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| --- | --- |
| **Course Title:** | **Pharmacognosy II** |
| **Course Code:** | **PHGN 322** |
| **Program:** | **Pharmaceutical Sciences** |
| **Department:** | **Pharmacognosy** |
| **College:** | **Pharmacy** |
| **Institution:** | **Najran University** |

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# A. Course Identification

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1. Credit hours:** | | | | | | | | **3 hours (2+1)** | | | | | | |
| **2. Course type** | | | | | | | | | | | | | | |
| **a.** | University | |  | College | | | **√** | Department |  | | Others |  | |  |
| **b.** | | Required | | | **√** |  | | Elective | |  | | |  | |
| **3. Level/year at which this course is offered:** | | | | | | | | **6th Level /3rd year** | | | | | | |
| **4. Pre-requisites for this course** (if any)**:**  **Pharmacognosy-1 (PHGN 321)** | | | | | | | | | | | | | | |
| **5. Co-requisites for this course** (if any)**:** | | | | | | | | | | | | | | |
| **NONE** | | | | | | | | | | | | | | |

## 6. Mode of Instruction (mark all that apply)

| **No** | **Mode of Instruction** | **Contact Hours** | **Percentage** |
| --- | --- | --- | --- |
| **1** | **Traditional classroom** | 60 | 100 |
| **2** | **Blended** |  |  |
| **3** | **E-learning** |  |  |
| **4** | **Correspondence** |  |  |
| **5** | **Other (practical)** |  |  |

**7. Actual Learning Hours** (based on academic semester)

|  |  |  |
| --- | --- | --- |
| **No** | **Activity** | **Learning Hours** |
| **Contact Hours** | | |
| **1** | **Lecture** | 30 |
| **2** | **Laboratory/Studio** | 30 |
| **3** | **Tutorial** | 0 |
| **4** | **Others** (specify) | 0 |
|  | **Total** | 60 |
| **Other Learning Hours\*** | | |
| **1** | **Study** | 40 |
| **2** | **Assignments** | 10 |
| **3** | **Library** | 0 |
| **4** | **Projects/Research Essays/Theses** | 0 |
| **5** | **Others** (specify) |  |
|  | **Total** | 110 |

**\*** The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

# B. Course Objectives and Learning Outcomes

|  |
| --- |
| 1. Course Description This course describe macroscopical and microscopical characters of medicinal plant seeds, fruits, herbs, roots, and rhizome to identify them and know their quality, purity and usability, as well as to know the active substances contained in these parts, how to detect them.  The course aimed also at explanation of therapeutic and toxic effects for these parts of natural plants, and how to employ the safe one among them for overcoming some health problems. |
|  |
| 2. Course Main Objective  1. Study of the general features of the macroscopic and microscopic characters of the seeds, fruits, roots, rhizomes, and herbs and how to differentiate between the different plant organs. 2. know the active constituents of each plant under study 3. Know the biological effects for each plant under study and how to employ alone or in combination of conventional drugs for solving human health problem. |
|  |

## 3. Course Learning Outcomes

| **CLOs** | | **Aligned****PLOs** |
| --- | --- | --- |
| 1 | **Knowledge:** |  |
| 1.1 | Identify the macroscopic and microscopic features of different organs of the natural drugs | K2 |
| 1.2 | Recognize the pharmacological uses of several common natural seeds, fruits, roots, rhizomes, and herb. | K2 |
| **2** | **Skills:** |  |
| 2.1 | Differentiate between medicinal plants based on morphological and microscopical characters. | S1 |
| 2.2 | Design recipe from safe single or multiple medicinal plants to overcome or ameliorate some health problems | S1 |
| 2.3 | Employ the plants under study alone or in combination with conventional drugs for solving human health problem. | S1 |
| **3** | **Competence:** |  |
| 3.1 | Work independently to recognize genuine medicinal plant and detect admixture or adulteration. | C1 |

# C. Course Content

|  |  |  |
| --- | --- | --- |
| **No** | **List of Topics** | **Contact Hours** |
|  | 1. **Lectures** |  |
| 3 | 1. **The seeds:**  * Introduction: Scientific definitions and general morphological and histological features of the seeds * Study of macroscopic and microscopic characters, active constituents, uses and chemical tests of the following seeds: Foenugreek, Nux-vomica and Linseed, black mustard, White mustard, Cardamom and Strophanthus. | **6** |
| 3 | 1. **The fruits:**  * Introduction: Scientific definitions and general morphological and histological features of the fruits. * Study of macroscopic and microscopic characters, active constituents, uses and chemical tests of the following umbelliferous fruits: Fennel – Anise – Ammi visnaga and Coriander, Ammi-majus, Caraway, Dill, Cumin and Conium. * Study of macroscopic characters, active constituents, uses and chemical tests of non-umbelliferous fruits capsicum and vanilla. | **6** |
| 3 | 1. **The Herbs:**  * Introduction. * Studying of macroscopic characters, active constituents chemical tests and uses of peppermint, thyme-basil, lobelia, cannabis, and solanaceous drugs | **6** |
| 6 | 1. **The Roots and Rhizomes:**  * Introduction: Scientific definitions and general morphological and histological features of the roots and rhizomes. * Study of macroscopic and microscopic characters, active constituents, chemical tests and uses of ginger, Liquorice, rhubarb and Ipecacuanha. * Studying of macroscopic characters, active constituents, chemical tests and uses of colchicum, male fern Rauwolfia, ginseng and garlic. | **12** |
| 15 | **Total** | **30** |
|  | 1. **Practical** |  |
| 1. Introduction of lab safety, handling of chemicals and reagents and drugs of natural origin. 2. Introduction to seeds, macroscopic, microscopic studies of Nux vomica. 3. Macroscopic and microscopic studies of Foenugreek and Linseed 4. Macroscopic study, active constituents and uses of Cardamom, Castor seed, black mustard, and white mustard. 5. Introduction to fruits, umbelliferous fruits, Macroscopic and microscopic studies of fennel. 6. Macroscopic and microscopic studies of Ammi visnaga and Anise. 7. Macroscopic and microscopic studies of coriander. 8. Macroscopic studies of Capsicum, Cumin, Conium, Caraway, dill, and star anise. 9. Introduction of herbs, Macroscopic and microscopic studies of Thyme, and Mentha. 10. Macroscopic studies of Basil, Hyoscyamus, Datura stramonium, Belladonna, Lobelia, and Cannabis. 11. Introduction to roots and rhizomes. Macroscopic and microscopic studies of Liquorice. 12. Macroscopic and microscopic studies of ginger and rhubarb. 13. Macroscopic study of Rauwolfia, Ginseng, Colchicum, Male fern, jalap, Curcuma, Ipecacuanha, and garlic bulb. 14. Practical exam on week 15 | | **6** |
| **6** |
| **6** |
| **12** |
| **Total** | | **30** |

