

## **KANNUR UNIVERSITY**

### **(Abstract)**

B.Sc Forestry&Wood Technology-Scheme & Syllabus of Core (I&II Semesters only) and Open Courses under Choice Based Credit Semester System for Under Graduate Programme-implemented with effect from 2009 admission-Orders Issued.

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### **ACADEMIC BRANCH**

No.Acad/C2/3329/2001

Dated, K.U.Campus. P.O,10- 07-2009.

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- Read: 1.Minutes of the meeting of the Expert Committee in Wood Technology held on 02-07-2009.  
2. U.O No.Acad/C2/3838/2008 (i) dated 07-07-2009.  
3. Letter from the Chairman, Expert Committee in Wood Technology.

### **ORDER**

1.The Expert Committee in Wood Technology vide paper read(1) above has prepared and finalised the Scheme and Syllabus of B.Sc Forestry&Wood Technology Core (I&II Semesters only) and Open Courses under Choice Based Credit Semester System for implementation from 2009 admission.

2. The Regulations for Choice based Credit Semester System is implemented in this University vide paper read (3).

3. The Chairman, Expert Committee in Wood Technology, vide paper read (3) forwarded the restructured scheme and syllabus of B.Sc Forestry&Wood Technology Core (I&II Semesters only) and Open Courses under Choice Based Credit Semester System, prepared by the Expert Committee in Wood Technology for implementation with effect from 2009 admission.

4. The Vice Chancellor, after examining the matter in detail, and in exercise of the powers of the Academic Council as per section 11(1) of Kannur University Act 1996 and all other enabling provisions read together with, has accorded sanction to implement the scheme and syllabus of B.Sc Forestry&Wood Technology Core (I&II Semesters only) and Open Courses restructured in line with Choice Based Credit Semester System,with effect from 2009 admission, subject to ratification by the Academic Council.

5. The restructured scheme and syllabus of Core Courses (I &II Semesters only) and Open Courses under Forestry &Wood Technology Programme in line with Choice Based Credit Semester System, implemented with effect from 2009 admission is appended.

6. The Scheme and Syllabus of Complementary Courses offered for this Programme will be available along with the syllabus of Core Courses of the Complementary subject.

7. The affiliated Colleges are not permitted to offer Complementary Courses in violation to the provisional/permanent affiliation granted by the University. Changes in Complementary Courses are permitted with prior sanction /revision in the affiliation order already issued in this regard.

8. If there is any inconsistency between the Regulations for CCSS and its application to the Scheme & Syllabus prepared, the former shall prevail.

9. Orders are issued accordingly.

To:

Sd/-  
REGISTRAR

1. The Principals of Colleges offering FWT Programme
2. The Examination Branch (through PA to CE)

Copy To:

1. The Chairman, Expert Committee in Wood Technology
2. PS to VC/PA to PVC/PA to Regr
3. DR/AR I Academic
4. Central Library
5. SF/DF/FC.

Forwarded/By Order

SECTION OFFICER



# KANNUR UNIVERSITY

## *Course Structure and Syllabus*

*FOR*

*UNDERGRADUATE PROGRAMME*

*IN*

## **FORESTRY & WOOD**

## **TECHNOLOGY**

*UNDER*

*CHOICE BASED CREDIT SEMESTER SYSTEM*

*w.e.f 2009 ADMISSION*

Course Structure  
B.Sc Forestry & Wood Technology

**SEMESTER 1**

| No | Title of the Course | Hours /week | Credits | Exam hrs |
|----|---------------------|-------------|---------|----------|
|----|---------------------|-------------|---------|----------|

|   |                                     |   |   |   |
|---|-------------------------------------|---|---|---|
| 1 | Common Course (English)             | 5 | 4 | 3 |
| 2 | Common Course (English)             | 4 | 3 | 3 |
| 3 | Common Course (Additional Language) | 5 | 4 | 3 |
| 4 | Core Course 1                       | 3 | 4 | 3 |
| 5 | Complementary 1 (Course I)          | 4 | 3 | 3 |
| 6 | Complementary 2 (Course I)          | 4 | 3 | 3 |

