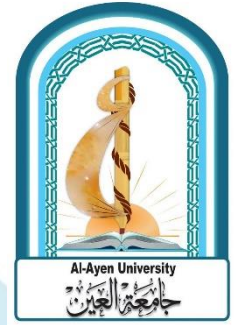




Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation
International Accreditation Dept.
Al-Ayen University



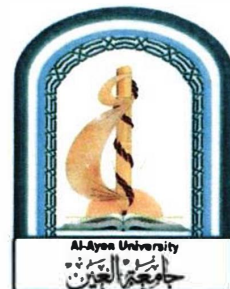
Academic Program Specification for Pharmacognosy Department and Supporting Sciences 2023-2022

Al-Ayen University

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Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation
International Accreditation Dept.
Al-Ayen University



Academic Program Specification Form

University: Al-Ayen University

College: Pharmacy

Number Of Departments in the College: 6

Date Of Form Completion: 25/9/2022

Head of Department's Name

Date: / /

Signature 
(CDR. N. DORABABU)

Dean's Assistant for Scientific Affairs

Date: / /

Signature 


The File was verified by the Quality Assurance and University Performance Manager

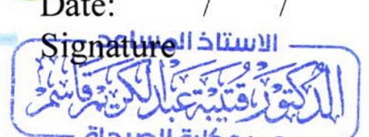
Date: / /

Signature



Dean's Approval

Date: / /

Signature 


PROGRAM SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAM SPECIFICATION

This program specification provides a concise summary of the main features of the program 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 program.

1. Educational institution	Ministry of Higher Education and Scientific Research – Al-Ayen University
2. University department / Center	College of pharmacy/Department of Pharmacognosy and Supporting Sciences
3. Academic program	Pharmacognosy and Supporting Sciences
4. The title of the final granted degree	Bachelor of Pharmacy
5. The educational system	Courses system
6. Accreditation program	Under preparation
7. Other external influences	Theoretical lectures + Educational laboratories
8. Date of description form preparation//Revision of this specification	25/9/2022

9. Academic Program Objective.

The program is for three years:

The first year In which the student learns the principles of physics, mathematics and biostatistics and their application to pharmaceutical sciences.

the second stage - the second course studies the basics and principles of pharmacology and methods of extraction and isolation of active compounds in addition to the types of natural products.

The third stage: two courses, the effective generator groups in plants in terms of chemical composition, the method of making them inside the plant, and their medical effect on the human body.

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

A1-Demonstrate the principles of pharmaceutical sciences in the field of Pharmacognosy biostatics and medicinal physics .

A2-Be able to describe the microscopical characters of different drugs naturally occurring as powder;

A3- the macro- and microscopical characters of the medicinal leaves, their content of active constituents and uses;

A4- general methods of collection, drying and storage in addition to detection of adulterations.

B. The skill goals of the program

The skills goals special to the program.

B1 - Acquisition of skill in extraction methods

B2 - Acquisition of skill in isolating active compounds

B3 - Acquiring the skill in diagnosing separated vehicles And enable students to acquire self-learning skills in acquiring new information, skills and knowledge.

Teaching and Learning Methods

1- Theory lectures

2- Educational laboratories

3- Scientific research

4- Desk research

Assessment methods

1-Mid-term and final exams

2- Oral and written exams

3- Lab reports

C. Affective and value goal

C1- Using modern methods of presenting lectures in the form of slides

C2 - Video clips and illustrations And train students to respect freedom of thought and creativity

C3 - Visit the botanical garden and submit scientific reports

C 4- Assigning students homework and enhance the spirit of cooperation and teamwork among students

Teaching and Learning Methods

1- Teaching and lecturing

2- Seminars and homework

3- Field visits

Assessment methods

Oral exams and written exams

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

The student should be able to:

D 1- Practical experiments

D2- Acquisition of the skill of computer and biostatistics

D 3-Giving confidence to the student by discussing seminars.

Teaching and Learning Methods

Visual, oral and written

Assessment Methods

Oral and written exams, research and practical reports

11. Program structure

			Awards and Credits	
Level /Year	Course or Module code	Course or Module Title	Credit rating	Bachelor degree requires (x) credits
1 st	Ph1105	Mathematic and biostatistics	3 hours theory	
	Ph1203	Medical physics	2 hours theory	2 hours practical
2 nd class	PH2205	Pharmacognosy I	2 hours theory	2 hours practical
3 rd class	PH3102	Pharmacognosy II	2 hours theory	2 hours practical
3 rd class	PH3205	Pharmacognosy III	2 hours theory	2 hours practical

12. Personal Development Planning

1. Participation in training courses held within the college.
2. Participation in the professional courses held at the college within the prescribed curriculum, as well as the professional education courses held at the Pharmacists Syndicate after graduation, which helps in developing the graduate's personal skills within the professional and functional aspects.
3. There are specific modules within the program for personal development that give students the opportunity and encourage them to engage in professionally relevant qualifications that allow the students to reflect on their own professional development.

