Republic of Iraq

Ministry of Higher Education & Scientific Research

Supervision and Scientific Evaluation Directorate

Quality Assurance and Academic Accreditation

Academic Program Specification Form For The Academic

2023 - 2024

Universitiy :
Northern Technical University
College : Technical Agricultural College
.Department **Medicinal plants & natural products Techniques**
Date Of Form Completion :
8 / 1 / 2024
Head of Department : Dr. Jasim Abdullah Hayawi
Date :8 1 / 2024
Signature
Dean' s Assistant For Scientific Affairs : Mahmmod Shaker
Date 8/ 1 / 2024
Signature
Quality Assurance And University Performance Manager
Date :8/1/ 2024
Signature
Dean : Shehab Ahmed Yousif

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TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFOMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme

1.Teaching Institution	Northern Technical University
2.University Department/Centre	Technical Agricultural College
3.Programme Title	Department of Plants medicinal natural Products Techniques
4.Title of Final Award	Bachelor
5.Modes of Attendance offered	Quarterly
6.Accreditation	ABET
7.Other external influences	There is a close relationship with the labor market that receives our graduates, as the labor market and its needs are monitored and compared with the school curricula and through communication with official and semi-official departments focusing on agriculture in those departments, as the curricula are updated accordingly.
8.Date of production of this specification	8/1/2024
9.Aims of the Programme	

• Technical qualifications that enable them to enter the labor market efficiently. Providing specialized knowledge in the principles of agricultural engineering techniques by learning the specializations of general plants, medicinal plants, soil sciences, horticulture, field crops, the environment, and life technologies, as well as natural extracts and products, extension, and the economics of natural resources. High skills in various agricultural sciences and specializations, including medicinal plants that are able to deal with work requirements using modern technical methods and develop the specialized skills necessary in implementing and designing laboratory and field projects, as well as developing the ability to address problems that occur using the latest methods used at the global level.
Promoting the concepts of qualitative and quantitative excellence in order to achieve standards of quality and scientific efficiency. • Communication skills and developing the ability to organize and present information effectively, whether orally, in writing, or using video and audio communication methods
• Preparing the graduate to be successful in completing his academic career by obtaining post-bachelor's degrees and providing broad attention to the problems that arise in professional practice, including teamwork, leadership, occupational safety, ethics, service and economics.

10.Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1- Preparing qualified technical personnel in the field of medicinal plant and natural products techniques and in the fields of improving and propagating medicinal plants and herbs, producing field and horticultural crops, and protecting plants from agricultural pests.

A2- The ability to graduate staff capable of working in specialized areas in medical plant technologies and natural products, as follows:-

- Genetic engineering programs to improve genetic assets.
- Projects for the production of plants, medicinal herbs, field and horticultural crops, and management of their fields.
- Beekeeping projects, honey production, and (natural) by-products of beekeeping.
- Working in plant extracts laboratories.

A3- Design and management of field nurseries, shades, and various greenhouses.

A4- Participation in preparing and designing agricultural fields and using various appropriate applications.

B. Subject-specific skills

B1- The ability to establish and manage herbaria for medicinal plants and herbs

B2 - The ability to design and implement various agricultural experiments.

B3 - The ability to carry out agricultural work in fields and laboratories.

B4 - The ability to manage agricultural fields and projects while using the latest modern technical methods.

B5- The ability to use modern technological applications and tools to accomplish the necessary tasks.

C. Thinking Skills

C. Thinking Skills

C1- Brainstorming.

C2 - the ability to analyze.

C 3- The ability to solve problems.

C4 - the ability to infer.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Teamwork skills.

D2- The ability to communicate effectively.

D3- Computer and Internet skills.

D4- Leadership skills and taking responsibility

D5- Self-education and lifelong learning skills

Teaching and Learning Methods

- lecture.
- Laboratory.
- Views fields and orchards.
- summer training.

Assessment Methods

•Oral exams.
•Daily exams.
•Practical exams.
•Quarterly exams.
•final exams.
•Practical projects.

