

**Soban Singh Jeena University ,Almora**

**Faculty of Science**

**Syllabus for Ph.D. Course Work Paper – I**  
**(Research Methodology)**

1. **Scientific Process:** Meaning and Definition, a brief history of scientific process.
2. **Introduction of Research Methodology:** Meaning of research, objectives of research, types of research, significance of research, problems encountered by researchers in India.
3. **Research Problem:** Definition, necessity and techniques of defining research problem, Formulation of research problem, Objectives of research problem.
4. **Research Design:** Meaning, need and features of good research design, Types of Research Designs, Basic Principles of Experimental Designs, Design of experiments, Synopsis design for research topic.
5. **Sampling Designs:** Census and Sample surveys, Different types of sample designs, Characteristics of good sample design, Techniques of selecting a random sample.
6. **Editing, Data Collection and Validation:** Primary and secondary data, Methods of collecting primary and secondary data, Importance and methods of editing and data validation.
7. **Hypothesis:** Definition, testing of hypothesis, procedures of hypothesis testing, flow diagram for hypothesis testing, Parametric and non-parametric tests for testing of hypothesis, Limitations of tests of hypothesis.
8. **Paper/Thesis Writing and Report Generation:** Basic concepts of paper their writing and report generation, review of literature, Concepts of Bibliography and References, significance of report writing, steps of report writing, Types of Research reports, Methods of presentation of report.
9. **Computer Applications:** Fundamentals of computers - definition, types of computers. RAM, ROM, CPU, I/O devices. Number system - binary, octal and hexadecimal, base conversion. Logic gates - AND, OR, NOT. Data Structure - array, stack (push, pop), queue (insert, delete), linked list - singly,

doubly, Operating system - definition, types of OS. Use of software - MS Office - Power Point, WORD and EXCEL and ACCESS.

10. **Field and Computer hard:** viruses, misuse of internet, hacking, Field hazards.
11. **Instrumentation:** Description and principles of (i) Electrophoresis (ii) PCR Machine (iii) Laminar Flow (iv) Ultracentrifuge (v) Autoclave and (vi) Light and electron microscopy, Chromatography and HPLC, Handling of instruments and precautions.
12. **Safety Measures:**
  - (i) **Lab Safety Measures:** Introduction, Code of conduct - while entering in the lab, while working with the chemicals, while disposal of chemicals, Storage and disposal of chemical wastes - aqueous wastes, organic wastes and radioactive wastes, Human contribution to reduce hazardous wastes.
  - (ii) **Field Safety Measures:** Food security during field trip/expedition, safety measures during field trip/expedition - self-care, avoid in fields, care from wild animals, hazard warnings, Safety measures during visit to library and villages, first aid in the fields.

### **Suggested Readings:**

1. Blum, Deborah and Mary Knudson, eds. A field guide for science writers: the official guide of the National Association of Science Writers, New York: Oxford University Press, 1997.
2. Booth, Wayne, Gregory G Colomb, Joseph M. Williams. The craft of Research Chicago University of Chicago Press, 1995.
3. Davis, Martha. Scientific Papers and Presentations. San Diego: Academic Press, 1997.
4. Fuscaldo, AA, Erlick, BI, Hindman, B. Laboratory Safety: Theory and Practice. New York: Academic Press, 1980.
5. Bajpai, PK. Biological Instrumentation and Methodology. New Delhi: S. Chand & Co. Ltd. 2006.
6. Rajaraman, V. Fundamentals of Computers.
7. Horowitz & Sahni. Data Structure.
8. Manual of MS Office.

**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Physics)**

1. **Mathematical Methods**  
Complex variables, Cauchy – Riemann condition, analytic functions. Cauchy's theorem. Legendre Bessel Hermite differential eqs.. Fourier integral and Fourier transforms.
2. **Classical Mechanics**  
D'Alembert's principle and Lagrange's equations, Hamilton's principle, the principle of least action, Canonical transformations.
3. **Non Relativistic Quantum Mechanics**  
Schrödinger equation and its applications, Theory of angular momentum, Quantum theory of Scattering, S-matrix Theory.
4. **Statistical Physics**  
Foundation of Statistical mechanics, Elements of ensemble theory – a system in Microcanonical, Canonical and Grand Canonical ensembles, Partition functions applications of ensemble theory Maxwell - Boltzmann, Bose-Einstein, Fermi-Dirac distributions.
5. **Atomic and Molecular Physics**  
Electronic spectra, Radiative transitions, Applications of Laser in spectroscopy, Basic idea of two photon processes and frequency up conversion.
6. **Nuclear and particle Physics**  
Nuclear forces, Nuclear Models, Beta decay Fermi theory, parity violation, Symmetry and conservation laws, Special Unitary Symmetries and Quark model.
7. **Electrodynamics and Plasma Physics**  
Maxwell's equations in four dimensions, Gauge transformations, Lorentz transformations, Elementary concept of Plasma and Magneto-Hydrodynamics.
8. **Relativistic Quantum Mechanics**  
Relativistic Quantum Mechanics, Basics concepts of Quantum Field Theory.
9. **Electronics**  
Linear integrated circuits, Operational amplifier and its applications.
10. **Condensed Matter Physics**  
Debye theory of solids, Bloch theorem, K.P. Model distinction between Metal, insulator and semiconductor, Superconductivity, BCS theory of Superconductor.

