****

**Department of Field Crop**

**College of Agriculture**

**University of Salahaddin**

**Subject: Seed production &Technology**

**Course Book: 4 stage**

**Lecturer's name: Dr. Sakar A. Kakarash**

**Lecturer's name: Miss. Sumaya A. Abdullah**

**Academic Year: 2022/2023**

**Course Book**

|  |  |  |
| --- | --- | --- |
| **1. Course name** | **Seed technology** | |
| **2. Lecturer in charge** | **Sakar Asaad Kakarash**  **Sumaya A. Abdullah** | |
| **3. Department/ College** | **Field crops- Agriculture** | |
| **4. Contact** | **e-mail:** [sakar.kakarash@su.edu.krd](https://us-mg4.mail.yahoo.com/compose?to=sakar.kakarash@su.edu.krd)  **Tel:**  **e-mail:** [sumaya.Abdullah@su.edu.krd](mailto:sumaya.Abdullah@su.edu.krd)  **Tel:** | |
| **5. Time (in hours) per week** | **For example Theory: 2**  **Practical: 6** | |
| **6. Office hours** | **15** | |
| **7. Course code** |  | |
| **8. Teacher's academic profile** | Since 2002 I am working as in collage of agriculture.  **Employment**  2015 : Ph.D. Degree in field crops. Thesis title (Effect of Pre sowing Treatment on Germination,Growth ,Yield and Quality Chickpea Crop (*Cicer arietinum* L.)  2010 : Ph.D. student  2007 : M.Sc. Degree in Field Crop. thesis title (Ecophysiological study of soil seed bank for different Arable systems at Erbil Governorate/ university of salahaddin Advisor :A. prof.Dr.A.salih Kalaf  2001 : B. Sc. In plant production. College of Agricultural Univ. of salahaddin Iraq.  **Symposiums and Conferences Attendance**  1 – 1st Science of Agriculture conference of Duhok 2012.  2 – 2th Science of conference /Garmian 2015.  3 - 2 – 1st Science of Agriculture conference of Duhok 2016.  **Published Papers**  1 - Eco physiological study of soil seed bank for different Arable systems at Erbil Governorate. Zanco J , Vol.20, No,3.(2008).  2 – Three type of plough to study soil seed dynamic and its effect on purity of two grades of durum wheat . Zanco J , Vol.20,No,3.(2008).  3 – Genetic Variability, Correlation and Heretability of the yield and yield Components in Maize Single Crosses. Zanco,J. of Sci. Vol.22 , No . 6 , 2010.  4 - Stage of oil accumulation in maize kernels (Talar Variety). J. of Tekret Uni. Agri. Sci. Vol. 11,No.3,2011.  5 – Determination of the best date of seed harvesting for different varieties of rapeseed ( *Brassica napus* L.). J. of Tekret Uni. Agri. Sci. Vol. 11,No.3,2011.  6– Heterosis, genotype and phenotype correlation in different hybrids of Maize (*Zea mays* L.). Proceeding of 1st Sci.Agri.conf.Duhok. 2012.  7 – Pollen source effect on maize kernel oil concentration. Zanco J. of Sci, Vol.24.No.2,2012.  8 - Effect of irrigation treatments on maize (*Zea mays* L.) yield &yield components during two growing seasons. IOSR Journal of Agri.and Veterinary(IOSR-Javs).Vol.3(May-June.2013).  9 - Back cross Method for Genetic Parameters Estimation in maize (*Zea mays* L.). IOSR Journal of Agri.and Veterinary(IOSR-Javs).Vol.  10 – Recurrent Selection and Half-sib selection for Improvement oil contained in Maize (*Zea mays* L.). J. of Tekret Uni. Agri. Sci. Vol. 14, No.2, 2014.  11 – Succession of maize (*Zea mays* L.) with some winter crops. 3: The effect on NPK and O.M mobilization. Proceeding of 2th Sci. conference of Garmian .2015.  12 - The reflection of seed priming some add solution treatments on growth and yield of chickpea crop (*Cicer arietinum* L.).J.of Univ.of Kirkuk for Agri.Sci. Vol.7.No. 4, 2016.  13 – Effect of Invigoration Solution on the Aged and Non-aged Seeds it’s reflecting on Germination and Seedling Characters of Chickpea (*Cicer ariteinum* L.). J.of Univ.of Kirkuk for Agri.Sci. Vol..No., 2017.  14 - Estimation of homeostasis and genetic resultant for maize (*Zea mays* L.) hybrids. Proceeding of 1st Sci.Agri. conf. Duhok. 2016.  15 – Determination of accumulated oil and protein in seed of rapeseed during seed development. Proceeding of 1st Sci.Agri.conf.Duhok. 2016.  16 – Succession of maize with some winter crops 2 – effect of maize and winter crop characters. Iraqi Journal of agricultureal Science. 47(2), 2016. | |
| **9. Keywords** |  | |
