMENTAL PLANTS | E | 2 | 2 | 3 | 3 |
| NUSD214 | COMPUTER APPLICATIONS IN LANDSCAPE | E | 2 | 2 | 3 | 3 |
| NUSD215 | FARMING ECONOMY | E | 2 | 2 | 3 | 3 |
| NUSD216 | AGRICULTURAL TECHNOLOGIES | E | 2 | 2 | 3 | 3 |
| NUSD217 | SOILLESS FARMING | E | 2 | 2 | 3 | 3 |
| NUSD218 | OLIVE GROWING | E | 2 | 2 | 3 | 3 |
| NUSD219 | QUALITY CONTROL | E | 2 | 2 | 3 | 3 |
| NUSD220 | MEDICINAL AND AROMATIC PLANTS | E | 2 | 2 | 3 | 3 |
| NUSD221 | PLANT PROTECTION | E | 2 | 2 | 3 | 3 |
| NUSD222 | AGRICULTURAL MARKETING | E | 2 | 2 | 3 | 3 |
| NUSD223 | SEEDLING AND SEEDLING GROWING | E | 2 | 2 | 3 | 3 |
| NUSD224 | SEED TECHNOLOGIES | E | 2 | 2 | 3 | 3 |
| NUSD225 | FINANCE MATHEMATICS | E | 2 | 2 | 3 | 3 |
| NUSD226 | DYE PLANTS AND EVALUATION TECHNIQUES | E | 2 | 2 | 3 | 3 |
| (2nd Year students will be able to choose courses worth 9 Credits and 9 ECTS for the Fall-Spring Semesters) | | | | | | |

MEDICINAL AND AROMATIC PLANTS PROGRAM COURSE CURRICULUM

1th CLASS

FIRST SEMESTER

NUTA101 CHEMISTRY-I (3-0) ECTS: 4

Analytical chemistry, formulas and equations, reactions, solutions, equilibrium acids and bases, p^H , p^{OH}

NUOT103 BOTANIC (2-2) ECTS: 4

Classification of botany, cytology (cell science: protoplasm, cytoplasm, cell membrane, nucleus, chromosomes, cell division, etc.), histology (Tissue science: intercellular spaces, classification of tissues), organography (root, stem, leaf), plant systematics, reproduction in plants (asexual and sexual reproduction, structure of the flower, structure of the ovule, symmetry in flowers, flower formula and diagram, flower arrangements, pollination, fertilization, fruit, types of fruit), growth and development physiology.

NUOT105 PLANT PHYSIOLOGY (3-0) ECTS: 4

Concepts of growth, vegetative and generative growth, photosynthesis, respiration, water uptake and transport mechanism, uptake and transport mechanism of nutrients, internal and external factors affecting growth and development, dormancy (in seeds, buds, and other organs), germination, sprouting and rooting, apical dominance, sterility and incompatibilities, parthenocarpy and apomixis, flower and fruit abscission, ripening, aging, growth movements, tolerance to cold and drought.

NUOT107 SOIL SCIENCE (3-0) ECTS: 3

Soil formation, classification of soils, soil colloids; structure and practical importance, physical properties of soils, soil water, chemical properties of soils, soil reaction, soils affected by alkalinity and salinity and their management, soil organisms and ecology; soil organic matter, practical productivity management; phosphorus, potassium, and micronutrient elements in soils, chemical contamination in soils.

NUPS109 AGRICULTURAL ECOLOGY (2-2) ECTS: 4

Definition, development, and scope of ecology, ecosystems and their elements, definition of plant ecology, relationships between plants and the environment, interspecific competition among plants, ecological conditions necessary for plant development, temperature, light, humidity, atmosphere, wind, water and their effects, soil factors, biological factors and interactions with plants, environmental pollution.

NUPS111 COMPUTER-I (2-2) ECTS: 3

Introduction to information technologies, computer hardware and networks, operating systems, internet applications.

GME100 GENERAL AND PROFESSIONAL ETHICS (2-0) ECTS: 4

Introducing students to general and professional ethics, moral and social responsibility concepts; the similarities and differences among these concepts, factors influencing the formation of ethics and morals; identifying unethical behavior in professional life.

YDBİ101 ENGLISH-I (2-0) ECTS: 2

The main purpose of this course is to provide English education at the A-1 level within the framework of the Common European Framework of Reference for Languages (CEFR) and the European Language Portfolio. It aims to enable every young person who has completed higher education to comprehend English as a foreign language based on the fundamental structure and functioning properties, to acquire the ability to use English as a means of written and oral expression in terms of language-thought connection, and to educate young people with foreign language awareness.