11. Programme Structure

Level/Year	Course or Module Code	Course or Module Title	Credit rating	Credit hours one hour per week	
				Theor.	Pract.
Level 1		Department of Plants medicinal natural Products		24 h	33 h
Level 2		Department of Plants medicinal natural Products		29 h	42 h
Level 3		Department of Plants medicinal natural Products		19 h	40 h
Level 4		Department of Plants medicinal natural Products		23 h	36 h

First academic level						
Compulsory courses						
code	Grader, if any	number of units	Number of practical hours	Number of theoretical hours	Course Name	Requirement type
NTU 100		2	0	2	Democracy and Human Rights	University requirements
NTU 101		2	0	2	English Language (1)	
NTU 102		2	1	1	Computer principles(1)	
NTU 103		2	0	2	Arabic Language	
NTU		2	0	2	Elective	
TAMO 101		1	0	1	Mathematics	College requirements
TAMO 102		1	3	0	Engineering Drawing	
TAMO 103		2	3	1	Plane surveying	
TAMO 104		2	3	1	General Chemistry	
TAMO		2	0	2	Elective	
PMNP 101		2	3	2	General Botany	Department requirements
PMNP 102		3	3	2	Principles of Soil Sciences	
PMNP 103		3	3	2	Medicinal plants	
PMNP 104		2	3	1	Plant anatomy	
PMNP 105		2	2	1	Biotechnology	
PMNP		2	3	1	Elective	
PMNP		2	3	1	Elective	
PMNP		2	3	1	Elective	
		36	33	24	Total academic level units	

First academic level						
Elective courses						
code	Grader, if any	number of units	Number of practical hours	Number of theoretical hours	Course Name	Requirement type
NTU 104		2	1	1	Sport	University requirements
NTU 105		2	0	2	French Language	
TAMO 151		2	0	2	Economics of Natural Resources	College requirements
TAMO 152		2	0	2	Agricultural Extension	
PMNP 151		1	3	0	Laboratory Techniques	Department requirements
PMNP 152		2	3	1	Cytology	
PMNP 153		2	3	1	Plants Protection	
PMNP 154		2	3	1	General Insects	
PMNP 155		2	2	1	Molecular biology	
PMNP 156		1	0	1	Sustainable Agriculture	
PMNP 157		2	2	1	Desert Plants	
		20	17	13	Total academic level units	
		10			Required units (2 universities + 2 colleges + 6 departments)	

Second academic level						
Compulsory courses						
code	Grader, if any	number of units	Number of practical hours	Number of theoretical hours	Course Name	Requirement type
NTU 200		2	0	2	English language (2)	University requirements
NTU 201		2	1	1	Computer principles(2)	
NTU 202		2	0	2	Arabic Language(2)	
NTU 203		2	0	2		
NTU 204		2	0	2	Professional ethics	
TAMO 201	TAMO 104	3	3	2	Organic Chemistry	College requirements
TAMO 202		2	2	1	Agriculture Statistics	
TAMO		2	3	1	Elective	
PMNP 201		3	3	2	Natural products	Department requirements
PMNP 202		3	3	2	Plant environment	
PMNP 203	PMNP 103	3	3	2	Classification ofmeddicinal plants	
PMNP 204	PMNP 101	2	3	1	Plant Physiology	
PMNP 205		3	3	2	Microbiology	
PMNP 206	PMNP 103	2	3	1	Plant extracts	
PMNP 207		3	3	2	Decoration Plant	
PMNP 208		2	3	1	Biological applications of volatile oils	
PMNP 209					Summer Training (1)	
PMNP		2	3	1	Elective	
PMNP		2	3	1	Elective	
PMNP		2	3	1	Elective	
		44	42	29	Total academic level units	

Second academic level						
Elective courses						
code	**Grader, if any**	**number of units**	**Number of practical hours**	**Number of theoretical hours**	**Course Name**	**Requirement type**
TAMO 251		**2**	**2**	**1**	**Agro nanotechnology**	**College requirements**
TAMO 252		**2**	**3**	**1**	**Food Industry**	
PMNP 251		**2**	**2**	**1**	**Production of medicinal plants**	**Department requirements**
PMNP 252		**2**	**3**	**1**	**Weeds**	
PMNP 253		**2**	**3**	**1**	**Oil and Aromatic crops**	
PMNP 254	**PMNP 102**	**2**	**3**	**1**	**Soil and Plant Analysis**	
PMNP 255		**2**	**3**	**1**	**Plant tissue and cell culture**	
PMNP 256		**2**	**2**	**1**	**Genetics**	
		16	**21**	**8**	**Total academic level units**	
		8			**Required units (2 colleges + 6 departments)**	