13. Admission Criteria

This is done according to the acceptance rate in the medical group (Faculty of Pharmacy) within the electronic form approved by the Ministry of Higher Education and Scientific Research (central admission). The central admission standards have been applied to the college since the 2017 academic year.

14. The most important sources of information about the program

1. Trease, G.E. and Evans, W.C. "Trease and Evans' Pharmacognosy" WB Saunders Co. Ltd., London, Philadelphia, Toronto, Sydney, Tokyo (1994, 2005).
2. Wallis, T.A. "Textbook in Pharmacognosy" CBS publisher & Distributers, First Indian edition (1985).
3. Mahran, G.H., "Medicinal Plants" 1st Ed.(1967).
4. Saber, A.H., "Practical Pharmacognosy" El-Shaab Printing House, 4th Ed. (1966).
5. Jackson, B.P. and Snowdon D.W., "Atlas of microscopy of medicinal plants, herbs and spices" Belhaven Press, Printer Publishers, London. (1990).
6. Calculas(Thomas)(Eleventh edition)
7. Introductory Biostatistics for the helath sciences(Robert C. Duncan,...)(Second edition)
8. Physics of biology and medical students.3ed.2008
9. Medical physics, J.R.Cameron (1992)

Curriculum Skills Map

please tick in the relevant boxes where individual Program Learning Outcomes are being assessed

				Program Learning Outcomes														
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Cognitive goals				The skill goals of the program			Affective and value goal				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				1	2	3	4	1	2	3	1	2	3	4	1	2	3	
1 st	Ph1105	Mathematic and biostatics								√		√						
	Ph1203	Medical physics		√						√			√					
2 nd class	PH2205	Pharmacognosy and medicinal plants I		√	√	√	√	√	√	√	√	√	√	√	√	√	√	
3 rd class	PH3102	Pharmacognosy and medicinal plants II		√	√	√	√	√	√	√	√	√	√	√	√	√	√	
3rd class	PH3205	Pharmacognosy and medicinal III		√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Al-Ayen University



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COURSE SPECIFICATION

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Al-Ayen Iraqi University - College of Pharmacy
2. College department/Center	Pharmacognosy and supporting science department
3. Course title/code	Mathematics & Biostatistics// Ph1105
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	First semester 2023-2024
6. Credits (total)	3 hour in weak/ 15 weeks
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives Understand the terms, concepts and laws in biostatistics and their application in the field of pharmacy	

9. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

1. Knowledge of mathematical terminology and its application in the field of pharmacy.
2. Knowledge of mathematical foundations and theories and their relationship to the body.
3. Knowledge of biostatistics laws and their application in the field of pharmacy

B. The skills goals special to the course

1. Give a comprehensive idea of the laws and theories of mathematics and biostatistics

Teaching and Learning Methods

1. Encourage reading books
2. Holding conferences and seminars
3. Participate in workshops

Assessment methods

- Make periodic reports
- Oral and written exams
- Discussion in class by asking questions that encourage linking the subject with other subjects

C. Affective and value goals

- 1 Educating students on professional humanitarian work
- 2 Promoting and consolidating professional and controversial values among students to practice the profession of pharmacist
- 3 Promote the spirit of cooperation and teamwork upon request
- 4 Training students to respect the freedom of thought, expression and creativity of others
- 5 Develop students' sense of responsibility during the study period and during work

Teaching and Learning Methods

- 1 Discussion of teamwork
- 2 Self-report writing
- 3 Use the strategy of cooperation and assistance during the education process
- 4 Field visits to relevant ministries and educational institutions
- 5 Holding seminars, courses and workshops for students that encourage spiritual values