TURK101 TURKISH LANGUAGE-I (2-0) ECTS: 2

Languages on Earth, Language families, The position of Turkish among world languages, Areas where Turkish is spoken, Punctuation marks, Spelling Rules, Petition, Sound features of Turkish, Sound events in Turkish, Written expression, Memoir genre.

TDP101 SOCIAL SENSITIVITY PROJECT-I (1-0) ECTS: 1

To strengthen the connections between the university and society, to educate students who are sensitive to social issues and have a sense of social responsibility, to identify the current problems of society and prepare projects for their solutions."

GOS* GENERAL COMMON ELECTIVE COURSES**

GOS112 BASIC SPORTS PRACTICES (1-1) ECTS: 1

The aim of the Basic Sports Practices course includes history, the place and importance of sports in society, types of sports, sports sociology, and leisure education. The effects of a healthy lifestyle and sports on the human body. Training principles. Lifelong sports. Practical applications.

GOS118 HEALTHY LIVING AND SPORTS (1-1) ECTS: 1

Concepts of physical education and sports; The relationship between physical, physiological, and psycho-social work areas with sports science; Relationship between physical fitness and physical activity; Concepts related to physical fitness, Importance of physical fitness; Relationship between physical activity and health; Ability to recognize basic training methods used to improve physical fitness; Practical applications.

GOS123 MUSIC (1-1) ECTS: 1

The elective music course aims to provide a general cultural acquisition. Initially, discussions are held with students on art and aesthetic concepts, providing them with basic information on the definition of art. Information is given to students about the history and structure of music art. Works from ancient times to the present are presented to students through perception to acquire this culture. Western music and Turkish music forms and structures are discussed, and necessary notes are provided to students. Listening sessions focus on songs, folk songs, religious music, and basic concepts of Turkish music. Notes are given to students on Turkish folk music, Turkish Classical Music, Turkish Art Music, and Turkish Sacred Music. Students are introduced to basic forms of Western music such as Opera, Sonatina, and Symphonic music, with definitions and notes shared. Information is provided on musical instruments and their structures.

GOS124 TURKISH FOLK DANCES (1-1) ECTS: 1

General dance knowledge and definitions and functions of Turkish folk dances, rhythm knowledge, basic steps, distribution of Turkish folk dances by regions (Halay, Bar, Zeybek, Spoon-Handshake, Horon, Hora, etc.) and examples of these dances. General definition of Halay dances and application of the three-legged dance with music. Explanation of the Halay dance group; Application of the Delilo dance with rhythm and music. Explanation of the straight-leg dance group; Application of the Zeybek dance and its region with rhythm and music. General definition of Harmandalı dance and its region; Application of the Harmandalı dance with rhythm and music. General definition of Seğmen dance and its region; Application of the Seğmen dance with rhythm and music. General definition of Horon dance and its region; Application of the straight Horon dance with rhythm and music. Application of the arrangement of the Horon dance group from the Horon region with music and rhythm. General definition of the Bar dance group and its region; Application of the Atabarı Dance with rhythm and music. General definition of the Kasap Havası dance in the Karşılama dance group and application of the Yayla Yolları dance with melody and rhythm. Application of the Kasap Havası dance with melody and rhythm in the Karşılama dance group.

SECOND SEMESTER

NUTA102 CHEMISTRY-II (3-0) ECTS: 3

Introduction and promotion of annual and biennial garden flowers, information on their ecological requirements and usage areas, perennial garden flowers, their definitions, ecological requirements, and information on usage areas.

NUTA104 MICROBIOLOGY (3-0) ECTS: 3

Development of microbiology, place of microorganisms among living organisms, protists; environmental requirements, growth, and death of microorganisms; introduction to microbial genetics, soil microbiology, microbial ecology, food microbiology, preservation methods of food items, industrial microbiology, fermentation methods.

NUTA106 MEDICINAL AND AROMATIC PLANT SYSTEMATICS (2-2) ECTS: 3

Introduction of greenhouse ornamental plants, maintenance procedures, general environmental requirements, general information for propagation, usage areas, aesthetic features.

