#### Course Title: Entomology (General)

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| **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 |  |

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| **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 |

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| **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. |

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| **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. |

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| 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 |

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| 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. |

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| 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 |

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| 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** |

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| 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. |

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

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| 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 % | |

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| 8. LIST OF REFERENCES |
| 1- A. D. Imms  A general textbook of Entomology   1. R. E. Snodgrass   Principles of insect morphology   1. Ross , Herbert H.   A textbook of Entomology   1. Imms, A. D.; Richard, O. W. and Davies, R. G.   General textbook of Entomology, Vol. 2: Classification and Biology   1. Chapman, R. F.   The insects: Structure and Function 4th edition |

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| 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. |

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