Assessment methods

1. Surprising questions and discussion in different aspects of education

Al-Ayen University

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10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	3	A 1,2,3 B 1 C 1,2,3,4,5	Mathematics: General concepts, Coordinate and graph in plane	Power Points. Whit board	Quizzes , homework and oral examination
2.	3	A 1,2,3 B 1 C 1,2,3,4,5	Inequality, absolute value or magnitude		
3.	3	A 1,2,3 B 1 C 1,2,3,4,5	Function and them graphs , Displacement function		
4.	3	A 1,2,3 B 1 C 1,2,3,4,5	Slope and equation for lines		
5.	3	A 1,2,3 B 1 C 1,2,3,4,5	Practice exercises		
6	3	A 1,2,3 B 1 C 1,2,3,4,5	Biostatics: General concepts of statistics		
7	3	A 1,2,3 B 1 C 1,2,3,4,5	Limits, theorem of limits		
8	3	A 1,2,3 B 1 C 1,2,3,4,5	Statistical methods and theory		
9	3	A 1,2,3 B 1 C 1,2,3,4,5	Continuity , continuity conditions		
10.	3	A 1,2,3 B 1 C 1,2,3,4,5	Practice exercises		
11	3	A 1,2,3 B 1 C 1,2,3,4,5	Probability concepts		
12	3	A 1,2,3 B 1 C 1,2,3,4,5	The concepts of central tendency		

13	3	A 1,2,3 B 1 C 1,2,3,4,5	Practice exercises		
14	3	A 1,2,3 B 1 C 1,2,3,4,5	Deviations and variation, application of static in medical field		

11. Infrastructure

Books Required reading	1-Calculus(Thomas)(Eleventh edition) 2-Introductory Biostatistics for the health sciences(Robert C. Duncan,...)(Second edition)
Main references (sources)	1-Calculus(Thomas)(Eleventh edition).2011 2-Introductory Biostatistics for the health sciences(Robert C. Duncan,...)(Second edition)1989
Recommended books and references (scientific journals, reports...).	Any book or reference in mathematics as well as in biostatistics
Electronic references, Internet sites...	Depending on the type of topic discussed during the week

12. Course development plan

Continuous curriculum due to his request to serve the educational process Maintain the scientific equanimity through the use of valuable resources and books International

Al-Ayen University

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COURSE SPECIFICATION

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Al-Ayen Iraqi University - College of Pharmacy
2. College department/Center	Pharmacognosy and Supporting Sciences
3. Course title/code	Medical physics / Ph1203
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	second semester 2023-2024
6. Credits (total)	4 hour per week
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives	
To understand physics concepts and terminology, and its applications in field of medicine.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

A.Cognitive goals

1. Knowledge of physical terminology and its application in the field of medicine
2. Know the foundations and physical theories and their relationship to the body
3. Know the components of some electronic devices that are used in the diagnosis of diseases

B.The skills goals special to the course

1. Give a comprehensive idea of the laws and theories of medical physics

Teaching and Learning Methods

- 1- Theoretical lectures
- 2- Educational laboratories
- 3- Scientific Reports
4. Desk Research

Assessment methods

- 1- Midterm and final exams
2. Oral exams and laboratory research

C.Affective and value goals

- 1 - Educating students on professional humanitarian work
- 2- Promoting and consolidating professional and ethical values among students to practice the profession of pharmacist
3. Promote the spirit of cooperation and teamwork upon request
- 4- Training students to respect the freedom of thought, expression and creativity of others
- 5- Develop a sense of responsibility among students during the study period and during work

Teaching and Learning Methods

1. Seminars
- 2- Daily duties
- 3- Written exams

Assessment methods

- 1-Oral and written exams and writing reports on practical experiences

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

1. Follow-up of external sources
2. Follow-up of modern scientific topics through the Internet
3. Try to solve external questions and homework by referring to modern sources and the Internet

Al-Ayen University

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10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Method of physics, properties of systems and thermodynamics, conservation of energy principle, zeroth law	The use of scientific references and use the board	Quizzes, homework and oral examination
2.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Temperature scales, equation of state, ideal gas, general law of gases, coefficient of volume expansion		
3.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Heat and energy, first law of thermodynamic, Boyles and Charles law		
4.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	The second law of thermodynamic, entropy and enthalpy, heat capacity and adiabatic process		
5.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Kinetic theory of gas, electromagnetic waves, Maxwell equations, physical optics		
6.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Radiation laws, black body radiation, heat transfer		
7.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Production of xray, U.V and IR effects, medical effects of radiation		

8.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Ostwald's viscometer, find the molecular weight, find the concentration of unknown substance		
9.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Measuring surface tension by capillary		
10.	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Speed of sound		
11	2	A1,2,3 B 1 C 1,2,3,4,5 D 1,2,3	Laser application in medicine		

11. Infrastructure

Books Required reading	1-Physics of biology and medical students.3ed.2008
Main references (sources)	1-Medical physics, J.R.Cameron (1992)
Recommended books and references (scientific journals, reports...).	According to the type of topic discussed during the week
Electronic references, Internet sites...	According to the type of topic discussed during the week

12. Course development plan

Use of updated lab equipment that help students to develop their learning skills.