NUTA108 MEDICINAL AND AROMATIC PLANT CULTIVATION TECHNIQUES-I (2-2) ECTS: 3

This course includes information on the conditions for the cultivation of medicinal and aromatic plants, why certain plants should be cultivated, identification of economically important plants, and teaching routine maintenance and processing methods of these plants. In addition, plant propagation techniques are another area that students taking this course can learn.

NUOT108 PLANT NUTRITION AND FERTILIZATION (2-2) ECTS: 3

Essential elements required for plant nutrition, classification and properties of fertilizers, application of plant nutrient elements and their uptake mechanisms. Timing of fertilizer application and factors affecting the uptake of nutrient elements.

NUPS112 COMPUTER-II (2-2) ECTS: 3

Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft Outlook.

NUOT114 ENTREPRENEURSHIP (2-2) ECTS: 3

Concept of entrepreneurship. Testing entrepreneurial characteristics. Idea development and creativity exercises. Sharing experiences. Concept of business. Business functions: forms of establishment. Business functions: types. Business functions: financial and legal responsibilities. Concept of a business plan: market research. Elements of a business plan: marketing plan. Elements of a business plan: production, management, and financial plans. Workshop activities focusing on business models and business plans. Business plan presentations.

KRY100 CAREER PLANNING (0-2) ECTS: 1

Concept of a career, Career Planning, Relationship of Career Planning with vocational counseling, Individual career development, Resume preparation and types of resumes, Job interview, Career Planning process, Evaluation of the Turkish Education System in line with Career Planning, Applicability of career counseling in schools, Lifelong career planning, Career Planning for retirement.

YDBI102 ENGLISH-II (2-0) ECTS: 2

The main objective of this course is to provide English education at the A-1/A-2 level within the framework of the Common European Framework of Reference for Languages (CEFR) and the European Language Portfolio. It aims to enable every young person who has completed higher education to comprehend English as a foreign language based on the fundamental structure and functioning properties, to acquire the ability to use English as a means of written and oral expression in terms of language-thought connection, and to educate young people with foreign language awareness.

TURK102 TURKISH LANGUAGE-II (2-0) ECTS: 2

Word stress in Turkish, stress on phrases and sentences in Turkish. Root in words, suffixes, inflectional suffixes, stem concept, derivational suffixes. Sentence elements. Sentence types. Correct sentence. Forms and techniques of expression. Expression faults: expression faults based on meaning, expression faults based on structure. Critique and self-criticism. Interview, Essay, and other types of writing. Writing practice.

TDP102 SOCIAL SENSITIVITY PROJECT-II (1-2) ECTS: 2

To strengthen the connections between the university and society, to educate students who are sensitive to social issues and have a sense of social responsibility, fieldwork is conducted in projects prepared to identify and solve current social problems, transferring knowledge gained in class to experience and practice, and working on developing skills in project teams.

GOS* GENERAL ELECTIVE COURSES****MUP100 PROFESSIONAL PRACTICE PROJECT (0-1) ECTS: 2**

The Professional Practice Project course aims to enhance the student's knowledge and skills through research on a project topic related to their professional field under the supervision of an academic advisor.

NUSD100 SUMMER INTERNSHIP (0-1) ECTS: 2

The Summer Internship course aims to enhance the student's knowledge and skills through research on a project topic related to their professional field.

2nd CLASS

THIRD SEMESTER

NUTA201 CULTIVATION TECHNIQUES OF MEDICINAL AND AROMATIC PLANTS-II (2-2) ECTS: 3

Site selection in open field nursery management, climate soil-water conditions, nursery establishment and operation plans, establishment stages and activities in nurseries, production and cultivation activities in nursery and greenhouse management, evaluation of nursery products.

NUTA203 PREPARATION OF DRUGS-I (2-2) ECTS: 3

Students taking the course will be provided with information on the usage forms of plant parts commonly used in the alternative medicine field, such as infusion, decoction, maceration, tincture, syrup, tablets, etc.

NUTA205 PERFUME PLANTS AND EVALUATION TECHNIQUES (2-2) ECTS: 3

The aim is to recognize plants used in perfume making, examine their cultivation conditions, and teach the methods of obtaining basic materials used in perfume making. General concepts related to perfumes, Cultivation of perfume plants, Essential oils, Other materials used in perfume making, Methods of obtaining essential oils from plants, Perfume market in Turkey and worldwide, Legal regulations.

