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**Department of: Forestry**

**College of : Agricultural Engineering Science**

**University of : Salahaddin-Hawler**

**Subject : Forest Entomology**

**Course Book : 2nd Year Student**

**Lecturer's name: Assist.Prof.Dr. Abdulbaset M. Amin**

 **Mohammed**

**Academic Year : 2022/2023**

**Course Book**

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| **1. Course name** | **Forest Entomology-Second semester/ Spring Semester**  |
| **2. Lecturer in charge** | **Abdulbaset Mohammed Amin M.\ Assist.Prof.** |
| **3. Department/ College** | **Forestry, College of Agriculture** |
| **4. Contact** | **e-mail:****Abdulbaset.Mohammed@su.edu.krd****Tel: 07700435560** |
| **5. Time (in hours) per week**  | **Theory: 2** **Practical: 3**  |
| **6. Office hours** |  |
| **7. Course code** | **-** |
| **8. Teacher's academic profile**  | B. Sc. In Science college(Biology), Sulaimani University. Sulaimany. 1981. MSc. in Entomology, Honey bee classification-Science College- Salahaddin University. Erbil. Ph.D. in Insect Biology –Ebin-Alhaethem College –University of Baghdad 2000.Title of M.Sc. Thesis: Morphometric Studies on the Honey bees *Apis mellifera* of the Northern Iraq area. 1991 .Title of Ph.D. Thesis: Seasonal Occurrence of the Sunn Pest *Eurygaster integriceps* Puton with Remarks On its Natural Enemies in Erbil- Iraq .2000. Lecturing different subjects in Biology, Plant Protection, Plant Production, Agroforestry and Horticulture department for under students, Salahaddin University-Hawler. In 2015 - till now The Head of Horticulture Department of the College of Agriculture – Salahaddin University. Teaching Experience : |
| **9. Keywords** |  |
| **10. Course overview:**In addition to the major pests of forest trees, there are many kinds of insects that live in forests without occurring in damaging numbers. However, a few may develop occasionally into serious local infestations. Since both major and occasional pests tend to be cyclic and often scattered, ongoing surveys and monitoring by trained foresters are an essential part of forest pest manage­ment. Early detection of pests is essential to prevention of economic losses due to serious outbreaks.Sound forest management practices are basic to effective integrated pest management. Proper site selection, stand density con­trol, stand and tree vigor, and proper sanitation are among the most important. Under poor management and inadequate protec­tion practices, salvage operations may be the only recourse. Pesticide applications may be utilized for prevention of potential insect population buildup and suppression of outbreaks that threaten the vigor as well as survival of trees. However, use of pesticides is not recommended without knowledge of pest status. Use pesticides only if pests are present or are predicted to be present from a standard or systematic sample survey. They should be used in settings where compatible with management and of limited risk to the environment. Technical assistance is available from the Virginia Department of Forestry and the U.S. Forest Service, as well as the Virginia Cooperative Extension Service. State and federal forestry agencies may provide control services on a cost-sharing basis as well as survey and detection programs in cooperation with public and private forest land owners. Control programs for new, introduced, or as yet not established pests such as the gypsy moth are conducted by the Bureau of Plant Protection and Pesticide Regulation of the Virginia Department of Agriculture and Consumer Services with the Cooperation of the Animal and Plant Health Inspection Service, the USDA, the US Forest Service, the Virginia Department of Forestry, and Virginia Cooperative Extension.Internet resources on forest insect pests:At the beginning as a source of energy or hunting habit, for commensalism affairs. In some countries who never planning for forest future should loss a lot of natural source product. The important factor which take part in forest disturbance by neglect the forest as prey to enemies. High percent of work being spend for planting the forest for concentrate to protective from the enemies as in case of pests, disease and fire. For example Craft, 1958 communicated that the losses in USA forest as a result of the insect injuries to be twice in loss which produced by plant disease and seven times by the fire. |
| **11. Course objective:** **The main aim of this important subject to maintenance our great forests for our people and visitors and resolving most forests problem in Kurdistan.** |
| **12. Student's obligation**The student has to prove its presence in the lecture and that by taking the percentage of attendance by me and be prepared in every lecture for weeklycuisse and the form of attending a report at the end of the term on relevant lesson and lectures taken the students subject and in the end are the students exam monthly and final exam. |
| **13. Forms of teaching**The use of the following methods in the teaching process:1. Data Show
2. Presentation
3. Course book
4. White board.
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| **14. Assessment scheme**

