Department of Agronomy, College of Agriculture, UOS

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COURSE OUTLINE Fall 2020

Course Title: **CONSERVATION AGRONOMY**

Course Code:AGRO-405

Credit Hours: 3(2-1)

Instructor: **Dr. ABDUL REHMAN**

Email: **abdul.rehman@uos.edu.pk**

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| DESCRIPTION & OBJECTIVES |

Conservation agronomy encompasses many diverse interests and emerging problems, including the need to address growing soil and water conservation problems ameliorate environmental impacts of agricultural operations and promote sustainable agricultural production

The key objectives/outcomes of this course are;

* Study of tillage practices for soil and water conservation
* Evaluation of agronomic and engineering conservation approaches.
* Impact of soil and water conservation practices on soil, productivity, fertility and plant health
* To develop the concept of soil and water conservation for sustaining productivity

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| CONTENTS |

**THEORY**

1. Concept, importance and objectives of conservation.
2. Agronomic practices for resource conservation.
3. Tillage practices such as contouring, terracing, benching
4. Leveling, grading, *watbandi,*
5. Zero tillage and minimum tillage
6. Chiseling, deep ploughing and planking
7. Species and cultivars selection.
8. Crop rotation and weed management.
9. Cover cropping.
10. Strip cropping.
11. Fertilizers and green manuring.
12. Mulching and crop residue management.
13. Field drainage.
14. Micro water-shed management under rainfed conditions.

**PRACTICAL**

1. Demonstration of soil & water conservation structures.
2. Effect of different mulches.
3. Demonstration of tillage practices for soil and water conservation.
4. Measurement of run off and soil erosion.
5. Visit to different soil and water conservation centers/institutes.

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| READINGS |

1. Arnon, I. 1992. Agriculture in Dry Lands.Principles and Practices. Elsevier, London.
2. Gurmel Sing, C. Venkatarmanan, G. Sastry and B.P. Joshi. 1990. Manual of Soil and Water Conservation Practices. Oxford and IBH Pub. Co., New Delhi.
3. Hudson, N.W. 2004. Soil and water conservation in semi-arid areas.Scientific \Publishers, India.
4. Kirkham, M.B. 2004. Water use in crop production.Internal Book Distributing Co. (Publishing Division).
5. Maloo, S.R. 2002. Sustainable Crop Production under stress environments. Agro-tech Publishing Academy, Udaipur, India.

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| COURSE SCHEDULE |
| WEEK | Topics and Readings Give Reading No from your list of readings above and its page nos. relevant to the topic(s) covered each week | DATES |
| 1. | Concept, importance and objectives of conservation | 12-10-202013-10-202015-10-2020 |
| 2. | Agronomic practices for resource conservation  | 19-10-2020 |
|  | Demonstration of soil water conservation structures | 20-01-2020 |
| 3. | Agronomic practices for resource conservation  | 22-10-202026-10-2020 |
|  | Demonstration of soil water conservation structures | 27-10-2020 |
| 4. | Tillage practices such as contouring, terracing, benching  | 29-10-202002-11-2020 |
|  | Demonstration of soil water conservation structures | 03-11-2020 |
| 5. | Tillage practices such as contouring, terracing, benching  | 05-11-2020 |
|  | Leveling, grading, *watbandi,* | 09-11-2020 |
| 6 | Effect of different mulches | 10-11-2020 |
|  | Leveling, grading, *watbandi,* | 12-11-202016-11-2020 |
| 7. | Effect of different mulches | 17-11-2020 |
|  | Zero tillage and minimum tillage  | 19-11-202023-11-2020 |
| 8. | Effect of different mulches | 24-11-2020 |
|  | Chiseling, deep ploughing and planking | 26-11-202030-11-2020 |
| 9. | Demonstration of tillage practices for soil and water conservation | 01-12-2020 |
|  | Chiseling, deep ploughing and planking | 03-12-2020 |
| 10. | Species and cultivars selection  | 07-12-2020 |
|  | Demonstration of tillage practices for soil and water conservation | 08-12-2020 |
| 11. | Species and cultivars selection  | 10-12-202014-12-2020 |
|  | Demonstration of tillage practices for soil and water conservation | 15-12-2020 |
|  | Crop rotation and weed management | 17-12-202021-12-2020 |
| 12. | Demonstration of tillage practices for soil and water conservation  | 22-12-2020 |
|  | Crop rotation and weed management | 24-12-2020 |
|  | **Mid Term Examination** |  |
| 13. | Cover cropping  | 28-12-2020 |
|  | Measurement of run off and soil erosion | 29-12-2020 |
|  | Cover cropping  | 31-12-2020 |
|  | Strip cropping | 04-01-2020 |
| 14 | Field Visit | 05-01-2020 |
|  | Strip cropping | 07-01-2020 |
|  | Fertilizers and green manuring | 11-01-2020 |
|  | Measurement of run off and soil erosion | 12-01-2021 |
| 15. | Fertilizers and green manuring | 14-01-202018-01-2020 |
|  | Field Visit | 19-01-2020 |
|  | Field drainage | 21-01-202025-01-2020 |
|  | Measurement of run off and soil erosion | 26-01-2020 |
| 16 | Micro water-shed management under rainfed conditions | 28-01-202001-02-2020 |
|  | Visit to different soil and water conservation centers/institutes  | 02-02-2020 |
|  | Micro water-shed management under rainfed conditions | 04-022020 |

Note: You can reserve one week for sessional or mid-term exam, and if you wish, one week for student presentations of the assigned research project.

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| RESEARCH PROJECT |

State here the prerequisites of the assigned research project, including term paper or lab assignment, etc.

**Production technology of different crops will be given as Assignments**

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| ASSIGNMENT CRITERIA |

Write here the distribution of the marks. You can choose any or all from below for the purpose.

Quizzes and test: 02

Attendance: 02

Assignments and presentations: 04

Mid-term: 12

End term: 20

Practical: 20

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| RUELS AND REGULATIONS |

Write here the rules and regulations that student have to abide by in your class. Some of these rules, example 80% class attendance are standards for the university.

1. The format and due dates of the assignments and midterm will be discussed during the first and second week of classes. Late assignments will be not be accepted.
2. 80 % class attendance is required to get 2 Marks.

FINAL NOTE: The instructions above mentioned in italics and red color are for guidance only. Remove them while completing this course outline template. Your final course outline document should be in black color.