

**Department of Rural Technology & Social Development**  
**Guru Ghasidas Vishwavidyalaya, Koni-Bilaspur (CG)**  
**Semester-wise syllabus for Pre-Ph.D. Course**

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**Pre Ph.D.**

**Course Code: RT-2001**

**Marks: 100**

**Course Title: Rural Technology-I**

Rural technology: Definition and concept rural technology, Appropriate Technology, characteristics of technology, characteristics of innovation, concept and factor related to the technology transfer.

Medicinal plant: Useful part of medicinal plant, factors influencing variability of drugs, indigenous drug, Medicinal systems-Traditional and Modern.

Mushroom: Innovation technique in spawn production, mushroom production and their management.  
Lac insects: Life cycle, Innovation in cultivation technology and processing technique of lac.  
Properties and uses of lac.

Energy: Future energy challenges and energy demands, socio-culture and environmental impact of various renewable energy sources, appropriate technology for rural energy development.

Remote Sensing and its application in natural resource management, GPS and its applications, Geospatial technology and its application in environment and natural disaster management.

**Pre Ph.D.**

**Course Code: RT-2002**

**Marks: 100**

**Course Title: Rural Technology-II**

Non timber forest products, Classification- grasses, bamboos and canes. Essential oils- grass, wood, leaf, root and flower oils. Methods of extraction of essential oils, distillation principles and method of extraction, Dyes- wood, bark, flower and fruit, root dyes. Wild edible roots, spices. Natural poisons and insecticides.

Scope of apiculture, Innovation in artificial bee keeping (Apiary), Collection technique of honey at natural sites, Economic importance of honey bee wax.

Innovation in propagation or cultivation techniques of different host plants for sericulture. Innovation in silk production techniques from rearing to weaving industries.

Methods of extraction and distillation principles of various natural products, Resins & resin combinations. Tannins & tanning containing drugs, terpenoid drugs, alkaloids.

G.I.S. concepts, components of G.I.S. data base management system, Application of GIS in natural resource management, Water conservation practices and related government policies.

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**Pre Ph.D.**

**Course Code: RT-2003**

**Marks: 100**

**Course Title: Research Methodology**

Meaning of research, Motivation in research, Statement of research objectives, Types of research, Defining and formulating research problem, Hypothesis for research, Research process, Criteria of good research, Problems encountered by researchers. Research designs- Exploratory, Descriptive and Experimental research designs.

Types of data, Various methods of data collection- Observation, Schedule and Questionnaires, Survey, Case study, Data sources. Literature survey. Measurement and scaling techniques.

Processing and analysis of data, Sampling designs- Meaning, Types and Utility. Determination of the sample size, sampling and non-sampling tests.

Statistical quality control- Causes of variations in quality characteristic, Quality control chart, purpose and logic, Computing control limits. Process under control and out of control. Statistical tools and analysis, measures of dispersion.

Scientific communication- Basics of communication skills, Writing- research reports, research papers, research proposals and review articles. Importance of research proposal and research papers. Methods of research presentations. Communication with editors. Handling referee's comments, Galley proof. Avoiding plagiarism, indexing services, common measurements of quality scientific work. Important publishing agencies for research articles and books.

**Pre Ph.D.**

**Course Code: RT-2004**

**Marks: 100**

**Course Title: Seminar**

In addition to above mentioned three theory papers, one seminar with power point presentation will be delivered by the scholar on any theme of his area of research interest which will include all sequences of research, development of communication skill and presentation analysis.