### **SEMESTER 2**

| No | Title of the Course                 | Hours/week | Credits | Exam hrs |
|----|-------------------------------------|------------|---------|----------|
| 1  | Common Course (English)             | 5          | 4       | 3        |
| 2  | Common Course (English)             | 4          | 3       | 3        |
| 3  | Common Course (Additional Language) | 5          | 4       | 3        |
| 4  | Core Course 2                       | 3          | 4       | 3        |
| 5  | Complementary 1 (Course II)         | 4          | 3       | 3        |
| 6  | Complementary 2 (Course II)         | 4          | 3       | 3        |

### **SEMESTER 3**

| No | Title of the Course          | Hours/week | Credits | Exam hrs |
|----|------------------------------|------------|---------|----------|
| 1  | Common Course (General)      | 5          | 4       | 3        |
| 2  | Common Course (General)      | 5          | 4       | 3        |
| 3  | Core Course 3                | 5          | 4       | 3        |
| 4  | Complementary 1 (Course III) | 5          | 3       | 3        |
| 5  | Complementary 2 (Course III) | 5          | 3       | 3        |

### **SEMESTER 4**

| No | Title of the Course         | Hours/week | Credits | Exam hrs |
|----|-----------------------------|------------|---------|----------|
| 1  | Common Course (General)     | 5          | 4       | 3        |
| 2  | Common Course (General)     | 5          | 4       | 3        |
| 3  | Core Course 4 Practical     | 5          | 4       | 3        |
| 4  | Complementary 1 (Course IV) | 5          | 3       | 3        |
| 5  | Complementary 2 (Course IV) | 5          | 3       | 3        |

### **SEMESTER 5**

| No | Title of the Course       | Hours / week | Credit | Exam hrs |
|----|---------------------------|--------------|--------|----------|
| 1  | Open Course 1             | 2            | 2      | 3        |
| 2  | Core Course 5             | 5            | 4      | 3        |
| 3  | Core Course 6             | 5            | 4      | 3        |
| 4  | Core Course 7             | 5            | 4      | 3        |
| 5  | Core Course 8             | 4            | 4      | 3        |
| 6  | Core Course 9 Practical 2 | 4            | 4      | 3        |

**SEMESTER 6**

| No | Title of the Course        | Hours / week | Credit | Exam hrs |
|----|----------------------------|--------------|--------|----------|
| 1  | Open Course 2              | 2            | 2      | 3        |
| 2  | Core Course 10             | 3            | 3      | 3        |
| 3  | Core Course 11             | 6            | 4      | 3        |
| 3  | Core Course 12             | 6            | 4      | 3        |
| 4  | Core Course 13 Practical 3 | 5            | 4      | 3        |
| 5  | Core Course 14 Project     | 3            | 3      | *        |

*The Hour/Credit distribution for Complementary Theory/Practical examination shall be decided by the Board of Studies concerned.*

**Scheme Core & Common(General)-Forestry & Wood Technology**

| No | Semester | Course Code | Title of the course   | Hours/Week | Credits |
|----|----------|-------------|---|------------|---------|
| 1  | I        | 1B01FWT     | Forests, Forestry & Forest Meteorology  | 3          | 4       |
| 2  | II       | 2B02FWT     | Forest Ecology, Forest Protection and Wild life Biology                                   | 3          | 4       |
| 3  | III      | 3A01FWT     | Silviculture, Tree Propagation and Forest Mensuration                                     | 5          | 4       |
| 4  | III      | 3B03FWT     | Wood Structure, Abnormalities and Wood Degradation  | 5          | 4       |
| 5  | IV       | 3A02FWT     | Bio Informatics, Biostatistics & Timber Harvesting Evaluation & Post Harvesting Practices | 5          | 4       |

|    |    |         |   |   |   |
|----|----|---------|---|---|---|
| 6  | IV | 4B04FWT | Core Practical-1  | 5 | 4 |
| 7  | IV | 4A03FWT | Common Course(General) 3  | 5 | 4 |
| 8  | IV | 4A04FWT | Common Course(General) 3  | 5 | 4 |
| 9  | V  | 5B05FWT | Basic Biochemistry and Basic Genetics   | 5 | 4 |
| 10 | V  | 5B06FWT | Wood, Wood based Industries & Non wood Forest Products  | 5 | 4 |
| 11 | V  | 5B07FWT | Tissue culture and Micro technique  | 5 | 4 |
| 12 | V  | 5B08FWT | Forest Conservation and Seed Technology   | 4 | 4 |
| 13 | V  | 5B09FWT | Core Practical 2  | 4 | 4 |
|    | VI | 6B10FWT | Core Course   | 3 | 3 |
| 14 | VI | 6B11FWT | Taxonomy and Tree Physiology  | 6 | 4 |
| 15 | VI | 6B12FWT | Forest Economics, Forest management, Intellectual Property Rights, Recombinant DNA Technology in Forestry | 6 | 4 |
| 16 | VI | 6B13FWT | Core Practical 3  | 5 | 4 |
| 17 | VI | 6B14FWT | Project Work  | 3 | 3 |