**Syllabus for Ph.D Course Work in Chemistry**  
**(Paper II : Recent Advances in Chemistry)**

**1. GREEN CHEMISTRY**

**Basic Principles of Green Chemistry. Designing a Green Synthesis:** Choice of starting materials, choice of reagents, choice of catalysts, choice of solvents. Green reagents, Green catalysts, Phase transfer catalysis for green synthesis. Organic synthesis in solid phase. Versatile ionic liquids as green solvents. Some examples of synthesis involving basic principles of green chemistry of industrial importance.

**2. NANOCHEMISTRY**

Introduction, classification of nanoparticles, synthesis, characterization, properties and application of nanomaterials.

**3. ADVANCED MATERIALS CHEMISTRY**

Structure of solids, symmetry concepts, crystal structure. Preparative methods and characterization of inorganic solids. Crystal defects and non-stoichiometry. Interpretation of phase diagrams, phase transitions. Basics of magnetic, thermal, electrical, optical and mechanical properties of solids.

**4. APPLICATION OF SILICATE-BASED INORGANIC SOLIDS**

Silicates, Clays, Nano clays, Zeolite and Zeolitic Materials: Importance of Zeolite and Zeolitic Materials: As adsorbents and molecular sieves, As heterogeneous reusable catalysts in petrochemical industry, As filler in fire retardant materials, In nuclear industry, In agricultural industries

**5. SPECTROSCOPY: APPLICATIONS FOR ORGANIC CHEMISTS**

N M R Techniques in the identification and characterization of organic compounds, inorganic complexes and Polymers.

**6. INTRODUCTORY QUANTUM CHEMISTRY**

Postulates of Quantum Mechanics. Operators, Chemical bonding: Born-Oppenheimer approximation. Variational treatment of hydrogen molecule. Valence bond and MO (LCAO) treatment of hydrogen molecule.

## **7. ADVANCED CHEMICAL KINETICS**

Experimental methods for fast reactions. Temperature jump, pressure jump stopped flow and flash photolysis pulse technique as applied to reaction rates of short lived species. Shock tube kinetics. NMR studies in rate processes. Enzyme kinetics of complicated systems, theory of diffusion controlled reactions.

## **8. ANALYTICAL TECHNIQUES FOR MATERIAL CHARACTERIZATION**

Diffraction Methods: X-Ray Diffraction, Neutron Diffraction, Electron Diffraction. Thermal Methods: TGA, DTA, DSC, Thermometric Titration. Adsorption/ Desorption Techniques: BET and EGME methods of determination of external and total surface area.

**Syllabus for Ph.D Course Work in Mathematics**  
**(Paper II : Recent Advances in Mathematics)**

**Fuzzy set and fuzzy logic:** From classical crisp sets to fuzzy sets, operations on fuzzy sets, Introduction to fuzzy arithmetic, fuzzy relation, fuzzy logic, fuzzy relations equations, uncertainty- based information, and applications of fuzzy sets in decision making and physical sciences.

**Chaos and bifurcation:** Iteration of functions, phase portraits, periodic points and stable sets, differentiability and hyperbolicity, chaos in perspective, Routes to chaos, Chaos (definitions and examples), characteristics of chaos, bifurcation (definitions and examples).

**Optimization Techniques:** Unconstrained optimization techniques, constrained optimization techniques and solutions of constrained nonlinear optimization problems, Decision Theory, Introduction to Game theory, Heuristics based optimization problems, Decision Theory, Introduction to Game theory, Heuristics based optimization Techniques.