# D. Teaching and Assessment

## 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| **Code** | **Course Learning Outcomes** | **Teaching Strategies** | **Assessment Methods** |
| --- | --- | --- | --- |
| **1.0** | **Knowledge** | | |
| 1.1 | Identify the macroscopic and microscopic features of different organs of the natural drugs | Lectures | 1. Theoretical exams 2. Assignments |
| 1.2 | Recognize the pharmacological uses of several common natural seeds, fruits, roots, rhizomes, and herbs. | Lectures | 1. Theoretical exams 2. Assignments |
| **2.0** | **Skills** | | |
| 2.1 | Differentiate between medicinal plants based on morphological and microscopical characters. | Lectures  Practicalwork | 1. Practical exam 2. Workplace-based assessment |
| 2.2 | Design recipe from safe single or multiple medicinal plants to overcome or ameliorate some health problems | Lectures  Assignments | 1. Theoretical exam |
| 2.3 | Employ the plants under study alone or in combination with conventional drugs for solving human health problem. | Lectures  Assignments | 1. Theoretical exam |
|  |  |  |  |
| **3.0** | 1. Competence | | |
| 3.1 | Work independently to recognize genuine medicinal plant and detect admixture or adulteration. | Lab. work | 1. Practical exam 2. Workplace-based assessment |
|  |  |  |  |

## 2. Assessment Tasks for Students

| **#** | **Assessment task\*** | **Week Due** | **Percentage of Total Assessment Score** |
| --- | --- | --- | --- |
| **1** | Midterm exam **1** | 6 | 15% |
| **2** | Individual assignments | 12 | 5% |
| **3** | Lab. practical quiz | 9 | 5% |
| **4** | Midterm exam **2** | 10 | 15% |
| **5** | Observation card in lab | 2-12 | 5% |
| **6** | Final practical exam | 15 | 15% |
| **7** | Final exam | 17 | 40% |
| **8** | Total |  | 100% |

**\*Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

# E. Student Academic Counseling and Support

|  |
| --- |
| **Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :** |
| * Office hours (2 hours per week). * Student counselling: As required.   (for advising and counselling and to correct the student pathway in the suitable time and to fulfill the course ILOs. Following the student’s marks in the quizzes and midterm exams and identification of the reason of low marks. |

# F. Learning Resources and Facilities

## 1. Learning Resources

|  |  |
| --- | --- |
| **Required Textbooks** | 1. Trease and Evans Pharmacognosy, International Edition E-Book (Evans, Trease and Evans Pharmacognosy) 16th Edition, Kindle Edition   by William Charles Evans |
| **Recommended References** | 1. Textbook of pharmacognosy, by T. E. Wallis. J. and A. Churchill |
| **Electronic Materials** | **www.dlaf.nu.edu.sa** |
| **Other Learning Materials** | Videos and lectures available the webpages  <https://www.slideshare.net/jelalalaban5/group-4-ppt-44950682>  <https://www.slideshare.net/MarwaFayed1/seeds-52154912> |

## 2. Facilities Required

| **Item** | **Resources** |
| --- | --- |
| **Accommodation**  (Classrooms, laboratories, demonstration rooms/labs, etc.) | 1. A Suitable lecture room equipped with data show, internet, and sufficient number of seats. 2. Suitable laboratories equipped with health and safety tools, internet, and sufficient number of seats. |
| **Technology Resources**  (AV, data show, Smart Board, software, etc.) | 1. Computer 2. Internet access 3. Data show |
| **Other Resources**  (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | 1. Samples of different organs of medicinal plants 2. Optical microscope, glass slides and glass covers. 3. Test tubes 4. Chemical reagents for detection of different classes and individual components of plant metabolites 5. Water bath |

# G. Course Quality Evaluation

| **Evaluation**  **Areas/Issues** | **Evaluators** | **Evaluation Methods** |
| --- | --- | --- |
| Effectiveness of teaching and assessment | Head of department  Students | Indirect  Questionnaires (indirect) |
| Effectiveness of student assessment | Faculty members and students | Indirect  Questionnaires (indirect) |
| Extent of achievement of course learning outcomes | Student  peer reviewer | Direct  Indirect |
| Quality of learning resources | Students | Questionnaires (indirect) |
|  |  |  |

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

**Assessment Methods** (Direct, Indirect)

# H. Specification Approval Data

|  |  |
| --- | --- |
| **Council / Committee** | Pharmacognosy Department Council |
| **Reference No.** | 1 |
| **Date** | 25/8/2019 |