| **10. Course overview:**  The increase in the world population dramatically from one side and from other side the cultivable land is shrinking and there is no scope for increasing the area under cultivation. The only solution to meet the food requirement is by increasing the crop yield, through improvement of crop plants. There are two ways by which yield improvement is possible.  1 ) enhancing the productivity of crops this can be done   1. Management of soil and crops 2. Using high potential crop variety by appropriate genetic manipulation of crop plants.   2) stabilization of productivity achieved .  The fundamental concepts of the course to understand what plant breeding, can do in this subjects and how can solve this problem by seed technologist we can develop a new project with high yielding potential, seed quality, wide adaptation, free and resistance to disease. | | |
| **11. Course objective:**  Objective   * To refresh the basic knowledge of seed development and structures and apprise students with its relevance to production of quality seed. * To provide an insight into physiological processes governing seed quality and its   survival.   * To impart knowledge on the principles and techniques of seed processing for quality   upgradation and of storage for maintenance of seed quality.   * To apprise students about the seed supply system, concepts and principles of effective marketing of seed and strengths and weaknesses of the seed sector. * To provide a comprehensive knowledge on all aspects of seed quality evaluation and   their relevance to crop performance.   * To impart a comprehensive knowledge of seed production in field crops with adequate practical training. * To acquaint the students with principles and practices of seed health testing and   management of seed borne diseases. | | |
| **12.**  The student role in this section to prepare for two examination and to visit field . | | |
| **13.**  Usually the data show used to show the topics of lectures and to be the white board for explanation. | | |
| **14.**  There are 2 tests monthly each test given 25 marks addition to the practical test given 15 marks. | | |
| **15.**  The students must learn all method used by seed technology, and how can recorded the data of characters in the field and in laboratory. | | |
| **16.**  1 – Seed science and technology  2 – ISTA hand book 2013  3 – تكنلوجيا البذور د.احمد صالح خلف و د. عبد الستار اسمير الرجبو ( 2006 ) | | |
| **17. The Topics:** | | **Lecturer's name** |
| 1st week: seed technology definition and term of seeds.  2nd week: seed dormancy, type of dormancy, biological significant of dormancy, factors conditioning dormancy state.  3rd week: exogenous dormancy.  4th week: endogenous dormancy.  5th week: methods of breaking dormancy.  6th week: germination, type of germination, stage of germination processes.  7th week: factors affecting germination, internal and factors.  8th week: external factors.  9th week: seed and seedling vigor.  10th week: seed and seedling vigor stimulation.  11th week: seed processing.  12th week: seed treatment, seed dressing.  13th week: seed certification, field inspection. | | Lecturer's name  ex: (2 hrs)  ex: 7/11/2016 |
| **18. Practical Topics (If there is any)** | |  |
| In this section The lecturer shall write titles of all practical topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture | | Lecturer's name  ex: (3-4 hrs)  ex: |
| **19. Examinations:**  ***1. Compositional:*** In this type of exam the questions usually starts with Explain how, What are the reasons for…?, Why…?, How….?  With their typical answers  Examples should be provided  ***2.******True or false type of exams:***  In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence. Examples should be provided  ***3. Multiple choices:***  In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase. Examples should be provided. | | |
| **20. Extra notes:**  Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks. | | |
| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ**  This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.  *(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*  ئه‌م کۆرسبووکه‌ ده‌بێت له‌لایه‌ن هاوه‌ڵێکی ئه‌کادیمیه‌وه‌ سه‌یر بکرێت و ناوه‌ڕۆکی بابه‌ته‌کانی کۆرسه‌که‌ په‌سه‌ند بکات و جه‌ند ووشه‌یه‌ک بنووسێت له‌سه‌ر شیاوی ناوه‌ڕۆکی کۆرسه‌که و واژووی له‌سه‌ر بکات.  هاوه‌ڵ ئه‌و که‌سه‌یه‌ که‌ زانیاری هه‌بێت له‌سه‌ر کۆرسه‌که‌ و ده‌بیت پله‌ی زانستی له‌ مامۆستا که‌متر نه‌بێت.‌‌ | | |