Course Specifications

General Information

Course name	Medicinal plant and pharmacognosy lab
Course number	PHCG2103
Faculty	
Department	
Course type	Major Needs
Course level	2
Credit hours (theoretical)	0
Credit hours (practical)	1
Course Prerequisites	

Course Objectives

1 - To introduce students to the basic features of plant tissues

2 - To introduce students to the basic morphology of plant organs

3 - to introduce student to the basic features of non-living cell contents

4 - To introduce students to the concept of plant diversity

5 - to provide students with the basic skills of using microscope in examination

6 - to provide the students with the basic skills of specimen preparation and the use of different examination solutions and techniques

7 - to provide the student with basic principles of herbal drug identification using macro and microscopical characters

Intended Learning Outcomes

Knowledge and Understanding	* the student will be able to understand the basic structure of plant tissues
	* the student will be able to understand the basic structure of plant cell and its non-living contents
	* the student will be able to understand how that plant structure is adapted to perform physiological functions of the plant
	* the student will understand the role of macro and microscopical characters in herbal drug identification
Intellectual Skills	* the student will be able to make plant description using morphology terms
	* the student will be able to describe microscopical characters of the plant using scientific terms
	* the student will be able to differentiate between different plant organs morphologically and histologically
Professional Skills	* the student will be able to make herbal drug identification using macro and microscopical characters
	* the student will be able to recognize poor quality herbal drugs
	* the student will be able to recognize herbal drug adulteration
General Skill	* the student will learn the skills of using microscope and its techniques
	* the student will learn the skills of making slides and using examination solutions

Course Contents

1 - introduction
2 - microscope and examination solutions
3 - non-living cell contents
4 - tissues: parenchyma, collenchyma and sclerenchyma
5 - tissues: vessels and cork
6 - morphology and anatomy of root
7 - morphology and anatomy of stem
8 - morphology and anatomy of leaf
9 - morphology and anatomy of flower
10 - morphology and anatomy of fruit
11 - morphology and anatomy of seed
12 - stomata and hairs

Teaching and Learning Methods

1 - manual notes prepared by the teacher assistant
2 - photographs represented by power point slides
3 - learning videos

Students Assessment

Assessment Method	TIME	MARKS
Attendance	first week to last week of the semester	10
lab manual reports	second week to last week of the semester	20
quizzes	third week, sixth week and ninth week of the semester	30
final exam	the twelve week of the semester	40

Books and References

Course note	A. C. DUTTA. (1965). CLASS-BOOK OF BOTANY 12th edition Evans, W.C. (2002) Pharmacognosy. 15th Edition, W.B. Saunders, Philadelphia Jackson, B., Snowdon, D. Atlas Of Microscopy of Medicinal Plants, culinary Herbs And Spice. London Clark, CH. A Laboratory manual in Practical Botany. USA Hardy, Ch., Wagner, R. Guide to Lab Exercises in Concepts of Botany. Millersville University 2016

Knowledge and Skills Matrix

Main Course Contents	Study Week	Knowledge and Understanding	Intellectual Skills	Professional Skills	General Skill
introduction, microscope and examination solution	1-2 weeks	to understand the purpose of the lab, parts of microscope, composition of examination solutions	to learn about preparation of slides and skills in using the microscope	to be able to characterize microscopical characters	convert the theoretical part of botany to practical botany
non-living cell contents, tissues:(parenchyma, collenchyma, sclerenchyma, cork, vessels), stomata and hairs	week 3-week 6	to recognize the basic characters of the different tissues and the non-living cell contents	to learn how to recognize and describe the tissues under the microscope and to recognize their specific characters	to be able to differentiate between the different types of tissues under the microscope	to be able to use the microscope in tissue characterization
morphology and anatomy of root, stem, leaf, flower, fruit, seed	week 7-week 12	to recognize the basic morphological and anatomical characters of plant organs	the student will be able to differentiate between plant organ by macro and microscopical characters	the student will be able to make herbal drug analysis and be able to recognize unknown herbal samples	the student will has the ability to detect herbal drug adulteration