



UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A ++' GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section

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NOTIFICATION (26/Feb./Adp./137)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the Syllabi and Courses of Study of the subject of **Agriculture Technology of Semesters-II for Four Year Under Graduate Programme** as per **NEP-2020 (as given in the annexure)** for the examinations to be held in the year **May 2026 only**.

The Syllabi of the courses is also available on the University website: www.jammuuniveristy.ac.in.

Sd/-
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/26/15452-463

Dated: 12-02-2026

Copy for information and necessary action to:

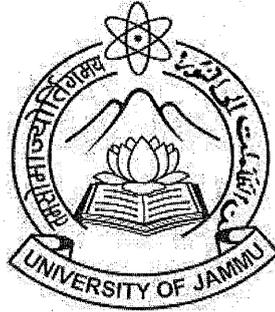
1. Dean, Faculty of **Life Science**
2. Convener, Board of Studies
3. All members of the Board of Studies
4. Sr. P.A. to the Controller of Examinations
5. C.A. to the Controller of Examinations
6. Director, Computer Centre, University of Jammu.
7. Joint Registrar/Deputy Registrar/Asst. Registrar (Confidential/Exam UG/Exam. Non Prof.)

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DEAN FACULTY OF LIFE SCIENCES

UNIVERSITY OF JAMMU



**CURRICULUM FRAMEWORK FOR
FOUR-YEAR UNDER GRADUATE PROGRAM (FYUGP) IN
AGRICULTURE TECHNOLOGY**

AS PER

National Education Policy-2020

FOR THE ACADEMIC YEAR 2026 ONLY

Approved by:

Board of Studies in Agriculture Technology

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**COURSE SCHEME OF SYLLABUS OF AGRICULTURE TECHNOLOGY
BACHELOR OF AGRICULTURE TECHNOLOGY (GENERAL/HONOURS/HONOURS WITH
RESEARCH)
SEMESTER II, SESSION 2026 ONLY
(AS PER THE GUIDELINES OF NATIONAL EDUCATION POLICY-2020)**

S. No	Course type	Course No.	Course Title	Credits	Marks				Total Marks
					Theory		Practical		
					Mid Semester	End Exam	Assessment	Exam	
1	Major	UMJATT-201	Crop production technology- II (Rabi crops)	4 (3T+1P)	15	60	10	15	100
2	Minor	UMIATT-202	Fundamentals of Soil Science	4 (3T+1P)	15	60	10	15	100
3	MDC	UMDAT T-203	Rural sociology and educational psychology	3	15	60	NA	NA	75
4	SEC	USEATT-204	Organic and Natural Farming	2 (1T+1P)	25	NA	NA	25	50

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MAJOR COURSE OF AGRICULTURE TECHNOLOGY
COURSE TITLE: CROP PRODUCTION TECHNOLOGY II (RABI CROPS)
SEMESTER II, SESSION 2026 ONLY

Course No.: UMJATT201

Max. Marks: 100 (Theory-75, Practical-25)

	Credits	Contact Hours	Units	Examination			
				Duration	(hours)	Weightage	(Marks)
Theory	03	45	I to IV	1½	03	15	60
Practical	01	30	V	1½	3½	10	15

Objectives: The course is designed to impart fundamental knowledge and practical skills in scientific Rabi crop production. Students will learn improved practices and region-specific agronomy for major Rabi crops with focus areas like varieties, sowing methods, and nutrient-pest management.

Expected outcomes: By the end of this course, students can plan and recommend sustainable Rabi production techniques.