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COURSE SPECIFICATION

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Pharmacognosy and Supporting Sciences
3. Course title/code	Pharmacognosy I/ Theory/PH2205
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives Studying the meaning of drugs and medicinal plants - Diagnosing medicinal plants - Phytochemistry - Methods of extraction, isolation and diagnosis of active compounds within the plant.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

A1-Knowledge of botanicals

A 2- Study of medicinal plants and their extraction methods

A3- The possibility of artificially propagating plants to increase the percentage of active substances decision-making process.

B. The skills goals special to the course

B1 - Acquisition of skill in extraction methods

B2 - Acquisition of skill in isolating active substances

B3 - Acquisition of the skill in diagnosing it

Teaching and Learning Methods

1- Theory lectures

2-Educational laboratories

3-Scientific reports

4-Desk Research

Assessment methods

1- Mid-term and final exams

2.Oral exams and laboratory research

3.Visit the botanical garden

4.Use of scientific equipment

C. Affective and value goals

C1- Presentation of research using the computer

C2- Learn about medicinal plants

C 3- Using modern laboratory equipment

Teaching and Learning Methods

-Seminars

- daily assignments

- written exams

Assessment methods

1. Oral and written exams and writing reports on practical experiences

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D 1- Conducting scientific experiments

D2- Acquisition of computer skills

D 3-Giving confidence to the student by presenting scientific research

Al-Ayen University

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10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2, D3	General Introduction: The Scope of Pharmacognosy, Drugs from natural sources, crude drugs, official and non-official drugs.	1- Whiteboard and PowerPoint and data show presentation	1- Short MCQs 2- Oral exam and direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5- Final exam
2	2	A1, A2, A3, B1	Classification of natural products. Plant nomenclature and taxonomy.	2- Class discussion	
3	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Production of crude drugs: Cultivation, collection, drying and storage.	3- Presentation of cases	
4	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2, D3	Deterioration of crude natural products.	4- Handouts	
5	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2,	Chemistry of natural drug products.	5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	
6	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2,	Quality control: Evaluation of natural products		
7	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2,	Toxic substances: Food additive and contaminants, Pesticides Phytochemical investigation of herbal products: Extraction of the plant material; Separation and isolation of constituents; characterization of the isolated Compounds.		
8	2	A1, A2, A3, B1, B2, B3, C1, C3, , D1, D2,	Separation technique		
9	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Traditional plant medicines as a source of new drugs.		
10	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2,	Tissue culture of medicinal plant		

Al-Ayen University

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11. Infrastructure

Books Required reading	1-Trease, G.E. and Evans, W.C. "Trease and Evans' Pharmacognosy" WB Saunders Co. Ltd., London, Philadelphia, Toronto, Sydney, Tokyo (1994, 2005). 2-Wallis, T.A. "Textbook in Pharmacognosy" CBS publisher & Distributers, First Indian edition (1985). 3-Mahran, G.H., "Medicinal Plants" 1st Ed.(1967). 4-Saber, A.H., "Practical Pharmacognosy" El-Shaab Printing House, 4th Ed. (1966). 5-Jackson, B.P. and Snowdon D.W., "Atlas of microscopy of medicinal plants, herbs and spices" Belhaven Press, Printer Publishers, London. (1990).
Main references (sources)	1-Indian Pharmacopoeia, Egyptian Pharmacopoeia. 2-De Smet, P.A., Keller, K., Hausel, R. and Chandler, R.F., "Adverse effects of herbal drugs", Springer Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo, Hong Kong, Vol. I (1993). 3-Weiss R.F. and Fintelmann V. "Herbal Medicine", Thieme, Stuttgart, New York, 2nd Ed. (2000).
Recommended books and references (scientific journals, reports...).	1-Trease, G.E. and Evans, W.C. "Trease and Evans' Pharmacognosy" WB Saunders Co. Ltd., London, Philadelphia, Toronto, Sydney, Tokyo (1994, 2005). 2-Wallis, T.A. "Textbook in Pharmacognosy" CBS publisher & Distributers, First Indian edition (1985).
Electronic references, Internet sites...	Periodicals, Web Sites, Etc http://www.botanical.com