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| Assignment | Point Each | Total Points |
| cuisse | 1 | 5 |
| Exams #1, #2 | 20 | 20 |
| Lab Base | 10 | 10 |
| Lab cuisse | 1 | 5 |
| **Total** |  | **40** |

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| **15. Student learning outcome:**1. Helping the students in acquiring the required skills.
2. Easy to do very rapid prototyping
3. Quick to learn, and good documentation
4. A good library of image processing functions
5. The student learns how to get accurate results and their use in matters concerning market.
6. Students learn programming and agriculture engineering in a way.
7. Students learn the difference between different forest tree pests.
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| **16. Course Reading List and References‌:**Useful references:Principles of Forest Entomology, Graham S.A. 2- Insect that feed on Colorado trees and Shrubs Whitney Cranshaw, David Leatherman and Boris Kondratieff. 3- Field Guide to Insects and Diseases of Arizona and New Mexico Forests,  Joel McMillin, Terry Rogers ,Dave Conklin and Bobbe Fitzgibbon.4- Field Guide to diseases and insects Rocky mountain Region, Kurt K.  Allen James T. Blodgett and Kelly S. Burns |
| **17. The Topics:** | **Lecturer's name** |
| 1st Week :The insects body structure this lecture divided in to two parts:A-External Morphology.B-Internal structure. | Abdulbaset M.Amin2hrs17/01/2023 |
| 2nd Week:**-**The relationship between human and the forest.-Developmental stages of forest entomology. | Abdulbaset M.Amin2hrs24/01/2023 |
| 3rd Week: -Effect of insects on forest -Developmental stages of forest trees in association with the insect invasion. | Abdulbaset M.Amin2hrs31/01/2023 |
| 4th Week:-Injuries caused by insects to the forest .-Insect infestation in relation to trees growth.- The forest a place of picnic.- Conservation and protective the forest soil.-Insect and Ecology. | Abdulbaset M.Amin2hrs07/02/2023 |
| 1st monthly Examination5th Week:  -Reproductive potential depend on several factors. - Environmental Resistance.-Biotic factors. -The insects and outbreak. | Abdulbaset M.Amin2hrs14/02/2023 |
| 6th Weak: -Evaluation of infestation. -The survey of forest insects. -Survey of insect in Large area. | Abdulbaset M.Amin2hrs21/02/2023 |
| 7th Week:-Methods for controlling the insects.-Reasons of insect resistance.-How to protect the mature trees | Abdulbaset M.Amin2hrs28/02/2023 |
| 8th Week:The insect controlling by law.-Quarantines.- Direct control.-Biological control. | Abdulbaset M.Amin2hrs07/03/2023 |
| 2nd monthly examination9th Week:The insect orders. -type of Aphids.-The Gall aphids.-Poplar leaf aphid.-Wooly apple aphids.-The Cicada.-Oak leaf aphids.-*Chromaphes juglandica* kalt. | Abdulbaset M.Amin2hrs14/03/2023 |
| 10th Week: -Types of plant bugs.-Poplar branch lace bug.-Types of mealy bug. | Abdulbaset M.Amin2hrs28/03/2023 |
| 11th Week:-Poplar scale insect.-The oriental yellow scale (Citrus scale).-Wax insect.-*Euproctis melania*. | Abdulbaset M.Amin2hrs04/04/2023 |
| 12th Week:-Gypsy moth.-*Epinotia trimaculata* Den. -Southern Apple worm.-Roots poplar beetle.-Poplar leaf beetle.-Leaf curl psylid. | Abdulbaset M.Amin2hrs 11/04/2023 |
| 13th Week:-Gall leaf poplar psylid.-Gall branches poplar psylid.-Olive psylid.-Pinus bud weevil. | Abdulbaset M.Amin2hrs 11/04/2023 |
| 14th lecture -Pistachio bark beetle. -Oak fruit moth. -Gall Oak Wasps. | Abdulbaset M.Amin2hrs18/04/2023 |
|  15th lecture -Types of bark beetles. - *Dendractonus frontalis* | Abdulbaset M.Amin2hrs18/04/2023 |
| **18. Practical Topics (If there is any)** |  |
| ***Course overview:***All the practical lectures applied in the laboratory | Assistant lecturer: Delpak Peerkhdir(3 hrs.) 15/01/2023 To 16/04/2023 |
| **19. Examinations:** The examination : The examination manner as follow :Q1/Define the following.Q2/What are the justification of the following. Q3/ Draw and fully labeled.Q4/ Explain the……. .Q5/ Mention the functions of.Q6/ Compare between.Q7/Answer with True or False.Q8/Complete the following sentences. |
| **21. Peer review.** |