NUOT207 AGRICULTURAL STRUCTURES AND IRRIGATION TECHNIQUES (2-2) ECTS: 4

Soil and water resources in Turkey, irrigability status, soil-water-plant relationships, infiltration, plant water consumption, planning irrigation systems, planning open channels, quality and classification of water resources, irrigation methods, drainage. Arrangement of courtyards and buildings in agricultural enterprises, environmental conditions for agricultural structures, structural elements and materials in agricultural buildings, agricultural structures and facilities, animal shelters, planning of greenhouses.

NUTA211 SEED TECHNOLOGIES (2-2) ECTS: 4

Concept of seed, seed production and supply in our country, cross-pollination and self-pollination, heterozygous and homozygous seeds, sources of pollen contamination, isolation, plant species produced from seeds, seed production, factors affecting production, physical and biological characteristics sought in seeds, factors affecting and accelerating germination, harvesting, separating, packaging, labeling, storage of seeds, seed classifications, certification systems, concept of F1 hybrid seeds and production.

AIİT201 PRINCIPLES OF ATATÜRK AND HISTORY OF THE REVOLUTION-I (2-0) ECTS: 2

Concepts and Ottoman Reforms. Developments in Europe. Industrial Revolution and French Revolution. Young Ottomans. Constitutionalism and Committee of Union and Progress. Constitutional Period. Tripolitania and Balkan Wars. Causes of World War I. World War I. Division of the Ottoman Empire. Preparation Period for the National Struggle. Congresses. Last Ottoman Parliament and National Pact. Period of the Grand National Assembly of Turkey and Formation of Fronts. Treaty of Lausanne. Foreign Policy.

FOURTH SEMESTER**NUTA202 PHYTOCHEMISTRY (2-2) ECTS: 4**

Secondary substances found in plants; carbohydrates, glycosides, alkaloids, essential oils, fixed oils, tannins, mucilages, organic acids, waxes. Extraction of these substances from plants, extraction methods, identification, and quantitative determination.

NUTA206 SPICE AND AROMATIC PLANTS EVALUATION TECHNIQUES (2-2) ECTS: 3

Introduction of active ingredients (such as alkaloids, glycosides) in some important spice plants like cinnamon, thyme, black pepper, cumin, and other plants like flax, poppy, hemp, coffee, tea, hops, anise. Teaching the methods of obtaining and their usage.

NUTA210 PHYTOTHERAPY AND AROMATHERAPY (2-2) ECTS: 4

Definition, importance, and history of phytotherapy and aromatherapy; the place of herbal medicines in modern medicine, active ingredients of medicinal plants; ways of use and side effects for therapeutic purposes; herbal remedies; traditional medicines used in Turkey and their healing properties. Aromatic plants and their characteristics, methods of obtaining essential oils, preparation of massage oils, aromatherapy methods and simple applications, special conditions to be aware of in aromatherapy practices.

NUOT212 AGRICULTURAL MARKETING (3-0) ECTS: 3

Definition, scope, functions of marketing, marketing channels and characteristics, types of markets and price formation, marketing and consumption structure for organic agricultural products in Turkey, legal regulations for marketing and foreign trade of organic products.

NUTA216 PLANT EXTRACTION METHODS (2-2) ECTS: 4

Obtaining active plant ingredients and essential oils, extraction processes, devices and chemicals used in extraction, providing information on Extraction Methods.

AIİT202 PRINCIPLES OF ATATÜRK AND HISTORY OF THE REVOLUTION-II (2-0) ECTS: 2

Political Reforms: Abolition of the Sultanate, Proclamation of the Republic, Abolition of the Caliphate. Political Jokes and Events Established in the Atatürk Era and Represented in the Grand National Assembly of Turkey. Legal Revolution and New Legal System in the Republican Period. Reforms in the Field of Education. Revolutions in the Cultural and Social Fields. Economic Reforms. Turkish Foreign Policy in the Atatürk Era-I (1923-1930). Turkish Foreign Policy in the Atatürk Era-II (1930-1938). Atatürk's Principles: Basic and Complementary Principles.

NUSD***ELECTIVE COURSES

NUSD201 PISTACHIO CULTIVATION (2-2) 3 ECTS: 3

This course provides information about the history, production status in our country and worldwide, taxonomy, morphological and biological characteristics, climatic and soil requirements, cultivation techniques, varieties, propagation and rootstocks, cultural practices, harvest, and utilization methods.