Third academic level						
Compulsory courses						
code	Grader, if any	number of units	Number of practical hours	Number of theoretical hours	Course Name	Requirement type
TAMO 301		2	2	1	Computer Applications (3)	College requirements
TAMO 302	TAMO 201	3	3	2	Biochemistry	
TAMO		2	2	1	Elective	
PMNP 301		3	3	2	Effective compounds	Department requirements
PMNP 302		2	3	1	Protected Decoration Plants	
PMNP 303		3	3	2	Protected Agriculture Techniques	
PMNP 304		2	3	1	Production of medicinal plant seeds	
PMNP 305		2	3	1	Plant Growth Regulators	
PMNP 306		3	3	2	Molecular Genetics	
PMNP 307		2	3	1	Plant Pathology	
PMNP 308		2	3	1	Care &Storage of medicinal plants	
PMNP 309	PMNP 103	2	3	1	Useful Insects	
PMNP 310	PMNP 209				Summer Training (2)	
		2	2	1	Elective	
		2	2	1	Elective	
		2	2	1	Elective	
		34	40	19	Total academic level units	

Third academic level						
Elective courses						
code	Grader, if any	number of units	Number of practical hours	Number of theoretical hours	Course Name	Requirement type
TAMO 351		2	2	1	Recycling of Agricultural Wastes	College requirements
TAMO 352		2	2	1	Organic Agriculture	
PMNP 352		2	2	1	Forage Crops	Department requirements
PMNP 353	PMNP 102	2	3	1	Fertility and fertilization	
PMNP 354		2	2	1	Seed technology	
PMNP 357		2	2	1	Harvesting Equipments	
PMNP 359		2	2	1	Economical Entomology	
		2	2	1	Modern planting techniques	
		16	17	8	Total academic level units	
		8			Required units (2 colleges + 6 departments)	

Fourth academic level						
Compulsory courses						
code	Grader, if any	number of units	Number of practical hours	Number of theoretical hours	Course Name	Requirement type
NTU 400		2	0	2	Scientific research methodology	University requirements
TAMO 401	TAMO 202	2	3	1	Design and Analysis of Experiments	College requirements
TAMO 402		2	3	1	Computer Applications (4)	
		2	0	2	Elective	
PMNP 401		3	2	2	Plant Breeding(1)	Department requirements
PMNP 402		2	2	1	Metabolism	
PMNP 403		3	2	2	Crop Quality	
PMNP 404		2	2	1	Auto analysis	
PMNP 405	PMNP 401	3	2	2	Plant Breeding(2)	
PMNP 406	PMNP 154	3	2	2	Medicinal plant pests	
PMNP 407	PMNP 105	3	3	2	Biomass chemistry	
PMNP 408		2	3	1	Seminar and Project (1)	
PMNP 409		2	3	1	Seminar and Project (2)	
		2	3	1	Elective	
		2	3	1	Elective	
		2	3	1	Elective	
		37	36	23	Total academic level units	

Fourth academic level						
Elective courses						
code	Grader, if any	number of units	Number of practical hours	Number of theoretical hours	Course Name	Requirement type
TAMO 451		2	0	2	Safety	College requirements
TAMO 452		2	0	2	Agricultural marketing	
PMNP 451		2	2	1	Bio Fertilizers	Department requirements
PMNP 452	PMNP 354	2	2	1	Tobacoo Technology	
PMNP 453		2	2	1	Biological Control	
PMNP 454		2	2	1	Farm Management	
PMNP 455		2	2	1	Conservation Agriculture	
PMNP 456		2	2	1	Post-Harvest Techniques	
PMNP 457		2	2	1	Pesticides	
PMNP 458		2	2	1	Post-Harvest Techniques	
		20	16	12	Total academic level units	
		8			Required units (2 colleges + 6 departments)	

13.Personal Development Planning

Faculty members must be within the prescribed staff and according to the ratio of students to the number of faculty members and must Competence should have a role to cover all curricula, There must be a capacity to manage the college adequately to accommodate levels of interaction, student counseling, counseling, university, vocational and developmental service activities, and interaction with practitioners and professionals as well as employers.