UNIT 1: PRODUCTION TECHNOLOGY OF CEREALS (WHEAT AND BARLEY)

- 1.1: Introduction, origin and geographical distribution
- 1.2: Soil and climatic requirements
- 1.3: Cultural practices
- 1.4: Varieties, yield and economic importance

UNIT 2: PRODUCTION TECHNOLOGY OF PULSES (CHICKPEA, LENTIL, PEAS AND FRENCH BEAN)

- 2.1: Introduction, origin and geographical distribution
- 2.2: Soil and climatic requirements
- 2.3: Cultural practices
- 2.4: varieties, yield and economic importance

UNIT 3: PRODUCTION TECHNOLOGY OF OILSEEDS (RAPESEED, MUSTARD, SUNFLOWER AND LINSSEED)

- 3.1: Introduction, origin and geographical distribution
- 3.2: Soil and climatic requirements
- 3.3: Cultural practices
- 3.4: Varieties, yield and economic importance

UNIT 4: PRODUCTION TECHNOLOGY OF SUGAR AND FORAGE CROPS (SUGARCANE, SUGARBEET, OATS AND EGYPTIAN CLOVER)

- 4.1: Introduction, origin and geographical distribution
- 4.2: Soil and climatic requirements
- 4.3: Cultural practices

4.4: Varieties, yield and economic importance

PRACTICALS

1. Sowing methods of wheat and Mustard
2. Identification of weeds in Rabi season crops
3. Study of morphological characteristics of Cereals of Rabi crops
4. Field visit for identification of Rabi crop
5. Mechanization in crop cultivation of Rabi crops.

NOTE FOR PAPER SETTERS:

Examination Theory/Practical	Syllabus to be covered in Examination	Time Allotted for Exam	Marks
Internal Theory Assessment (Mid semester)	50%	1 Hr and 30 Min	15
External Theory End Semester	100%	3 Hrs	60
Continuous Assessment (practical)	-	-	10 (Based on Daily Performance only)
Final Examination (Practical)	-	-	15

Explanation:

End Semester University Examination (Total Marks: 60; syllabus to be covered: 100%)

The question paper will have 2 sections. Section 'I' will be compulsory having four questions of 3 marks each and spread over the entire theory syllabus (one from each unit i.e., Units I to IV). The questions will be of short answer type having answers not exceeding 50 to 70 words. Section 'II' will have eight long answer type questions, two from each unit I to IV. Each question will be of 12 marks. The candidates will be required to answer one question from each unit.

Mid Semester Assessment Test (Total Marks: 15; syllabus to be covered: up to 50%)

Fifteen (15) marks for theory paper in a subject reserved for internal assessment shall have one long answer type question of 7 marks and four short answer type questions of 2 marks each.

Suggested Readings

1. Gurarajan, B., Balasubramanian, R. and Swaminathan, V. 2008. Recent Strategies on Crop Production. Kalyani Publishers, New Delhi.
2. Singh, C. 1997. Modern techniques of raising field crops. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
3. Prasad, R. 2017. Textbook of Field Crops Production - Commercial Crops. Volume II ICAR Publication.
4. Prasad, R. 2017. Textbook of Field Crops Production - Foodgrain Crops. Volume I ICAR Publication.
5. Reddy, S.R. 2009. Agronomy of Field Crops. Kalyani Publishers, New Delhi.
6. Singh, S.S. 2005. Crop Management. Kalyani Publishers, New Delhi.
7. Prasad, R. 2002. Text Book of Field Crops Production, ICAR, New Delhi.

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8. Reddy, S.R. 2004. Agronomy of Field crops, Kalyani Publishers, Ludhiana.
 9. Subhash Chandra Bose, M. and Balakrishnan, V. 2001. Forage Production South Asian Publishers, New Delhi.