**Suggested Reading:**

1. Discrete Dynamical systems by R.A.Holmgren
2. Chaos theory tamed by Garnett P. Williams, A Joseph Henry
3. Chaotic Dynamical systems by R.L devaney
4. Bifurcation and chaos in complex systems by Jian – Qiao Sun and Albert luo
5. Operations Research by H.A.Taha
6. Operations Techniques by Chander Mohan and kusum Deep
7. Engineering optimization by S.S.Rao
8. Fuzzy sets and fuzzy logic by Klir and Boyuan
9. Fuzzy sets, Uncertainty and information by Klir and Folger
10. Fuzzy sets and logics by Zimmerman

**Syllabus for Ph.D Course Work in Botany**  
**(Paper II : Recent Advances in Botany)**

1. Microbes and Mycorrhiza and their significance.
2. Biodiversity assessment and conservation: Distribution pattern, endemism, resource utilization and conservation.
3. Modern trend in taxonomy with special reference to Biosystematics.
4. Ecosystems: Diversity and Management with special reference to the Himalaya.
5. Genetic engineering and its implications: Gene isolation, enzymatic synthesis of gene, transgenic crops, PCR (Polymerase Chain Reaction).
6. Biotechnology: Scope and importance of biotechnology, tissue culture techniques in biotechnology, biotechnology in medicine and agriculture.

**Suggested Readings:**

1. Mitra, Sandhya (1996) Genetic Engineering. Mc-Millan India Co. Ltd., New Delhi.
2. Gupta, P.K. (2001). Elements of Biotechnology. Rastogi Publications, Meerut, Pp:1-13.
3. Odum, E.P.(2000). Fundamentals of Ecology. Thomson Asia Pvt. Ltd., Singapore.
4. Ricklefs, Robert, E. and Gary L. Miller (2009). Ecology (IVth edition). W.H. Freeman and Company, New York.
5. Chawala, H.S (2006). Introduction to Plant Biotechnology. Oxford and IBH Pub. Co., New Delhi.
6. Naik, V.N. (2001). Taxonomy of Angiosperms. Tata MC Graw- Hill Pub. Co. Ltd., New Delhi.
7. Christian Leveque and Jean-Claude Moun oluv. – Biodiversity, John Wiley & Sons, Ltd.
8. Smith, S.E. & D.J. Read- Mycorrhizal Symbiosis. Academic Press.
9. Mahendra Raj & Ajit Verma – Diversity and Biotechnology of Actomycorrhiza.

**Syllabus for Ph.D Course Work in Zoology**  
**(Paper II : Recent Advances in Zoology)**

- (I) Biodiversity: levels of biodiversity, value of biodiversity, regional, national and global status of biodiversity, threats to biodiversity, conservation and management of biodiversity, biodiversity act and related international conventions, bio-geographical classification of India.
- (II) Environmental stresses and their management, global warming. atmospheric ozone, Biodegradation and bioremediation of chemicals.
- (III) Chemistry of gene: structure of nucleic acids (A,B,C & Z DNAs RL model of Sasisepharan, super coiling, genetic & Non-genetic RNA, DNA replication, DNA repair (excision repair, mismatch repair and SOS repair) and genetic diseases in humans. restriction enzymes in cloning, techniques used in recombinant DNA technology and its application, DNA fingerprinting.
- (IV) Social behavior of animals: costs and benefits of group-living, types of social acts, individual adjustments of group-living, parental care and socio-functional organization in apes & monkeys.
- (V) Special features of selected micro-organisms: animal viruses, plant viruses, bacteriophages, rikettsiae, mycobacterium, mycoplasma, actinomycetes, fungi and slime-moulds.
- (VI) A brief knowledge of environmental endocrinology.
- (VII) Cells in culture: requirements for cell culture, aseptic technique, primary culture, organotypic cultures.
- (VIII) Pesticides: brief history, pesticide industries and markets. Dose-response relationship, insecticide, carcinogenic, teratogenic effects.



**Faculty of Arts**  
**Syllabus for Ph.D. Course Work Paper – I**  
**(Research Methodology)**

**1.0 Course Paper :**

**Paper - I :** Research Methodology

**Paper - II :** Recent Advances in the Subject

**Paper - III :** Specializations in the Subject

**2.0 Organization Of Course Papers**

**2.1 Paper – I :** shall be organized by the Dean/Campus Dean of the Faculty

**2.2 Paper – II :** shall be organized by the respective Head/Campus Head of different departments of the faculty

**2.3 Paper – III :** shall be organized by the teacher(s) who have offered to supervise Ph.D work in a particular specialization area.

