

**Diploma
In
Agriculture & Natural Resource
Management Skills**

**SYLLABUS
2015-16**



North Maharashtra University, Jalgaon

Post Box No. 80

Umavi Nagar, Jalgaon – 425 001

Diploma in Agriculture & Natural Resource Management Skills

By

North Maharashtra University's
Eklavya Training Centre, Nandurbar

Scope of the Diploma Course

“Diploma in Agriculture & Natural Resource Management Skills” is meant for the students in one of the most important Tribal Belts of Maharashtra where 65% of the population belongs to Tribal. This course shall develop and impart skills, encourage self employment among the unemployed tribal youth through agricultural consultancy, agriculture, popularization of techniques viz. poultry, aquaculture, goat farming etc. and natural resource management. This is based on the concept of a community college offering affordable education to the economically backward students endowing skills and subsequently meaningful employment in the rural belt. This shall be conducted by the North Maharashtra University which is having its centre at Nandurbar, Maharashtra.

This course is designed to fulfill the above mentioned objectives.

Course Details

1. Structure of Course

- **Title:** Diploma in Agriculture & Natural Resource Management Skills
- **Abbreviation:** ANRM
- **Type:** Diploma
- **Duration:** One year of 2 semesters
- **Commencement of the course:** December / June
- **Intake Capacity:** 50
- **Batch size for practical:** 15
- **Eligibility:** H.S.C. (XII) passed of any discipline
- **Admission authority:** North Maharashtra University, Jalgaon
- **Examination conducting authority:** North Maharashtra University, Jalgaon
- **Examination pattern:** Annual CGPA (Cumulative Grade Point Average)
- **Attendance:** The 75% for theory and practical is necessary for appearing the examination. Student will be allowed to keep terms for the next examination.

2. Distribution of credits;

Sr. No.	Subject Code	Title	Total credits	Total contact hours
Sem-I	ANRM-101	Fundamentals of Natural Resources	08 (6 theory + 1 Tutorial + 1 Workshop on Communicative English)	120 (90 Theory + 15 Tutorials + 15 Workshop)
Sem-I	ANRM-102	Sustainable Agricultural Practices	08 (6 theory + 1 Tutorial + 1 Workshop on Agricultural Practices)	120 (90 Theory + 15 Tutorials + 15 Workshop)
Sem-I	ANRM-103	Techniques for Analysis of Natural Resources	14	210
Sem-II	ANRM-201	Management of Natural Resources-I	08 (6 theory + 1 Tutorial + 1 Workshop on Information and Computer Technology (MSCIT level))	120 (90 Theory + 15 Tutorials + 15 Workshop)
Sem-II	ANRM-202	Project / Internship/ Field Work on Skill Development on Natural Resource Management	22	330
Total			60	900

3. Scheme of marking

Sr. No.	Subject Code	Title	Maximum Marks	Marks for		Minimum Marks for Passing out of 100
				Internal	External	
Sem-I	ANRM- 101	Fundamentals of Natural Resources	100	40	60	40
Sem-I	ANRM- 102	Sustainable Agricultural Practices	100	40	60	40
Sem-I	ANRM- 103	Techniques for Analysis of Natural Resources	100	40	60	40
Sem-II	ANRM- 201	Management of Natural Resources-I	100	40	60	40
Sem-II	ANRM-202	*Project / Internship / Field Work on Skill Development on Natural Resource Management	200	Nil	200	100
Total			600			

*For evaluation of Project, certified project report is to be submitted followed by viva-voce examination.

Syllabus

(Detailed course content)

Diploma in Agriculture & Natural Resource Management Skills

Semester- I

ANRM 101 - Fundamental of natural resources

1. **Theory**
(6 Credits)
 - Natural resources
 - Types of natural resources
 - Biotic: plants, and animal and microorganisms
 - Abiotic: soil, water, air, light, minerals
 - Specific studies of natural resources
 - Plants: economically and agriculturally important plants
 - Animals: livestock and their byproducts
 - Microorganisms: agro-industrially important microbes
 - Soil: types, characteristics, fertility
 - Water: water cycle, quality characteristics
 - Air: composition and quality, wind energy
 - Solar energy
 - Agriculturally important rocks and minerals.
 - Introduction to Agricultural Economics

2. **Workshop on Communicative English** **(1 Credits)**
 - Communication Skill :Introduction, Process of communication, types of communication, verbal and non-verbal communication, barriers in effective communication (2 hrs)
 - Paragraph writing : Introduction, topic sentences and supporting sentences, types of paragraph, attributes of a good paragraph (2 hrs)
 - Letter writing: Types of letters, structures of letter (2 hrs)
 - Job applications: Essential parts, cover letter and the resume, types of CV (1 hr)
 - Effective presentation strategies: Defining purpose, preparing an outline of the presentation, visual aids, body language, barriers in presentation (2 hrs)
 - Interviews: Introduction, general preparations for an interview, types of questions general asked. Types of interview, importance of non-verbal aspects (2 hrs)
 - Group discussion- Introduction, group discussions as a part of selection process, guidelines for group discussion, role functions in group discussion (2 hrs)
 - Grammar and Vocabulary- Tenses, parts of speech, types of sentences, registers, antonyms, synonyms (2 hrs)

3. **Tutorial** (1
Credit)

ANRM 102–Sustainable agricultural practices

1. **Theory**
(6 Credits)
- Bio-fertilizers: algal, bacterial, fungal and others
 - Bio-pesticides: Plants and microbial
 - Composting: modern composting methods, vermi-composting etc.
 - Watershed management
 - Plant tissue culture
 - Organic farming
 - Introduction to Mechanization in Agriculture.
2. **Workshop on agricultural practices** (1
Credits)
- Production of Biofertilizer by Vermiculture technology
 - Commercialization of honey bee keeping (Apiculture)
 - Development of Pisciculture
 - Development of bio pesticides production technology
 - Feed production technology
3. **Tutorial** (1
Credit)