**MINOR COURSE OF AGRICULTURE TECHNOLOGY
 FUNDAMENTALS OF SOIL SCIENCE
 SEMESTER II, SESSION 2026 ONLY**

Course No. UMIATT202

Max. Marks: 100 (Theory-75, Practical-25)

	Credits	Contact Hours	Units	Examination			
				Duration (hours)	Weightage	(Marks)	
Theory	03	45	I to IV	1½	03	15	60
Practical	01	30	V	1½	3½	10	15

Objectives : *The course is designed to impart basic knowledge of soil formation, classification, physical, chemical, and biological properties. To develop understanding of soil fertility, nutrient cycles, and soil management for sustainable agriculture. Students will gain skills in analyzing soil characteristics and interpreting soil test results.*

Expected outcomes: *By course end, students will be equipped to apply soil science principles in crop production and land use planning.*

UNIT I : SOIL – AN INTRODUCTION

- 1.1 Soil – Definition of soil, Soil as a natural body, Functions of soil, Pedological and Edaphological concepts. Scope and components of soil.
- 1.2 Earth spheres and composition of earth crust.
- 1.3 Rocks-classification, formation and properties of igneous, sedimentary and metamorphic rocks.
- 1.4 Minerals-classification, formation and properties of silicate and non silicate minerals.

UNIT II: WEATHERING AND SOIL FORMATION

- 2.2 Weathering-type, factors of weathering, products of weathering
- 2.2 Soil formation-soil forming factors and soil forming processes.
- 2.3 Soil profile-Master horizons, subordinate horizons.
- 2.4 Soil classification-systems of classification, Soils of India

UNIT III: PHYSICAL PROPERTIES OF SOIL

- 3.1 Soil physical properties: Soil texture-classification of soil separates and their properties.
- 3.2 Soil structure-classification, soil aggregates, evaluation of soil structure, significance.
- 3.3 Soil water-importance, classification, potentials, measurement, movement and losses.
- 3.4 Soil air, soil colour, soil temperature, Bulk density, particle density–factors and significance.

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UNIT IV: SOIL CHEMICAL AND BIOLOGICAL PROPERTIES

- 4.1 Soil colloids, Silicate clays: structure, constitution and properties, sources of charge.
- 4.2 Soil reaction-pH, soil acidity and alkalinity, buffering, effect of pH on nutrient availability
- 4.3 Soil organic matter: composition, properties and its influence on soil properties
- 4.4 Soil organisms: Macro and Micro organisms, their functions.

PRACTICALS

1. Study of soil profile in field.
2. Study of soil sampling tools, collection of representative soil sample, its processing and storage.
3. Determination of soil pH and electrical conductivity.
4. Study of soil texture- feel method and mechanical analysis.
5. Determination of soil density, porosity, moisture content
6. Determination of soil colour.
7. Estimation of organic matter content of soil.

NOTE FOR PAPER SETTERS

Examination Theory/Practical	Syllabus to be covered in Examination	Time Allotted for Exam	Marks
Internal Theory Assessment	50%	1 Hr and 30 Min	15
External Theory End Semester	100%	3 Hrs	60
Continuous Assessment	-	-	10 (Based on Daily Performance only)
Final Examination	-	-	15

External End Semester Theory Examination will have two sections (A & B) {Total marks 60}

Section A: Four short answer questions representing all units/syllabi i.e., one question from each unit. Each question shall be of 3 marks.

Section B: Eight long answer questions (Four to be attempted) representing whole of the syllabi i.e., two questions from each unit. Each question shall be of 12 marks.

Internal Assessment {Total marks 15}

Fifteen (15) marks for theory paper in a subject reserved for internal assessment shall have one long answer type question of 7 marks and four short answer type questions of 2 marks each.

Suggested Readings:

1. The Nature and Properties of Soils by Brady, N.C. & Weil, R.R. 15th Edition (2016), Pearson Education, London. ISBN: 978-0133254488
2. Fundamentals of Soil Science (2009), Published by Indian Society of Soil Science, New Delhi
3. Introductory Soil Science, by D.K. Das, Kalyani Publishers, Ludhiana (2015) 3rd Edition, ISBN: 8127267481
4. Fundamentals of Soil by V. N. Sahai, Kalyani Publishers Ludhiana (2013) ISBN:9789327212778