14.Admission criteria

- Average for graduates of preparatory school / scientific branch / agricultural vocational branch.

15. Key sources of information about the programme

1- **Book and textbook**
2- **Scientific catalogues**
3- **Scientific research and publishing paper**
4- **Internet**

Curriculum skills chart																		
Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation																		
Learning outcomes required from the programme																		
General and qualifying transferable skills (other skills related to employability and personal (development				Emotional and value goals				Skills objectives of the programme				Cognitive objectives				Specialist or assistant	Course Name	Code	Year/level
4D	3D	2D	1D	4C	3C	2C	1C	4B	3B	2B	1B	4A	3A	2A	1A				
	√						√				√				√	General	Democracy and Human Rights	NTU 100	
	√						√				√				√	General	English Language (1)	NTU 101	
			√			√					√		√			assistant	Computer principles(1)	NTU 102	
	√						√				√				√	General	Arabic Language	NTU 103	
	√						√				√				√	General	Elective	NTU 104	
			√			√					√		√			assistant	Mathematics	TAMO 101	
		√					√			√					√	assistant	Engineering Drawing	TAMO 102	
			√				√				√			√		assistant	Plane surveying	TAMO 103	
			√		√					√					√	assistant	General Chemistry	TAMO 104	
		√					√				√				√	assistant	Elective	TAMO 151	
	√						√				√		√			Specialist	General Botany	PMNP 101	level one
			√				√				√			√		assistant	Principle of Soil	PMNP 102	
			√				√				√				√	Specialist	Medical Plants	PMNP	

																	103	
			√				√				√				√	**Specialist**	**Plant Anatomy**	**PMNP 104**
			√				√				√			√		**Specialist**	**Biotechnology**	**PMNP 105**
	√					√			√				√			**Specialist**	**Elective**	**PMNP 154**
			√				√				√			√		**Specialist**	**Elective**	**PMNP 155**
			√				√				√			√		**Specialist**	**Elective**	**PMNP 157**

	√						√				√				√	**General**	**English language (2)**	**NTU 200**
		√					√				√			√		**Specialist**	**Computer principles(2)**	**NTU 201**
	√						√				√				√	**General**	**Arabic Language(2)**	**NTU 202**
	√						√				√				√	**General**	**جرائم نظام البعث في العراق**	**NTU 203**
	√						√				√				√	**General**	**Professional ethics**	**NTU 204**
		√					√				√				√	**Specialist**	Organic Chemistry	**TAMO 201**

	√						√		√				√			**assistant**	Agriculture Statistics	**TAMO 202**	
	√						√		√				√			**assistant**	**Elective**	**TAMO 252**	
	√				√						√				√	**Specialist**	Natural products	**PMNP 201**	
	√				√						√				√	**Specialist**	Plant environment	**PMNP 202**	
			√				√				√			√		**Specialist**	Classification ofmeddicinal plants	**PMNP 203**	
√							√			√				√		**Specialist**	Plant Physiology	**PMNP 204**	
			√			√				√					√	**assistant**	Microbiology	**PMNP 205**	
			√				√				√			√		**Specialist**	Plant extracts	**PMNP 206**	
			√				√				√			√		**Specialist**	Decoration Plant	**PMNP 207**	
			√				√				√			√		**Specialist**	Biological applications of volatile oils	**PMNP 208**	
																	Summer Training (1)		
		√				√				√					√	**Specialist**	**Elective**	**PMNP 251**	
		√				√				√					√	**Specialist**	**Elective**	**PMNP 252**	
√						√				√					√	**Specialist**	**Elective**	**PMNP 253**	
		√					√				√			√		**assistant**	**Computer Applications (3)**	**TAMO 301**	**level three**
		√					√				√				√	**Specialist**	**Biochemistry**	**TAMO 302**	
√	√						√				√						**Elective**	**TAMO 352**	