NUSD202 LANDSCAPE DESIGN (2-2) 3 ECTS: 3

Shaping the terrain in three dimensions in landscape planning studies, calculation of excavation-filling, rough grading, fine grading on the site, preparation of the area for structural and plant applications.

NUSD203 MAINTENANCE AND PRUNING TECHNIQUES FOR PLANTS (2-2) 3 ECTS: 3

Maintenance and repair of the greenery in our environment, pruning times for trees, measures to be taken for damaged seedlings or trees.

NUSD204 PLANT BREEDING (2-2) 3 ECTS: 3

Breeding techniques applied to self (introduction, selection, and breeding), foreign (introduction, selection, breeding, and synthetic variety breeding), and all plants (mutation, polyploidy, single seed descent methods), Breeding for resistance (resistance to diseases and pests, lodging and shattering resistance, cold, heat, and drought resistance).

NUSD205 PLANT PESTS AND CONTROL (2-2) 3 ECTS: 3

Integrated pest management methods against plant diseases.

NUSD206 PASTURE AND FORAGE CULTIVATION (2-2) 3 ECTS: 3

Classification of pasture, forage, and fodder plants, definition of pasture and forage. Cultivation of leguminous forage plants. Cultivation of grass forage plants. Cultivation of other family forage plants.

NUSD207 ENVIRONMENT AND ORGANIC AGRICULTURE (2-2) 3 ECTS: 3

Environmental impact of agricultural practices, sustainable agricultural practices, food security, biological diversity. Genetically modified organisms, risk management in agriculture, expectations from agriculture. Organic farming, principles and objectives, advantages of organic farming, need for organic production, organic farming practices worldwide, international organizations. Organic farming laws.

NUSD208 SEEDLING AND SAPLING CULTIVATION TECHNIQUES (2-2) 3 ECTS: 3

Purpose and importance of seedling cultivation, general situation of seedling sector in our country, Importance of seedling in seedling cultivation, Environments and characteristics used in seedling cultivation, Use of grafted seedlings in vegetable cultivation, Use of grafted seedlings in vegetable cultivation, Modern seedling production facilities, Situation of nursery industry in our country, Problems of nursery producers, Introduction of seedling production techniques, Purpose and type determination in nursery management, Issues to be considered when establishing a nursery and cultivation techniques.

NUSD209 ROSE SAPLING CULTIVATION (2-2) 3 ECTS: 3

Importance of rose sapling cultivation and detailed explanation of cultivation technique.

NUSD210 BUSINESS MANAGEMENT (2-2) 3 ECTS: 3

Basic concepts, objectives of businesses; relationships of businesses with their environment, Classification of businesses; Legal forms of businesses; Establishment studies of businesses (feasibility report, selection of establishment location, location, organized industrial zones); Size of businesses, growth forms, business capacity; Functions of the business (management and organization, production, marketing, finance, accounting, human resources, public relations, research and development).

NUSD211 ORGANIC MUSHROOM PRODUCTION (2-2) 3 ECTS: 3

Characteristics of mushrooms and their place in botany. Production of White Button Mushroom (*Agaricus Bisporus*). Importance of Mushroom Production in Economy. Compost Preparation and Mycelium Planting. Pasteurization of Compost. Some Compost Formulas, Some Problems Encountered in Compost Preparation. Important Mushroom Diseases. Important Mushroom Pests. Physiological Disorders. Production of Oyster Mushroom (*Pleurotus Spp.*). Organic Mushroom Production. Production of Mushroom Mycelium. Mycelium Inoculation and Inoculation Operations. Preservation of Mycelium.

NUSD212 COVERED CULTIVATION OF VEGETABLES (2-2) 3 ECTS: 3

History of greenhouse cultivation, Place and importance of greenhouse cultivation in agriculture, Types of cover used in plant production, Classification of greenhouses, Factors affecting the selection of greenhouse location, Basic principles of greenhouse planning, Greenhouse construction materials and structural elements, Greenhouse climate regulation, Preparation of greenhouse soil, Irrigation and drainage systems in greenhouse crops, Soilless culture systems, Planning of greenhouse and open field production, Covered cultivation of some important vegetable species.

NUSD213 LANDSCAPE AND ORNAMENTAL PLANTS (2-2) 3 ECTS: 3

Importance of ornamental plants, important ornamental plants, general maintenance rules for ornamental plants, production technique for ornamental plants, organic landscaping, organic landscaping in the production of ornamental plants.