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5. Textbook of Soil Science by R. K. Mehra, Published by DIPA, ICAR, Pusa, New Delhi (2006)
6. Physical Properties of Soils by N. Narayana and C. C. Shah, Manaktalas Pub., Mumbai.
7. Fundamentals of Soil Science - A Text Book by V. D. Patil and C. V. Mali, Phoenix Pub., Parbhani

**MULTIDISCIPLINARY COURSE OF AGRICULTURE TECHNOLOGY
RURAL SOCIOLOGY AND EDUCATIONAL PSYCHOLOGY
SEMESTER II, SESSION 2026 ONLY**

Course No. UMDATT203

Max. Marks: Theory-75

	Credits	Contact Hours	Units	Examination			
				Duration (Hours)		Weightage	
				Mid Sem	End Sem	Mid Sem	End Sem
Theory	03	45	I to IV	1½	03	15	60

Objectives: *The course is designed to provide students with a comprehensive understanding of sociological and psychological concepts relevant to agricultural extension and to apply these insights effectively. Students will gain the ability to analyze and integrate social and psychological factors to improve agricultural practices.*

Expected outcomes: *By the end of the course, they will be able to apply theoretical knowledge to real-world challenges, critically assess the impact of these factors on rural societies, and develop practical solutions to enhance agricultural extension strategies.*

UNIT 1: SOCIOLOGY AND ITS ROLE IN AGRICULTURAL EXTENSION

- 1.1 Sociology: Definition and scope
- 1.2 Rural sociology: Definition and scope
- 1.3 Importance of Rural sociology in agricultural extension
- 1.4 Interrelationship between rural sociology and Agricultural Extension

UNIT 2: SOCIAL STRUCTURE AND INSTITUTIONS IN RURAL SOCIETIES

- 2.1 Social groups- Meaning, definition, classification
- 2.2 Rural societies: Important characteristics, difference and relationship between rural and urban societies
- 2.3 Social Stratification- Meaning, Definition, Forms of social stratification,
- 2.4 Social Institutions- Meaning, Definition, Major institutions in rural society,

UNIT 3: EDUCATIONAL PSYCHOLOGY IN AGRICULTURAL EXTENSION

- 3.1 Educational psychology: Definition and scope
- 3.2 importance of educational psychology in Agricultural Extension
- 3.3 Behaviour: Cognitive, affective, psychomotor domain
- 14 Personality development and Learning types

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UNIT 4: PSYCHOLOGICAL CONCEPTS IN AGRICULTURAL EXTENSION

- 4.1 Perception: definition, role of perception in agricultural extension
- 4.2 Motivation: definition, role of motivation in agricultural extension
- 4.3 Motivation, Theories of Motivation, Intelligence
- 4.4 Role of Social values and attitude in Agricultural Extension

NOTE FOR PAPER SETTING

Examination Theory/Practical	Syllabus to be covered in Examination	Time Allotted for Exam	Marks
Internal Theory Assessment	50%	1 Hr and 30 Min	15
External Theory End Semester	100%	3 Hrs	60

End Semester University Examination (Total Marks: 60; syllabus to be covered: 100%)

The question paper will have 2 sections. Section 'I' will be compulsory having four questions of 3 marks each and spread over the entire theory syllabus (one from each unit i.e., Units I to IV). The questions will be short answer type having answers not exceeding 50 to 70 words. Section 'II' will have eight long answer type questions, two from each unit. Each question will be of 12 marks. The candidates will be required to answer one question from each unit.

Mid Semester assessment Test (Total Marks: 15; syllabus to be covered: up to 50%)

Fifteen (15) marks for theory paper in a subject reserved for internal assessment shall have one long answer type question of 7 marks and four short answer type questions of 2 marks each.