### **Open Courses**

| No | Semester | Course Code | Title of the Course                | Hours / week | Credit |
|----|----------|-------------|------------------------------------|--------------|--------|
| 1  | V        | 5D01FWT     | Tree Propagation                   | 2            | 2      |
| 2  | VI       | 6D01FWT     | Plant Cell Manipulation Techniques | 2            | 2      |

## **1B01FWT Forests, forestry & Forest Meteorology**

**Hours/Week:3**

**Credits:4**

### **UNIT- I**

**30 Hrs**

#### **Forest and Forestry**

Definition of Forests and Forestry- Forest wealth in the world and in India an overview

1. Important roles of forests-Productive role –Bioaesthetic role
2. Forest and environment
3. Forest types- Definition-Major forest biomes of the world- Distribution- Characteristics and component of coniferous forests-temperate deciduous forests- temperate evergreen-woodland-temperature rain forests-Tropical rain forests- Subtropical rain forest.
4. Brief account of natural forest types and the distribution in India-Forests Kerala.

5. History of Forests and Forestry development in India. Revised classification of forest types of India (Champion and Seth) Study of major forest types – characteristics and component of coniferous forests-Tropical forests-subtropical forests and Temperate forests.

6. Diversified forestry practices.

Agro forestry definition and scope-social, Ecological and Economic aspects

Advantages and disadvantages

Classification of Agroforestry systems and practices.Silvoagricultural systems-Growing agricultural crops in combination with commercial trees-plantation forestry and practice of silviculture-intensive plantation and trench mount plantation. Agro Silvicultural systems-Trees in agricultural fields. Alley cropping – Trees on far boundaries- Commercial crops under shade of planted trees- as well as natural forests.

Pastoral silvicultural systems- Agrosilvopastoral systems. Home gardens- shelter belts and wind brakes- Live fences. Fodder trees and protein banks.

Agroforestry for waste land development

Role of Agroforestry in soil and water conservation. Adverse effects of trees on soils – competition allelopathy.-

(a) Social Forestry-introduction, definition and scope-Role of social forestry in urban Rural requirement – such as energy, small timber, fodder, recreation etc. Place of social Forestry in the National forest policy of National and International donor agencies in implementation social forestry programs in India

Management of social forestry plantation Plant propagation methods in social forestry

Role of voluntary organization in social forestry.

(c) Urban forestry and forest recreation –importance of planning –planning programs For institution and industrial complexes –park designing Arboriculture in urban Forestry – Planning of forest roads-bridges-parking area-selection of trees-planting Methods.

Avenue planting-Planting in industrial complexes and residential areas.

Importance of forest recreation-ways and methods-components, elements and Principles of landscaping –landscape architecture and landscape ecology with Special reference to forest tree components. Ecotourism –potentials of Kerala Special reference to National Park and wild life sanctuaries –Major National Parks and Sanctuaries in India.

## **UNIT-II**

### **Forest Policy and Legislation**

**10 Hrs**

1. Introduction –objectives of forest policy-History of forest policy in India- Merits and Demerits of policies –Necessity of anew policy. Central board of forestry and its function.

Recommendation of National Commission of agriculture and forestry.

2. Forest law- Knowledge of salient features of the following acts- Indian Forest Act- Air Pollution act-Water Pollution Act-Forest

Conservation Act 1980-Hill Preservation Act- Wild life protection act- Land Acquisition act .

3. State and Central Pollution Boards.

4. People and forest-Tribes and forests-Tribal ethnology and Anthropology-Forest as their immediate environment –Forest as their means of livelihood –Girijan habitat Forest personnel and tribes –Forest management and tribes-tribal economy.

