

## Syllabus

**Wood Products and Utilization:** Pulp and paper industry. Introduction and raw material; pulping-mechanical, chemical, semichemical and semi-mechanical; pulp bleaching; stock preparation and sheet formation; types of paper; manufacture of rayon and other cellulose derived products. Manufacture, properties and uses of Composite wood- plywood, fiberboard, particleboard and hard board. Adhesives used in manufacture of composite wood. Improved wood-definition, types (impregnated wood, heat stabilized wood, compressed wood, and chemically modified wood). Destructive distillation of wood. Saccharification of wood. Production of wood molasses, alcohol and yeast.

**Utilization of Non-Timber Forest Products:** Introduction, methods of collection, management and importance of Non-Timber Forest Products (NTFP). Fodder (grasses and tree leaves), canes and bamboos. Essential Oils - methods of extraction, classification, storage and uses. Non-essential oils – nature, occurrence, methods of extraction, classification and uses. Important fixed oil yielding trees.

Gums and resins –definition, classification, sources, collection and uses. Factors affecting gum formation. Important gum yielding plants. Resins and Oleoresins, their formation in plants and classification of resins. Tans- nature, classification, uses and important tannin yielding plants. Dyes – classification and sources of dyes. Beedi leaves – sources, collection and processing. Fibers and flosses. Katha and Cutch – sources, extraction and uses. Drugs, wild fruits, spices, poisons and bio-pesticides;

**Medicinal and aromatic plants:** History, scope, opportunities and constraints in the cultivation and utilisation of medicinal and aromatic plants in India. Importance, origin, distribution, area, production, climatic and soil requirements, propagation and nursery techniques, planting and aftercare, training and pruning, nutritional and water requirements. Plant protection, harvesting, processing and economics of under mentioned important medicinal and aromatic plants.

**Medicinal Plants:** pepper, cardamom, clove, ginger, turmeric, betelvine, periwinkle, Rauvolfia, Dioscorea, isabgol, Ammi majus, belladonna, Cinchona, pyrethrum and other species relevant to local conditions.

**Aromatic Plants:** Citronella grass, khus grass, sweet flag (bach), lavender, geranium, patchouli, bursera, Mentha, muskdana (musk mallow), Ocimum and other species relevant to the local conditions. Endangered medicinal and aromatic plants of India and their conservation. Study of chemical composition of a few important medicinal and aromatic plants, their extraction and use. Therapeutic and pharmaceutical uses of important species.