#### Course Title: Technology Transfer and Diffusion

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| **University** | **Benha** |
| **Faculty** | **Faculty of Agriculture** |
| **COURSE SPECIFICATIONS:** | |
| Program of which the course is given | Agricultural Biotechnology Program |
| Major or Minor element of program | Agricultural Biotechnology |
| Departments offering the program | General |
| Department offering the course | Agricultural Economics |
| Academic year (level) | Level 4 /Semester 2 |
| Date of specification approval |  |

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| **A- BASIC INFORMATION** | |
| Title | Technology Transfer and Diffusion |
| Code | EE0605 |
| Credit Hours |  |
| Lecture | 2 Hours / week |
| Practical | 2 Hours / week |
| Total: | 4 Hours / week |

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| **B- PROFESSIONAL INFORMATION** |
| 1. OVERALL AIMS OF COURSE |
| * To provide students with the technology transfer in agriculture: its concepts and how it is transferred, dissipated (defused). * To provide students with the role of Agriculture extension (agricultural advisory) bodies in this concern. Conditions for successful technology transfer process and examples of successful cases are included |

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| 2. INTENDED LEARNING OUTCOMES OF COURSE (ILOs) |
| **A. Knowledge and Understanding:** |
| ***By the end of the course, students should:***   1. The concept of technology transfer and transfer of agricultural technology and know the most important factors affecting the transfer and dissemination of technology. 2. Knows the conditions and types and transfer of agricultural technology and the constraints and dissemination of agricultural technology transfer. 3. Familiar with the role of agricultural extension in the harmonization of agriculturaltechnology transfer. |

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| B. Intellectual Skills: |
| ***Successful completion of this course will allow students to:***  1. Defines the conditions and types and the transfer of agricultural technology.  2. Determines the adaptation and harmonization of agricultural technology transfer methods.  3. Identifies constraints and dissemination of agricultural technology transfer. |
| C. Professional and Practical Skills: |
| 1. Defines the stages of agricultural technology transfer.  2. Focuses on the publication and adoption of their relationship and the transfer of agricultural technology.  3. Measures the role of agricultural extension in the harmonization of agricultural technology transfer. |
| D. General and Transferable Skills: |
| 1. Communicate with the craft and professional institutions related.  2. Deals with modern information systems.  3. Writes reports scientifically sound. |

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| 3. CONTENTS | | | |
| **Topic** | **No. of hours** | **Lectures** | **Practical** |
| Introduction. Concepts and characteristics of agricultural biotechnology and its transfer. | 4 | 2 | 2 |
| Technology adaptation and dissemination (diffusion). | 4 | 2 | 2 |
| Stages and areas of technology transfer and conditions for its success. Role of agricultural extension (advisory) service in technology transfer and harmonization. | 4 | 2 | 2 |
| **Periodical exam** | 4 | 2 | 2 |
| Nature of the relationships among the various systems which produce, transfer and use agriculture biotechnology. | 4 | 2 | 2 |
| Dissemination, diffusion and spreading of agricultural biotechnology. | 4 | 2 | 2 |
| Stages of technology transfer. | 4 | 2 | 2 |
| **Periodical exam** | 4 | 2 | 2 |
| The technology transfer approach and the other alternatives: A comparative critic assessment. | 4 | 2 | 2 |
| Types of Agriculture extension system concerning technology transfer. | 4 | 2 | 2 |
| Cases of successful achievements in technology transfer as shown by research in agriculture extension. | 4 | 2 | 2 |
| **Periodical exam** | 4 | 2 | 2 |
| Examples: for private entrances to study agricultural extension and technology transfer process (the entrance to the training and visit-the entrance of Cultural Relations). Important proposals for enhancing and updating agriculture extension for biotechnology transfer in Egypt. The characteristics and qualities of technology deployment | 4 | 2 | 2 |
| **Practical exam** | 4 | 2 | 2 |
| **Total** | 56 | 28 | 28 |

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| 4. TEACHING AND LEARNING METHODS |
| 1. The main subject areas are covered in the lectures (see syllabus Plan). 2. Several student seminar sessions give the opportunity for students to bring questions or discuss any aspects of the course with the tutor. 3. Students are given a topic to research in small groups which they report as an oral presentation. Collective feedback on the strengths and weaknesses of the presentations are provided. |

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| 5. STUDENT ASSESSMENT METHODS |
| ***Students will be evaluated by attendance, fulfillment and effort in exercises and presentations, and examination grades:***  1) Laboratory work: to assess the ability of students to understand and perform small laboratory experiments. |

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| 6. ASSESSMENT SCHEDULE | | |
| No | AssessmentAssessment | **Week** |
| 1 | Periodical exam | 4, 8, 12 |
| 2 | Practical exam | 14 |
| 3 | Oral exam | 15 |
| 4 | Final exam | 16 |

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| 7. WEIGHING OF ASSESSMENT | | |
| No | AssessmentAssessment | **%** |
| 1 | Periodical exam | 15% |
| 2 | Practical exam | 15% |
| 3 | Oral exam | 10 % |
| 4 | Final exam | 60 % |
| TOTAL | | 100 % |

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| 8. LIST OF REFERENCES |
| 1. **Inzelt, A. and Hilton, J. 1999.** Technology transfer: from invention to innovation. Kluwer Academic Publ. London, UK. 2. **Jacobson, D. and Robertson, P.L. 2011**. Knowledge transfer and technology diffusion. Edward Elgar Publ. UK. |

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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. Teaching room/hall. 3. Computers. 4. Facilities for site visits etc., which are necessary for teaching the course. |

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| **Course Coordinators:** | **Prof. Dr.**  **Prof. Dr.** |
| **Date: / / 2015** | |