### **UNIT-III**

#### **Principles of Meteorology:-**

**14 Hrs**

1. Introduction-concept of weather and climate –Macro, Meso and Micro climates, importance and scope of meteorology.

2. Atmosphere-Stratification of atmosphere-Radiation-Meteorological elements- Temperature-Sunshine-Pressure-Wind-Humudity-Presipitations-Evaporation-Influence of weather elements on plant growth.

3. Weather forecasting for agriculture-crop-weather-calendar. Weather abnormalities and their affects.

4. Agricultural seasons of India and Kerala-classification of climate-Agro climate classification of Kerala

### **References**

1. Forests in India. Agarwal W.P. Oxford and I.B.H
2. Tropical Trees and Forests, halle-F.R
3. Revised survey of the forest types of India-Champion G.H. and S.K.Seth, Manager of Publication Delhi
4. Social Forestry, Plantations-I.B.H-Oxford
5. Plantation forestry in India. Leena R.K.-International Book distributions-Rajpur road, Dehradun.
6. Nursery techniques for Agro forestry, Application in Arid and Semiand Regions – Oxford and IBH, Pub, Co.N.Delhi
7. Social forestry Jha. L.K. 1991-Bombay Himalaya Publication

8. Social forestry and Environment. Singh M.P 1993-International books and products  
New Delhi
9. Hand book of Agro forestry. Sing S.P.Agrotech publishing Academy
10. Tropical forestry Hand Book, Paul.L.Springer Verlag Publications New York  
(2Vol)
11. Forestry for people-sha.SA ICAR New Delhi
12. Social forestry for rural development Tiwari.K.M.International Book dist. 9/3  
Rajpur Road Dehradun
13. Tribes of Kerala Luiz A.A.D.Bharathiya dimajathi Sevak Sangh-New Delhi
14. Social forestry for rural Tiwari. K.M International Book dist.9/3 Rajpur Road  
Dehradun
15. Tribes of Kerala Luiz A.A.D.Bharathiya dimajathi Sevak Sangh-New Delhi

## **2B02FWT Forest Ecology, Forest Protection and Wildlife Biology**

**Hours/Week:3**

**Credits:4**

### **UNIT-I**

#### **FOREST ECOLOGY**

**25 Hrs**

1. Basic ecological –Plant ecology and forest ecology.
2. The environment-Biospheres- Subdivision-Atmosphere-Lithosphere and  
Hydrosphere.
3. Abiotic environmental factors-Biotic environmental factors
4. Biotic communities community structure-Diversity of community-dominance-trophic  
structure of the community-community stratification-horizontal and vertical-Forest  
environment. Forest community Biotic succession-Climax and stability-successional  
classification of wild species of low succession-Mid succession and climax. Climax  
community-community retrogression.
5. Ecosystem-components-Energy flow in ecosystem-Food chain-Grazing food chain-  
Detritus food chain Ecological pyramids
6. Biogeochemical cycles-Water cycle-Gaseous cycle-(Oxygen cycle carbon cycle-  
nitrogen cycle) sedimentary cycle-Brief study only
7. Aquatic ecosystem-Fresh water marine and estuarine terrestrial ecosystem-Bio  
geographic regions Biomes

8. Forest ecology-state of forest in India region-salient features of Indian flora endemic flora of India-Brief account of exotic weeds in Indian flora
9. Major ecosystems of India and the world.
10. Forest degradation-Loss of tropical forests-deforestation-construction of dams-objectives-rehabilitation of tribals from dam site-Government policies. Mining impact on land and vegetation.
11. Pollution-Primary and secondary-water pollution. Air pollution-acid rain-ozone depletion-greenhouse effect-Vegetation in pollution control.
12. Important of forests in Pollution control- KYOTO Protocol.

## **UNIT-II**

### **FOREST PROTECTION**

**14 Hrs**

1. Forest Entomology: Important insects and their characteristics- Insect pests on important forest trees and nurseries-insects pests on felled trees- Biology and nature of damages of important borers. Insects pests on fabricated wood-Insects for pest control chemical control of pests-Hazards.
2. Forest Pathology: Study of important diseases of forest trees-Fungal, bacterial and viral-Identification and control of pests and disease of Teak(Causal organism: *Phomopsis variosporum*)- Pink disease of Teak (Causal organism: *Corticium Salmonicolour*) Bacterial wilt of Teak(Causal organism: *Pseudomonas sp.*) seeding blight of Eucalyptus species ( Causal organism: *cylindrocladium*) Little leaf disease of Eucalyptus sp.(Causal organism: Myco plasma like organism) Leaf rust disease of *Dalbergia latifolia* (Causal organism *Uredo sissoo*)
3. Forest fire: Nature and classification: Factors affecting forest fire. Spread of forest fire- Effects of forest fire on soil, water air, vegetation and wild life-Prevention and control of forest fire-Modern methods.
4. Role of wild animals and domesticated animals in forest destruction
5. Role of parasites on forest plants.