		√					√				√				√	**Specialist**	**Effective compounds**	**PMNP 301**	
√						√				√					√	**Specialist**	**Protected Decoration Plants**	**PMNP 302**	
√						√				√				√		**Specialist**	**Protected Agriculture Techniques**	**PMNP 303**	
		√					√				√				√	**Specialist**	**Production of medicinal plant seeds**	**PMNP 304**	
√						√				√				√		**Specialist**	**Plant Growth Regulators**	**PMNP 305**	
		√					√				√				√	**Specialist**	**Molecular Genetics**	**PMNP 306**	
	√				√				√					√		**Specialist**	**Plant Pathology**	**PMNP 307**	
		√					√				√				√	**Specialist**	**Care &Storage of medicinal plants**	**PMNP 308**	
		√					√				√				√	**Specialist**	**Useful Insects**	**PMNP 309**	
																Specialist	**Summer Training (2)**		
		√				√			√					√		**Specialist**	**Elective**	**PMNP 352**	
	√					√			√				√			**Specialist**	**Elective**	**PMNP 354**	
	√					√			√				√			**Specialist**	**Elective**	**PMNP 359**	
	√						√				√				√	**General**	**Scientific research methodology**	**NTU 400**	**level four**
		√					√				√				√	**Specialist**	**Design and Analysis of Experiments**	**TAMO 401**	
			√			√					√		√			**assistant**	**Computer Applications (4)**	**TAMO 402**	
																	Elective		
			√			√			√				√			**Specialist**	**Plant Breeding(1)**	**PMNP**	

																	401	
		√					√				√				√	**Specialist**	**Metabolism**	**PMNP 402**
	√					√					√			√		**Specialist**	**Crop Quality**	**PMNP 403**
		√					√				√				√	**Specialist**	**Auto analysis**	**PMNP 404**
			√			√			√				√			**Specialist**	**Plant Breeding(2)**	**PMNP 405**
		√				√				√					√	**Specialist**	**Medicinal plant pests**	**PMNP 406**
		√					√				√				√	**Specialist**	**Biomass chemistry**	**PMNP 407**
																	Seminar and Project (1)	
																	Seminar and Project (2)	
																	Elective	
																	Elective	
																	Elective	

Course Description Form

Course Description

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the program description.;

ducational institution	**Northern Technical University**
Scientific Department / Center	**Combating Deserification Techniques**
Course Name/Code	**Dry planting**
Available Attendance Forms	**Theoretical + Practical**
Semester/Year	**Quarterly**
Number of credit hours (total)	
Date of preparation of this description	**8/1/2024**
1. Course outcomes and teaching, learning and evaluation methods	

Course Outcomes and Methods of Teaching, Learning and Assessment
A - Cognitive objectives 1- The student has knowledge about dry areas and their nature 2- Identify the available techniques to cope with drought 3- Identifying the nature of plants and their types and the extent to which they are affected by the environment of this region. **B - Skills objectives of the course.** 1- The use of techniques to confront desertification and moisture tension 2- The possibility of managing agricultural and livestock activity in dry agriculture areas in order to achieve the best possible efficiency

3- Developing means, equipment and machinery in line with the nature of dry areas

Teaching and learning methods

Theoretical + Practical

Assessment methods

1- Theoretical exams (daily, monthly, final)
2- Oral examinations
3- Participation inside the hall
4- Homework

Emotional and value goals

1- What the student studies should be commensurate with his tendencies and thinking directions
2- The student should feel the importance of correcting refractive errors in the eye
3- The student should listen carefully to the professor's explanation
4- The student should feel what cognitive excellence and excellence mean
5- The student should know the impact of science and scientists
6- The student should care about respecting the time and class system

General and qualifying skills transferred (other skills related to employability and personal development).

1- Types of communication in the field of work
2- The ability to express and convey ideas clearly and confidently
3- Teamwork.