NUSD214 COMPUTER APPLICATIONS IN LANDSCAPE (2-2) 3 ECTS: 3

Designing landscapes using computers. Teaching 2D drawing and design using CAD software in a computer environment.

NUSD215 AGRICULTURAL ECONOMICS (2-2) 3 ECTS: 3

Understanding the principles of production theory, being able to apply the knowledge gained from production theory and interpret the results, being able to evaluate factor-product, factor-factor, and product-product relationships from an economic perspective, being able to make choices between alternative factor (input) and product compositions, guiding businesses in the efficient use of resources, interpreting the effects of technical and economic conditions on factor usage and product selection, interpreting the effects of changes in enterprise scale and production technique on enterprises, sectors, and national economy.

NUSD216 AGRICULTURAL TECHNOLOGIES (2-2) 3 ECTS: 3

Agricultural technologies, energy sources, agricultural tractors (features, operation and maintenance rules), soil tillage, seedbed preparation, sowing-planting, fertilization, agricultural spraying and maintenance machinery, irrigation equipment, post-harvest processing machinery, occupational safety.

NUSD217 SOILLESS FARMING (2-2) 3 ECTS: 3

Providing basic information on soilless agriculture practices developed to eliminate problems arising from soil in the cultivation of garden plants and to obtain higher quality and higher yields under controlled conditions.

NUSD218 OLIVE CULTIVATION (2-2) 3 ECTS: 3

History of olive, production status in our country and worldwide, taxonomy, morphological and biological characteristics, climatic and soil requirements, cultivation techniques, varieties, propagation and rootstocks, cultural practices, harvest, and utilization methods.

NUSD219 QUALITY CONTROL (2-2) 3 ECTS: 3

Development process of standardization, definition of standardization, purpose of standards, Definition of quality, Quality concepts, Quality approaches, Quality Assurance Management Systems, Total Quality Management, Professional standards.

NUSD220 MEDICINAL AND AROMATIC PLANTS (2-2) 3 ECTS: 3

Historical development and importance of medicinal and aromatic plants, their classification, cultivation and basic principles, ecology, drying and storage of medicinal and aromatic plants, utilization of medicinal and aromatic plants.

NUSD221 PLANT PROTECTION (2-2) 3 ECTS: 3

Plant disease agents, diagnosis of plant diseases, control and prevention methods, classification of weeds, their biology, damage types, and organic farming suitable control techniques and drugs. Animal organisms causing damage in plant production, their systematic positions, morphological structures, reproduction and development, life cycles, damage types and symptoms caused in plants, economic importance of pests, organic control methods and techniques against plant pests.

NUSD222 AGRICULTURAL MARKETING (2-2) 3 ECTS: 3

Definition, scope, functions of marketing, marketing channels and characteristics, types of markets and price formation, marketing and consumption structure for organic agricultural products in Turkey, marketing of organic products and legal regulations regarding foreign trade.

NUSD223 SEEDLING AND SAPLING CULTIVATION (2-2) 3 ECTS: 3

Purpose and importance of seedling and sapling cultivation, environments and characteristics of seedling and sapling cultivation, importance of seed quality in seedling and sapling cultivation, seedling and sapling cultivation technique, major grafts and their making, care of seedlings and saplings (temperature, irrigation, fertilization, spraying), concept of ready seedlings and saplings, modern production facilities, certification.

NUSD224 SEED TECHNOLOGIES (2-2) 3 ECTS: 3

Concept of seed, seed production and supply in our country, foreign and self-pollination, heterozygous and homozygous seeds, sources of pollen contamination, isolation, plant species produced by seed, seed production, factors affecting production, physical and biological properties sought in seeds, factors affecting and accelerating germination, harvesting, separation, packaging, labeling, preservation of seeds, seed classes, certification systems, concept and production of F1 hybrid seeds.

NUSD225 FINANCIAL MATHEMATICS (3-0) 3 ECTS: 3

Ratio and proportion, measurements, percentage calculations, cost and profit calculations, interest, discount, and amortization calculations.

NUSD226 PLANT DYES AND EVALUATION TECHNIQUES (2-2) 3 ECTS: 3

Introduction to plant dyeing from botanical dyeing history. Plant dyeing methods; Mordant dyeing method, Direct dyeing method. Tube dyeing method. Color pigments found in plants and used in dyeing. Definition of mordant, major mordants. Plants used in plant dyeing and their systematics. Botanical properties and cultivation techniques of plants used in plant dyeing.