12. Course development plan

- Suggesting and discussing new topics
- Some of the curriculum vocabulary has been changed in a simple way to keep pace with modern scientific developments
- Conducting seminars and seminars within the branch to present modern scientific topics

Al-Ayen University

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COURSE SPECIFICATION

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Pharmacognosy and Supporting Sciences
3. Course title/code	Pharmacognosy I Practical's/PH2205
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	First semester 2022-2023
6. Credits (total)	1 hr x 15 weeks = 15 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives This course aim to enable students practicing the techniques of extraction, separation, and identification of constituents isolated from natural sources, using microscopes and chromatographic methods.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

E. Cognitive goals

- A1- Knowledge of botanical preparations
- A 2- Study of medicinal plants and their extraction methods
- A3- The possibility of artificially propagating plants to increase the percentage of active substances

F. The skills goals special to the course

- 1-Extraction practice
- 2-Differentiation of plants
- 3-Isolation and identification of active components

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- Make periodic reports
- Oral and written exams
- Discussion in class by asking questions that encourage linking the subject with other subjects

G. Affective and value goals

- C1- Preparing a successful pharmacist with the ability to work in various health and medical institutions.
- C2- Preparing students who are able to complete their studies
- C3- work within academic institutions

Teaching and Learning Methods

- 1- -Emphasis on the necessity of learning and experience in the field of teaching
- 2- Discussions
- 3- Lectures
- 4- Assignments
- 5- PowerPoint presentation

Assessment methods

2. Surprising inferential questions during the discussion in different aspects of education
- Homework
3. Electronic MCQs on the electronic platform
4. Mid-term exam
5. Final exam

H. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- D1-Discussing different disease states and finding appropriate treatments for them.
- D2- Asking brainstorming questions through which the student can link the study
- D3- Materials together and link them to the health reality

10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	1	A1, A2, A3, B1	Familiarity with the contents of the lecture through understanding and assimilation of the vocabulary of the lecture	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1- Short MCQs 2- Oral exam and direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5- Final exam
2.	1	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Chromatography.		
3.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Paper chromatography (circular and horizontal paper)		
4.	1	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Introduction to thin-layer chromatography		
5.	1	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Thin-layer chromatography		
6.	1	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	TLC on microscope slides.		
7.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Effect of activity of adsorbents on R _f values		
8.	1	A1, A2, A3, B1, B2, B3, C1, C2, C3, D1, D2	Effect of activity of mobile phase on R _f values		
9.	1	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Partition chromatography		
10.	1	A1, A2, A3, B1, B2, B3, C1, C2, C3, D1, D2	Revision for exams		

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11. Infrastructure

Books Required reading	1-Trease, G.E. and Evans, W.C. "Trease and Evans' Pharmacognosy" WB Saunders Co. Ltd., London, Philadelphia, Toronto, Sydney, Tokyo (1994, 2005). 2-Wallis, T.A. "Textbook in Pharmacognosy" CBS publisher & Distributers, First Indian edition (1985). 3-Mahran, G.H., "Medicinal Plants" 1st Ed.(1967). 4-Saber, A.H., "Practical Pharmacognosy" El-Shaab Printing House, 4th Ed. (1966). 5-Jackson, B.P. and Snowdon D.W., "Atlas of microscopy of medicinal plants, herbs and spices" Belhaven Press, Printer Publishers, London. (1990).
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Electronic references, Internet sites...	Periodicals, Web Sites, Etc http://www.botanical.com

12. Course development plan

- Suggesting and discussing new topics
- Some of the curriculum vocabulary has been changed in a simple way to keep pace with modern scientific developments
- Conducting seminars and seminars within the branch to present modern scientific topics
- Establishing a consultant pharmacy within the collage for students training during the first semester.

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COURSE SPECIFICATION

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Alayen University - College of Pharmacy
2. College department/Center	Pharmacognosy and Supporting Sciences
3. Course title/code	Pharmacognosy II/ Theory /PH3102
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives	
In the theoretical part; this course is intended to study about chemistry of natural products like glycosides, Tannins, Resins', Volatile oils etc. This course included Pharmacology and chemistry with chemical structure. In the Practical part; to enable students practices extraction methods and chromatography techniques.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

- A1- Identifying all sources of natural products and raw medicines.
- A2- Methods of extracting the active substances.
- A 3- Study of chemistry and bio-structure.