11. Course structure					
Evaluation method	Teaching method	Name of the unit/topic	Required learning outcomes	hours	week
Exams	Theoretical	Medicinal plants and herbs, economic importance, benefits and uses	Add learning outcomes	2 h	1
Exams	Theoretical	Genetic origins of medicinal plants, production and cultivation of medicinal plants	Add learning outcomes	2 h	2
Exams	Theoretical	Used parts of medicinal plants, their types and methods of use	Add learning outcomes	2 h	3
Exams	Theoretical	Medicinal and aromatic plants, economic importance, methods of reproduction	Add learning outcomes	2 h	4
Exams	Theoretical	Methods of marketing medicinal plants	Add learning outcomes	2 h	5
Exams	Theoretical	Collecting medicinal plants, the effect of the collection date on the effectiveness of medicinal plants	Add learning outcomes	2 h	6
Exams	Theoretical	Methods of drying and storing medicinal plants, the effect of the storage process on the active ingredients	Add learning outcomes	2 h	7
Exams	Theoretical	Active substances in medicinal plants, active ingredients	Add learning outcomes	2 h	8
Exams	Theoretical	Using methods of extraction and separation of active substances	Add learning outcomes	2 h	9
Exams	Theoretical	Pharmacological effects and how they are synthesized within the plant	Add learning outcomes	2 h	10
Exams	Theoretical	Propagation of medicinal plants using tissue culture technology	Add learning outcomes	2 h	11
Exams	Theoretical	Oils extracted from medicinal plants, their types, and how to use them	Add learning outcomes	2 h	12
Exams	Theoretical	Juices extracted from medicinal plants, their types, and how to use them	Add learning outcomes	2 h	13
Exams	Theoretical	Medicinal herbal ointments, their types, how to use them	Add learning outcomes	2 h	14
Exams	Theoretical	A visit to a medical herbarium to learn about the existing species and their characteristics	Add learning outcomes	2 h	15

11. Course structure					
Evaluation method	Teaching method	Name of the unit/topic	Required learning outcomes	hours	week
Exams	practical	Visit the medicinal plants laboratory and learn about dried medicinal and aromatic plants	Required learning outcomes	3 h	1
Exams	practical	Classification of medicinal plants, scientific names, local names	Required learning outcomes	3 h	2
Exams	practical	Methods of collecting medicinal plants in the field	Required learning outcomes	3 h	3
Exams	practical	Methods of cleaning and drying medicinal plants and storing them in the laboratory	Required learning outcomes	3 h	4
Exams	practical	Methods of preserving medicinal plants and their parts	Required learning outcomes	3 h	5
Exams	practical	Practical marketing of medicinal plants	Required learning outcomes	3 h	6
Exams	practical	Cultivation of some medicinal plants in the laboratory, cumin, basil, anise	Required learning outcomes	3 h	7
Exams	practical	Identify the fruits of nutmeg, dandelions, cloves, ginger	Required learning outcomes	3 h	8
Exams	practical	Prepare medicinal herbal syrup from chamomile, hibiscus, anise	Required learning outcomes	3 h	9
Exams	practical	Extracting oils from cloves, black seed, nutmeg, and safflower	Required learning outcomes	3 h	10
Exams	practical	A visit to one of the factories for extracting oils and ointments from medicinal plants	Required learning outcomes	3 h	11
Exams	practical	Identifying aromatic plants in the field and laboratory	Required learning outcomes	3 h	12
Exams	practical	Jasmine plant, botanical description, method of cultivation and reproduction	Required learning outcomes	3 h	13
Exams	practical	Processing the jasmine plant and extracting fragrance from it	Required learning outcomes	3 h	14
Exams	practical	Visit specialized herbalists in local markets	Required learning outcomes	3 h	15

13. Infrastructure	
1 Required textbooks	Lectures according to the prescribed curriculum
2 Main references (sources)	Dry agriculture – its foundations – elements and investment / d. Abdullah Qasim
Recommended books and references (scientific journals, reports ,....)	
B Electronic references, websites	

14. Course Development Plan
Working on training an academic staff capable of researching books and sources that dealt with delving into the fields of computers, networks and information technology and exerting the features of this experience to our dear students in order to enrich the scientific arena. 2 Activating the issue of scientific twinning between the corresponding departments at the local and regional levels 3 Activating electronic communication between our college and other college and corresponding entities, for the purpose of delivering information For the student as soon as possible. 4 Work on the dissemination of distinguished graduation projects for second-year students in order to push the scientific movement in the direction Right

https://ntu.edu.iq/ar/قسم-تقنيات-النباتات -الطبية-والنواتج -ال