Suggested Readings:

1. Ray, G.L. 2006. Extension Communication and Management. Naya Prakashan, Kolkata.
2. Dahama, O. P. and Bhatnagar, O. P. 2019. Education and Communication for Development. Oxford and IBH Publishers.
3. Chitambar, J. B. 2020. Introductory rural sociology. New Age International Pvt. Limited.
4. Adivi Reddy, A. 2001. Extension Education. Sri Lakshmi Press, Bapatla.
5. Chitamber, J.B. 1997. Introductory Rural Sociology. Wiley Eastern Limited, New Delhi.
6. Daivadeenam, P. 2002. Educational Psychology in Agriculture. Agrotech Publishing Academy, Udaipur. 9. Mangal, S.K. 2000. Educational Psychology. Prakash Brothers, Ludhiana.
7. Vidyabhushan and Sachdev, D.R. 1998. An Introduction to Sociology. Kitab Mahal Agencies, Allahabad.

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SKILL ENHANCEMENT COURSE OF AGRICULTURE TECHNOLOGY
COURSE TITLE: ORGANIC AND NATURAL FARMING
SEMESTER II, SESSION 2026 ONLY

Course No. USEATT204

Max. Marks: 50 (Theory-25, Practical-25)

	Credits	Contact Hours	Units	Examination		Weightage (Marks)
				Duration (hours)		
				Mid Term Examination	Final Examination	
Theory	01	15	I	1½	-	25
Practical	01	30	II	-	1½	25

Objectives: The course is designed to provide comprehensive knowledge of eco-friendly farming based on organic and natural principles. It will help the students to develop practical skills in preparing bio-inputs, managing soil health, and chemical-free crop production.

Expected outcomes: Students will understand sustainability benefits and certification standards of organic farming. By the end of this course, they will be able to design, implement, and promote organic/natural farming systems.

UNIT I: INTRODUCTION

- 1.1 Organic farming - concept and definition, its relevance to India and global agriculture and future prospects.
Principles of organic farming
- 1.2 Nutrient management in organic farming and their sources, vermicompost, green manures, bio-fertilizers
- 1.3 Organic manures- recommended doses and application in comparison to inorganic fertilizers for major crops
- 1.4 Fundamentals of insect, pest, disease and weed management under organic mode of production
- 1.5 Natural farming: history, principles, philosophy and components. Scope and significance of natural farming
- 1.6 Types of natural farming systems , Importance of pulses /legumes in natural farming

UNIT II: PRACTICALS

1. Visit of natural farm/KVK and chemical free traditional farms to study the various components and operations of natural farming principles at the-farm
2. Indigenous technology knowledge (ITK) for nutrient, insect-pest and disease management
3. Preparation of organic products for soil application, compost, vermicompost.
4. Identification of indigenous crops and practices: Study of different farming systems and its characterization

Note for paper setters

Mid Term Examination

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The question paper will be of **25 marks**. There shall be **2 Sections** in the question paper with pattern as follows:

Section-A shall comprise of **4** short answer type questions covering the entire first Unit. The students have to attempt all the **4** questions from this section. Each question carries $2\frac{1}{2}$ marks.

Section-B shall comprise of a total of **6** questions from Unit I. Each question shall be of **5 marks**. The students have to attempt any **3** questions.

EVALUATION OF SKILLS: *Final Examination*

The Evaluation of Skills will be internal. The Examination of Skills shall be of **25** marks. The evaluation of skills will be done internally through the Board of three Members (including the trainer of the Course).

Suggested readings

1. U. Thapa and P. Tripathy. Organic Farming in India- Problems and Prospects. Agrotech publishing agency, Udaipur.
2. Boeringa, R. (Eed.). 1980. Alternative Methods of Agriculture. Elsevier, Amsterdam, 199 pp.
3. Fukuoka, M. 1978. The One-Straw Revolution: An Introduction to Natural Farming. Rodale Press, Emmaus, PA. 181 pp
4. Fukuoka, M. 1985. The Natural Way of Farming: The Theory and Practice of Green Philosophy. Japan Publications, Tokyo, 280 pp.

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