B. The skills goals special to the course

- B1 - Acquisition of skill in extraction methods
- B2 - Acquisition of skill in isolating active compounds
- B3 - Acquiring the skill in diagnosing separated vehicles

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Theoretical lectures
- 5- Educational laboratories
- 6- Scientific research
- 7- Desk research

Assessment methods

- 1- Short MCQs
- 2- Oral exam and direct questions in the class
- 3- Midterm exam
- 4- Electronic exams on the electronic platform
- 5- Final exam

C-Affective and value goals

- C1- Using modern methods of presenting lectures in the form of slides
- C2 - Video clips and illustrations
- C3 - Visit the botanical garden and submit scientific reports

Teaching and Learning Methods

- 1- Teaching and lecturing
- 2- Seminars and homework
- 3- Field visits
- 4- PowerPoint presentation

Assessment methods

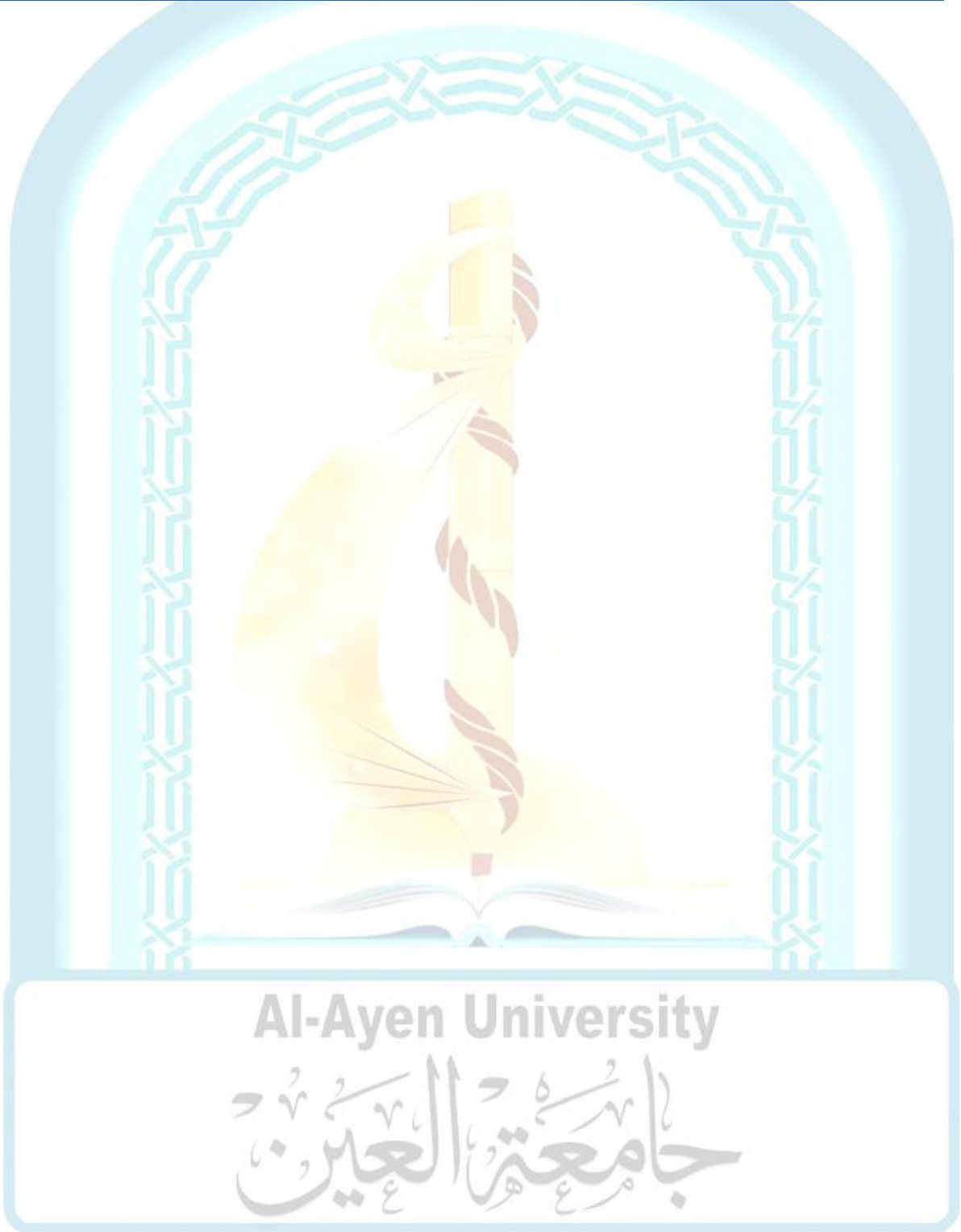
- 1. Case-based scenarios
- 2. Homework
- 3. Electronic MCQs on the electronic platform
- 4. Mid-term exam
- 5. Final exam

