#### Course Title: Entomology (General)

|  |  |
| --- | --- |
| **University** | **Benha University** |
| **Faculty** | **Faculty of Agriculture** |
| **COURSE SPECIFICATIONS:** |
| Program of which the course is given | Agricultural Biotechnology |
| Major or Minor element of Program | Major |
| Departments offering the Program |  Plant Protection Department |
| Department offering the course |  Plant Protection Department |
| Academic year / Level | level 2/ Second semester |
| Date of specification approval |  |

|  |
| --- |
| **A- BASIC INFORMATION**  |
| Title  | General Entomology |
| Code |  PP 0402 |
| Credit Hours  |  3 unite |
| Lecture | 2 Hours / week |
| Practical | 2 Hours / week  |
| Total: |  4 Hours / week |

|  |
| --- |
| **B- PROFESSIONAL INFORMATION** |
| **1 – OVERALL AIMS OF COURSE** |
| * Knowledge of insects, their dispersal, Injuries, Benefits, Features and Life-cycle
* Studying the morphology of main regions of insects; Head – Thorax and abdomen
* Awareness about the biology and Ecology of insects.
* Good knowledge about the classification of insects to Subclasses, Orders and Suborders.
 |

|  |
| --- |
| **2 – Intended Learning Outcomes of Course (ILOs)** |
| **A. Knowledge and Understanding:** |
| ***By the end of the course, students should:**** Know the main information about insects
* Understanding the life-cycles and ecology of insects
* Draw the different parts and appendages of insects
* Know the characteristics of different insect Orders
* Determine the classification of Class Insecta to Subclasses, Orders and Families with the scientific names of examples.
 |

|  |
| --- |
| B. Intellectual Skills: |
| ***Successful completion of this course will allow students to:**** . Determining the scientific name of an insect species and referring it to the Family and order.
* Compare between different similar insect species depending upon the classification of insects.
* Dissecting of insects belonging to different Orders.
* Drawing simply different parts of insects before and after dissection
 |

|  |
| --- |
| C. Professional and Practical Skills: |
| * Identify insects from different species and refers them to their Families and Orders
* Makes attractive collections of insects
* Dissecting insects and demonstrates the internal organs
* Storing and keeping prepared specimens of insects at optimum conditions.
 |

|  |
| --- |
| D. General and Transferable Skills: |
| * Analyses of quantitative data about the dimensions of insects and their parts
* Uses the Microsoft power point to demonstrate scientific information about insects and their biology , ecology and taxonomy
* Working with scientific groups in the field Entomology
 |

|  |
| --- |
| 3. CONTENTS |
| **Topic** | **No. of hours** | **Lectures** | **Practical** |
| Definition of Entomology-dispersal of insects-characters of Class Insecta- injuries and benefits of insects | **4** | **2** | **2** |
| Insect’s body wall- Mechanism of moulting- Parts of insect’s body | **4** | **2** | **2** |
| The head capsule-antennae-mouthparts- eyes | **4** | **2** | **2** |
|  Thorax structure- types of legs- wings& wing venation of insects | **4** | **2** | **2** |
| Abdomen- anal cerci- male& female genitalia | **4** | **2** | **2** |
| Digestive system: alimentary canal- salivary glands | **4** | **2** | **2** |
|  Respiratory system: structure- types-spiracles- ways of respiration of insects | **4** | **2** | **2** |
| Nervous system: Central- Sympathetic - Peripheral | **4** | **2** | **2** |
| Insect’s reproductive system: Structure in ♂♂&♀♀  | **4** | **2** | **2** |
| Muscular system- excretory systems- sense organs- types of metamorphosis and life cycles- stages  | **4** | **2** | **2** |
| Classification of insects: Characters of Insect Orders of Apterygota , Exopterygota and Endopterygota  | 8 | **4** | **4** |
| Completion of description of characters of the rest of insect Orders with examples of representative insects and referring each to Suborder and Family | 8 | **4** |  **4** |
| Total  | 56 | **28** | **28** |

|  |
| --- |
| 4. TEACHING AND LEARNING METHODS |
| 1. The main subject areas are covered in the lectures .
2. Several student seminar sessions in order to discuss all aspects of the course.
3. Students are given a topic to research in small groups to be allowed for oral presentation.
 |

|  |
| --- |
| 5. STUDENT ASSESSMENT METHODS |
| 1. Evaluating the student’s grades in periodical exercises and presentations.
2. The final examination in practical lessons.
 |

|  |
| --- |
| 6. ASSESSMENT SCHEDULE |
| No | AssessmentAssessment | **Week** |
| 1 | mid – term examination  | 7 |
| 2 | oral examination  | 15 |
| 3 | Periodical exam | 15 |
| 4 | Final-termexamination | 16 |
| 7. WEIGHTING OF ASSESSMENT |
| No | AssessmentAssessment | **%** |
| 1 | mid – term examination  | 15% |
| 2 | oral examination  | 10% |
| 3 | Periodical exam | 15 % |
| 4 | Final-termexamination | 60 % |
| TOTAL | 100 % |

|  |
| --- |
| 8. LIST OF REFERENCES |
| 1- A. D. ImmsA general textbook of Entomology1. R. E. Snodgrass

Principles of insect morphology1. Ross , Herbert H.

A textbook of Entomology1. Imms, A. D.; Richard, O. W. and Davies, R. G.

General textbook of Entomology, Vol. 2: Classification and Biology1. Chapman, R. F.

The insects: Structure and Function 4th edition |

|  |
| --- |
| 9. FACILITIES REQUIRED FOR TEACHING AND LEARNING |
| 1. Teaching aids/ materials: e.g. boards – overhead projector – data-show projector – stationary.. etc.
2. Facility to buy well prepared specimens of whole insects from different Orders
3. Teaching room/halls.
4. Computers.
 |

|  |  |
| --- | --- |
| **Course Coordinators:**  | 1. **Prof. Dr.** Ahmed Abdel Ghaffar Abdo Darwish
2. Prof. Dr.
 |
| **Date: / / 2015** |