#### Course Title: Botany (Morphology & Anatomy)

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| **University** | **Benha** |
| **Faculty** | **Faculty of Agriculture** |
| **COURSE SPECIFICATIONS:** |
| Program of which the course is given | **Agricultural Biotechnology , Food Safety and Agribusiness Programs** |
| Type: | **■** obligatory **□**optional |
| Major or Minor element of Program |  |
| Departments offering the Program | **General course** |
| Department offering the course | **Agricultural Botany (Agricultural Botany branch)** |
| Academic year / Level | **First level / First semester** |
| Date of specification approval |  |

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| **A- BASIC INFORMATION**  |
| Title  | **Botany ( Morphology & Anatomy )** |
| Code | **AB0801** |
| Credit Hours  |
| Lecture | **2 Hours / week** |
| Practical | **2 Hours / week**  |
| Total: | **56 H / Semester** |

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| **B- PROFESSIONAL INFORMATION** |
| **1 – OVERALL AIMS OF COURSE** |
| The course aims for giving students the knowledge and skills of botany and its branches, external morphology for flowering plants and organs modifications. Plant cell, tissues, secretion and vascular tissues , types of vascular bundles are included. Anatomy of flowering plants and general taxonomy of plant kingdom are also given.. |

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| **2 – Intended Learning Outcomes of Course (ILOs)**  |
| **A. Knowledge and Understanding: By the end of the course, the students will be able to**  |
| **1- Know the principles of plant morphology, anatomy and taxonomy.** |
| **2- Explain the importance of plant morphology ,anatomy and proper classification and identification of plants.** |
| **3- Understand the morphological and anatomical features and similarities among plants.** |

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| B. Intellectual Skills: |
| **1- Describe the concept of morphology ,anatomy, identification, classification and nomenclature of plants** |
| **2- Conclude about different techniques of plant morphology, anatomy, collection and identification** |
| **3- Discuss the different flowering plant forms according to their** **Morphological, anatomical and economic importance and uses.** |
| C. Professional and Practical Skills: |
| 1. **Apply practical skills in solving problems in Botany**
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| 1. **Achieve skills in laboratory work**
 |
| 1. **Learn some common methods and techniques used in plant morphology, anatomy and taxonomy.**
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| 1. **distinguish between plant organs and anatomical tissues.**
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| D. General and Transferable Skills: |
| **1- Work in groups with minimum supervision.** |
| **2- Use of new technologies tools of agricultural Botany.** |
| **3- Apply theoretical knowledge in resolving practical problems.** |
| **4-write scientific reports and proposals** |

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| 3. CONTENTS |
| **Topic** | **No. of hours** | **Lectures** | **Practical** |

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| **4** | **4** | **8** | **General introduction on botany and its branches, external morphology for flowering plants ( roots, stem and leaves) organs modification.**  |
| **4** | **4** | **8** | **Plant cell, plant tissue ( merastematic, epidermis, paranchematic, cholaranchema, schelarancheima, secretion and vascular tissues) types of vascular bundles.** |
| **4** | **4** | **8** | **Anatomy of flowering plants ( root, stem and leaves in mono and dicot plants) primary and secondary growth.** |
| **4** | **4** | **8** | **Effect of environment on external and internal morphology ( hydrophytes and xerophytes.** |
| **4** | **4** | **8** | **Pollination and fertilization.** |
| **4** | **4** | **8** | **Taxonomy and plant kingdom specially regional and horticultural plants.** |
| **4** | **4** | **8** | **Cruciferacae, Leguminaceae, Cucurbitaceae, Solanaceae, Malvaceae, elementary knowledge of Mosses, Ferns, Fungi, Bacteria.** |
| **28** | **28** | **56** | **Total** |

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| 4. TEACHING AND LEARNING METHODS |
| **■ Lectures ■ Laboratory practical ■ Activities ■Discussion** |

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| 5. STUDENT ASSESSMENT METHODS |
| **■ Regular exam ■Oral exam ■ Practical exam ■ Final exam.**  |

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| 6. ASSESSMENT SCHEDULE |
| No | AssessmentAssessment | **Week** |
| 1 | Periodical exam  | **4th, 8th and 12th Week** |
| 2 | Oral exam | **14th Week** |
| 3 | Practical exam | **15th Week** |
| 4 | Final exam | **16th Week** |

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| 7. WEIGHTING OF ASSESSMENT |
| No | AssessmentAssessment | **%** |
| 1 | Periodical exam  | 15% |
| 2 | Practical exam | 15% |
| 3 | Oral exam | 10 % |
| 4 | Final exam | 60 % |
| TOTAL | 100 % |

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| 8. LIST OF REFERENCES |
| **Course notes** | Make the reports fairly brief (3-4 pages may sometimes suffice) with an introduction (include hypothesis), results (tables or graphs) and discussion |
| **Essential books (text books)** | - Bold, H. C. (1989): The Pant Kingdom (5th Edition). Prentice-Hall International, London: U. K.- Stern, K. R. (2000): Introductory Plant Biology (8th Edition). Mc Grow-Hill Companies, London: U. K.- Singh ,M.P. and Sarma , A. K. (2005): Textbook of Botany . Ann. of Publications Pvt.LTD.New Delhi: India- Pandey, B. P. (2010): A Text book of Botany- Angiosperms, S. Chand & Company Ltd. Ramnagar, New Delhi- 110055. |
| **Recommended books**  | - Fahn, A . (1992): Plant Anatomy . Pergamon Press. New York ،U.S.A.- Vasishta, P.C. (2005): Botany for degree students Voll. V, Gymnosperms. S.Chand & Company Ltd. Ramnagar, New Delhi- 110055. |
| **- Periodicals, Web sites, etc.** | 1- Egyptian journal of Botany. 2- Journal of Applied Botany. www.Google.com (search key word Botany) [www.publish.csiro.au/journals/ajsr](http://www.publish.csiro.au/journals/ajsr) www.amazon.com  |

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| 9. FACILITIES REQUIRED FOR TEACHING AND LEARNING |
| **Teaching class – Laboratory – Data show – Boards – plant samples –Microscopes – Computer.** |

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| **Course Coordinators:**  | **Prof. Dr. Said Ali El-Desouky****Prof. Dr. Hosny Mohamed Abd El-Dayem** |
| **Head of Department:** | **Prof. Dr. Hosny Mohamed Abd El-Dayem** |
| **Date: / / 2015** |