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D 1- Practical experiments

D2- Acquisition of computer skills

D 3-Giving confidence to the student by discussing seminars



10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Introduction: General biosynthesis pathways of secondary metabolites.	1- Whiteboard and Power Point and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1- Short MCQs 2- Oral exam and direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5- Final exam
2.	2	A1, A2, A3, B1	Carbohydrates.		
3.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Glycosides: Biosynthesis, physical and chemical properties; cardiac glycosides; saponin glycosides; anthraquinone glycosides; flavonoid glycosides; cyanophore glycosides.		
4.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Glycosides: Isothiocyanate glycosides; aldehyde glycosides; alcoholic glycosides; phenolic glycosides; lactone glycosides; coumarins and chromones.		
5.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Resins and resin combination; tannins.		
6.	2	A1, A2, A3, B1, B2, B3, C1, C3, , D1, D2	Lipids: fixed oils and waxes.		
7.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Volatile oils: Introduction; chemistry of volatile oils; biosynthesis of volatile oils; hydrocarbons as volatile oils; alcohols as volatile oils; aldehydes as volatile oils.		
8.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Ketones as volatile oils; Phenols as volatile oils; Oxides as volatile oils; Ester as volatile oils; Phenolic ethers as volatile oils.		
9.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Non- medicinal toxic plants.		
10.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Vitamins and Amino acids.		

11. Infrastructure

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Electronic references, Internet sites...	Periodicals, Web Sites, etc http://www.botanical.com

12. Course development plan

- Suggesting and discussing new topics
- Some of the curriculum vocabulary has been changed in a simple way to keep pace with modern scientific developments
- Conducting seminars and seminars within the branch to present modern scientific topics
- Establishing a consultant pharmacy within the collage for students training during the first semester.

COURSE SPECIFICATION

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Alayen University - College of Pharmacy
2. College department/Center	Pharmacognosy and Supporting Sciences
3. Course title/code	Pharmacognosy II Practical /PH3102
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	First semester 2022-2023
6. Credits (total)	1 hr x 15 weeks = 15 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives This course aim to enable students practicing the techniques of extraction Alkaloids , separation, and identification of constituents isolated from natural sources, using microscopes and chromatographic methods.	
9. Learning Outcomes, Teaching, Learning and Assessment Method A- Cognitive goals A1- Knowledge of botanical preparations A 2- Study of medicinal plants and their extraction methods A3- The possibility of artificially propagating plants to increase the percentage of active substances	

B- The skills goals special to the course

- B1-Extraction practice
- B2-Differentiation of plants
- B3-Isolation and identification of active components

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- Make periodic reports
- Oral and written exams
- Discussion in class by asking questions that encourage linking the subject with other subjects

C- Affective and value goals

- C1-Preparing a successful pharmacist with the ability to work in various health and medical institutions.
- C2-Preparing students who are able to complete their studies and work within academic institutions
- C3- Good knowledge

Teaching and Learning Methods

- 1- -Emphasis on the necessity of learning and experience in the field of teaching
- 2- Discussions
- 3- Lectures
- 4- Assignments
- 5- PowerPoint presentation

Assessment methods

- 1. Surprising inferential questions during the discussion in different aspects of education Homework
- 2. Electronic MCQs on the electronic platform
- 3. Mid-term exam
- 4. Final exam

D- General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- D1-Discussing different Natural and finding appropriate crude drugs for them.
- D2-Asking brainstorming questions through which the student can link the study materials together and link them to the health reality
- D3- Knowledge about natural sources

10. Laboratory Course Structure

Week	Hrs.	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1 to 4	1	A1, A2, A3, B1	Alkaloids: introduction ,physical and chemical properties ,classification of alkaloid ,alkaloids groups	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1- Short MCQs 2- Oral exam and direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5- Final exam
5 to 8	1	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Phytotherapy: introduction ,principle, medicinal plan in selected health care system ,important natural products and phytomedicines used in pharmacy and medicine		
9-10	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Antibiotic : natural sources, pathway synthetic pathway ,isolation and purification		
9th	1	Medication Safety and Communication Skills	Knowing treatment errors and ways to address them		
10th	1	Strategies to Meet Specific Needs	Knowing the disease that makes communication difficult and how to deal with it		