ANRM 103- Techniques for analysis of natural resources

(14 Credits)

- Analysis of water (pH, hardness, potability)
- Analysis of soil (texture, porosity, organic matter, conductivity)
- Health of soil (microbial content, N, P, K analysis)
- Identification and classification of local rocks and minerals
- Map and map reading (Agricultural)
- Micro-metrological equipments
- Ambient air quality analysis

Semester- II

ANRM 201 - Management of Natural Resources - I

**1. Theory
(6 Credits)**

- Soil: conservation and management
- Water: water budgeting, management and water recharge structures
- Harvesting of non-conventional energy resources: wind and solar energy
- Soil re-mineralization using rocks and minerals
- Use of plants, animals and microorganisms for improving agriculture productivity
- Impact of climate on agriculture
- Conservation of extant varieties.

2. Workshop on Information and Computer Technology (1 Credits)

Unit – I : Computing Technology

- Computer System: Characteristics of a computer, Components of a computer system - CPU, Memory, Storage Devices and I/O Devices
- Memory: Primary (RAM & ROM) and Secondary Memory; Units of Memory : Byte, Kilobyte, Megabyte, Gigabyte, Terabyte
- I/O Devices: Keyboard, Mouse, Printer, Joystick, Scanner, Microphone, OCR, MICR, Light Pen, Barcode Reader, Digital Camera, Speaker, Plotter.
- Storage Device: Hard Disk, CD ROM, DVD, Blu Ray, Pen/Flash Drive, Memory Stick;
- Type of Software: System Software (Operating System), Application Software (General purpose application software - Word Processing, Spreadsheet, Presentation, Database Management;
- Purpose application software- Accounting Management, Reservation System, HR Management, Attendance System, Payroll System, School Inventory Control System, Billing System) and Utility Software (Disk/Folder/Files Management, Virus Scanner/Cleaner, Encryption/Decryption Tools.)

Unit – II : Communication Technology

- Computer Networking - LAN, MAN, WAN, Internet, Interspace Wired Networking Technology examples Co-axial Cable, Ethernet Cable, Optical fibre Wired Networking Technology examples Bluetooth, Infrared and WiFi Content

Technology Data, Information and Multimedia (Picture/Image, Audio, Video, Animation)

Unit -III : Information Processing Tools

- Operating System - Basic concepts of Operating System and its functions (GNU Linux) Introduction to windows : Using Mouse and moving icons on the screen, My Computer, Recycle Bin, Task Bar, Start-menu and menu selection, running an application, Setting system date and time; Windows Explorer to view files, folders and directories, creating and renaming of files and folders, Opening and closing of windows, Minimise, Restore and Maximise forms of windows, Basic components of a window : Desktop, Frame, Title Bar, Menu Bar, Status Bar, Scroll Bars (Horizontal & Vertical), Using right button of the Mouse, Creating Shortcut, Basic windows Accessories : Notepad, Paint, Calculator, Wordpad, using Clipboard .

UNIT – IV : INTERNET BASICS

- What is Internet?; Browsers; Google Chrome; Internet Explorer; Mozilla Firefox; E-mail: Sending and Receiving; Downloading.

3. Tutorial

(1 Credit)

ANRM 202 - Project on skill development on natural resources management

(22 Credits)

- Green house construction
- Storage of food grains
- Watershed Development
- Agro-residue management
- Bio-fertilizer
- Seed certification
- Bio- pesticide

Reference Books:

1. Beets, W. C. (1990). *Raising and sustaining productivity of smallholder farming systems in the tropics: a handbook of sustainable agricultural development*. Agbe publishing. Alkmaar, Netherlands.
2. Daji, J. A. (1970). *A textbook of soil science*. JK Publishers. London, U.K. ISBN: 0906654203
3. Farhathullah T.M. (2002), *Communication Skills for Technical Students*, Orient Blackswan publication, Hyderabad. ISBN 8125022473.
4. Geoffrey N. Leech, Geoffrey Leech & Jan Svartvik (2002), *A Communicative Grammar of English*, Longman publication, Harlow, UK ISBN 0582506336.
5. Harold R. Wallace and Masters Ann (1995), *Personality Development for Work* Edition 7, Cengage South-Western publication, Mason, United States ISBN: 053863667X
6. Hesse, P. R. (2002). *A textbook of soil chemical analysis*. CBS Publishers, New Delhi. ISBN 10: 812391833X.

7. Kanwar J.S. (1978) *Soil Fertility: Theory and Practice*, Indian Council of Agricultural Research, New Delhi.
8. Modi, P. N. (2008). *Irrigation water resources and water power engineering*. Standard Book House, New Delhi, India. ISBN 8189401297.
9. NIIR Board (National Institute of Industrial Research, India) (2017) *The Complete Technology Book on Biofertilizer and Organic Farming* (2nd Revised Edition). NIIR Project Consultancy Services ISBN 9789381039076
10. O'Leary Timothy J. & O'Leary Linda I. (2015) *Introduction to Information Technology* McGraw-Hill Education, Chennai
11. Raman, M., Sharma, S (2004). *Technical communication: Principles and practice*. Third Edition, Oxford University Press. U.K. ISBN: 9780199457496.
12. Shagufta, C. J., & Jee, C. (2008) *Rainwater Harvesting*. APH Publishing. Corporation, New Delhi, India. ISBN-13: 9788131307588
13. Tripathi, R. P., & Singh, H. P. (1993). *Soil erosion and conservation* (p. 245). India: Wiley Eastern Ltd., New Jersey, United States.