## **UNIT-III**

### **WILD LIFE BIOLOGY:**

**15 Hrs**

1. Behavior of wild animals-instinct behavior-learned behavior, Dispersal behavior Individual and social behavior, communication among wild life.
2. Wild life population and communities-Density and biomass relations-Clutch size and litter size-Age of maturity-mating habits-Density and breeding.
3. Population dynamic-natality-Mortality, turnover, productivity of this area

4. Wild life movements-migration dispersal, emigration, tertiary-significance of tertiary and movements.
5. Wild life conservation-meaning of conservation-Remote an recent depletions and extinctions of wild life-impact of human encroachment, over exploitation of forest-over grazing by domestic animals-causes of depletions and extinctions of wild life-Habitat destruction Fragmentation and degradation. The status of wild life-Endangered. Vulnerable, threatened-indeterminate and out of danger status-status of wild life conservation, global national and provincial situations.
6. Exotic species introduction-consequences.Relevance of environmental needs and the 'ethic' in conservation-public consciousness and government support.
7. Direct economic value of diversity-Indirect economic value of diversity
8. Practical application: insito conservation-Established designing and meaning protected areas peoples participation in restoring the environment ex sito conservation structures.
9. The role of national park and sanctuaries and biosphere reserves as instruments of conservation-as foci of conservation-optimal use of wild life resources as a guideline of conservation-some important protected areas of India- Corbett. Manass- Kazhiranga- Sunderbans- Vedamthangal- Ranganthittu- Nagarhole- Bandipure- Mudumalai, Mundathura, Protected areas of Kerala-Neyyar-Peppara Shendurunji, Idukki, Chimmini-Peechi-Vazhani, Parambikulam. Thekkady, Wayanad and Aralam wild life sanctuaries-Periyar tiger reserve-Thatekkad Bird Sanctuary-Eravikkulam and Silent valley national parks.
10. Project tiger and project elephant and the role international agencies such as KUCH, WWF, UNEP, MAB etc, in conservation.
11. Legislation and wild life conservation-wild life act. Wild life trade CITIES, TRAFFIC Red Data Book, Wild life advisory bodies, voluntary organizations and international anal agencies in wild life conservation-education-training and research for wild life conservation.

**References:**

1. Forest Ecology, Vol I & II Puri.GS.V.Mehra R.K.Gupta & S.Puri
2. Manual of vegetation analysis Gain.S.A.etAl Harper Rew
3. Forest ecology Lal.J.B.Nataraj Pubin, Dehradun
4. Fundamentals of Ecology, Odum E.P.W.B. Saunders.Co.
5. Environment and Plant Ecology, etherington .J.R.Wiley Eastern Publication.
6. Forest Ecology, Kimmins.J.P.Mac Million Publishers

7. Tropical Forest Plant Ecophysiology, Mulkey S.S.1996(ed) International Thomson Publishing Co.
8. Ecology and Silviculture of Mixed Species Forest Ketly.M.J.et.Al.-Academic Publishers.
9. Problem of Waste land and forest ecology of India-Sing Promod 1989-Ashis Publishing house New Delhi.
10. Physiological ecology of wood plants- Kazlovski.T.T. Academic press, New York.
11. Wild life Biology-Das mann.R.F.Wiley Pub.New York.
12. Wild life Conservation and Evaluation Usher M.B.Champman and Hall, London.
13. Wild life ecology. An analytical approach Noen A.N. 1973 W.M. Frerman and Co.
14. Glimoses of India Ethnobotany , Jain S.K Oxford and I.B.H New Delhi.
15. Forest fires and their control- Artsy Bashev. 1974. Oxonian Press Pvt.

**Sd/-**

**Dr.R.N.Kumar,**

**Chairman,Expert Committee in Wood Technology**