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11. Infrastructure

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Main references (sources)	1-Indian Pharmacopoeia, Egyptian Pharmacopoeia. 2-De Smet, P.A., Keller, K., Hausel, R. and Chandler, R.F., "Adverse effects of herbal drugs", Springer Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo, Hong Kong, Vol. I (1993). 3-Weiss R.F. and Fintelmann V. "Herbal Medicine", Thieme, Stuttgart, New York, 2nd Ed. (2000).
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12. Course development plan

- Suggesting and discussing new topics
- Some of the curriculum vocabulary has been changed in a simple way to keep pace with modern scientific developments & new extraction techniques.
- Conducting seminars and seminars within the branch to present modern scientific topics
- Establishing a consultant pharmacy within the collage for students training during the first semester

COURSE SPECIFICATION

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Pharmacognosy and Supporting Sciences
3. Course title/code	Pharmacognosy III/ Theory /PH3205
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives	
In the theoretical part; Alkaloids: introduction ,physical and chemical properties Classification of alkaloid ,alkaloids groups. - Phytotherapy: introduction ,principle, medicinal plan in selected health care system ,important natural products and phytomedicines used in pharmacy and medicine - Antibiotic : natural sources, pathway synthetic pathway ,isolation and purification	
In the Practical part; to enable students practices extraction methods from natural sources, pathway synthetic pathway ,isolation and purification	

9. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

A1- Identifying all sources of natural products and raw medicines. A2- Methods of extracting the active substances.

A 3- Study of chemistry and bio-structure.

B. The skills goals special to the course

B1 - Acquisition of skill in extraction methods

B2 - Acquisition of skill in isolating active compounds

B3 - Acquiring the skill in diagnosing separated vehicles

Teaching and Learning Methods

1- PowerPoint and Multimedia presentation

2- Class discussion

3- Presentation of cases

4- Theoretical lectures

5-Educational laboratories

6-Scientific research

7-Desk research

Assessment methods

1- Short MCQs

2- Oral exam and direct questions in the class

3- Midterm exam

4- Electronic exams on the electronic platform

5- Final exam

C-Affective and value goals

C1- Using modern methods of presenting lectures in the form of slides

C2 - Video clips and illustrations

C3 - Visit the botanical garden and submit scientific reports

Teaching and Learning Methods

1- Teaching and lecturing

2- Seminars and homework

3- Field visits

4- PowerPoint presentation

Assessment methods

1. Homework

2. Electronic MCQs on the electronic platform

3. Mid-term exam

4. Final exam

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D 1- Practical experiments

D2- Acquisition of computer skills

D 3-Giving confidence to the student by discussing seminars

10. Course Structure

Week	Hrs.	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment method
1.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	General Introduction to Alkaloids	1- Whiteboard and Powerpoint and data show presentation	1- Short MCQs 2- Oral exam and direct questions in the class
2.	2	A1, A2, A3, B1	General extraction and identification methods of Alkaloids .	2- Class discussion	3- Midterm exam
3.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Piperine Alkaloids.	3- Presentation of cases	4- Electronic exams on the electronic platform
4.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2,	Quinoline Alkaloids.	4- Handouts	5- Final exam
5.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Iso Quinoline Alkaloids.	5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	
6.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Tropane Alkaloids..		
7.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Harmala Alkaloids..		
8.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Imidazole alkaloids		
9.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Purine alkaloids		
10.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Pectin from lemon		

10. Laboratory Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A3, B1, B2, B3, D1, D2, D3	General Introduction to Alkaloids	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 3- Cases	1- Short MCQs 2- Oral exam and direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5- Final exam
2.	2	A3, B1, B2, B3, D1, D2, D3,	General extraction and identification methods of Alkaloids .		
3.	2	A3, B1, B2, B3, D1, D2, D3	Extraction and Isolation of piperine Alkaloids.		
4.	2	A3, B1, B2, B3, D1, D2, D3	Identification of piperine Alkaloids.		
5.	2	A3, B1, B2, B3, D1, D2, D3	Extraction and Isolation of Tropane Alkaloids.		
6.	2	A3, B1, B2, B3, D1, D2, D3	Identification of Tropane Alkaloids..		
7.	2	A3, B1, B2, B3, D1, D2, D3	Extraction and Isolation of Harmala Alkaloids..		
8.	2	A3, B1, B2, B3, D1, D2, D3	Identification of Harmala Glycosides.		
9.	2	A3, B1, B2, B3, D1, D2, D3			

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