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**Department of : Forestry**

**College of : Agriculture**

**University of : Salahaddin-Hawler**

**Subject : Forest Entomology**

**Course Book : 2th Year Student**

**Lecturer's name: Sara Dasko Yunis**

**Academic Year : 2018/2019**

**Course Book**

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| **1. Course name** | **Forest Entomology-first semester**  |
| **2. Lecturer in charge** | **Sara Dasko Yunis Assist lecture** |
| **3. Department/ College** | **Forestry , College of Agriculture** |
| **4. Contact** | **e-mail:** **Sara.yunis@su.edu.krd****Tel: 07508851114** |
| **5. Time (in hours) per week**  | **Practical: 3**  |
| **6. Office hours** |  |
| **7. Course code** | **-** |
| **8. Teacher's academic profile**  | B. Sc. In Agriculture college , Erbil University2008. MSc. in Horticulture insects -Salahaddin University. Erbil. Biology. Thesis :Biology Studies on the grape leafhoppers in Erbil city. |
| **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. |
| **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 weekly cuisse 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** | **3** |
| **Exams #1, #2** | **10** | **10** |
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| **Lab cuisse** | **1** | **2** |
| **Total** |  | **15** |

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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 kingdom of the world * Insect definition
* Entomological techniques
 | Sara Dasko Yunis3hrs |
| **2nd Week :****-** Head appendages- Antennae | Sara Dasko Yunis3hrs |
| 3rd Week: * Type of antennae
 | Sara Dasko Yunis3hrs |
| 4th Week: - The modifications of insects mouth parts | Sara Dasko Yunis3hrs |
| 1nd monthly examination5th Week: * The thorax
* Thoracis appendages
* The functions of the wings
 | Sara Dasko Yunis3hrs |
| 6th Weak: - The type of wings- the type of wings coupling | Sara Dasko Yunis3hrs |
| 7th Week:-Abdomen- Modifications of ovipositor- cercus | Sara Dasko Yunis3hrs |
| 8th Week:* styli
* Prolegs
 | Sara Dasko Yunis3hrs |
| 2nd monthly examination9th Week:- Morphologensis- Molting | Sara Dasko Yunis3hrs |
| 10th Week: -Types of larvae- Types of pupae | Sara Dasko Yunis 3hrs  |
| **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/Complete the following sentences.**  |
| **21. Peer review**  |