**3.0 Syllabi**

**3.1 Paper – I : Research Methodology**

**FACULTY OF ARTS**

**Unit-I : Fundamentals of Research**

Nature and significance of Research, Identification and Formulation of Research Problem, Hypotheses, Research Questions, Research design, Review of Literature

**Unit-II : Research Types and preparation of Synopsis**

Historical Research, Descriptive Research, Survey Research including Case Studies, Scientific Research; Preparation of a Research Synopsis

**Unit-III : Research Methodology : Data/ Literature Collection and Generation** Sampling theory, Types of Sampling, Steps in Sampling Sample Size, Advantages and Limitations of Sampling. Sample Size, Advantages and Limitations of Sampling. Collection of Data: Primary Data and Secondary Data, Limitations and Cautions.

**Unit-IV : Computer Application, Data/Literature Processing and Analysis** Summarization of Data, Variability, Regression and Correlation Analysis, Probability Tests.

**Unit-V : Report Writing**

Writing – organizing the writing, drafting the manuscript, style, Preliminaries-preface and acknowledgement, list of tables and illustrations; The Text-chapters and sub-headings, quotations, use of numbers abbreviations, footnotes, table and illustrations, pagination; References, Appendix, Bibliography.

**References:**

- R.P. Mishra, Research Methodology, A Hand Book, Concept Publishing Company, 2002.
- J.M.D. Morton and S.W. Cook, Research Methods in Social Relations, New York, Dryden, 1951.
- Blaxter, L. Hughes, C & Tight, M., How to Research, Viva Books, Pvt. Ltd., New Delhi, 1999.
- De Vaus, D.A., Surveys in Social Research, Rawat Publications 2003.
- May, Tim Social Research: Issues, Methods and Process, Open University Press, 2001.
- Henn, M. Weinstein .M. & Foard, N., A Short Introduction to Social Research, Visitaar Publications 2006.

- Boyatzis, R.E., Transforming Qualitative Informing, SAGE, 1998.
- Thankur, D., Research Methodology in Social Sciences, Deep & Deep Pub. Pvt. Ltd., 2005.
- McNiff, J. & Whitehead J., Action Research: Principles and Practices, Rutledge Flamer, London, 2002.
- Broota, K.D., Experimental Desings in Bechavioural Research, New Age International Pub., 2006.
- Kanji, G.K. 100 Statistical Tests, SAGE 2006.
- Best, J.W. & Kahn, J.V., "Research in Education", Prentice Hall of India, 2000.
- Kumar, R. Research Methodology SAGE, New Delhi, 1999.
- Mohan, R. Research in Education, Neel Kamal Pub. Pvt. Ltd., 2003.
- Shepard, K., Presenting at Conferences, Seminars and Meeting, Response Books, New Delhi, 200.
- Garett, H.E., Statistics in Psychology and Education Paragon International Publishers, 2004.
- Lowenthal, K.M., An Introduction to Psychological Tests and Scale, Psychological Press (Indian Reprint), 2000.
- Freeman, F.S. Theory and Practice of Psychological Testing, Oxford & IBH Pub. Co Ltd. New Delhi, 1955.
- Kothari, CR (1995) Research Methodology: Methods and Techniques, Wishwa Prakashan, New Delhi.
- Mishra, S.K. and Binwal, J.C., Computer Applications in Social Science Research, Vikas Publication Co. Delhi, 1991.
- Bhattacharya, D. K., Research Methodology Excel books New Delhi-10028, 2006.
- Kapil, H.K., Research Methodology. Bargawa Book Deepo, Agra.
- MLA Handbook for Writers of Research Papers, Seventh edition New Delhi : Affiliated East- West Press, 2009.

**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Hindi)**

हिन्दी

पश्न पत्र 02 – अधनातन अध्ययन पणलिया : सनमकालीन दष्टि  
एवविमश



**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in English)**

Paper II: Recent Advances in the subject

Modern Literary Criticism and Theory

1. New Criticism
2. Structuralism
3. Post-Structuralism.
4. New Historicism.
5. Feminism.
6. Psychoanalytical Criticism
7. Cultural Criticism.

References:

David Lodge. Modern Criticism and Theory.

Rene Welleck A History of Modern Criticism.

ohn Crowe Ransom The New Criticism.

Jonathan Culler. Struturalist Poetics.

Christopher Norris. Deconstruction; Theory and Practice.

H. Aram Veesser. The New Historicism.

Alan Sinfield. Cultural Politicis.

Toril Moi. Texual/Sexual Politics: Feminist Literary Theory. Mary

Eagleton. A Conise Companion to Feminist Theory.

Elaine Showalter. The New Femisnist Criticism.

Sander Gilaman. Introducing Psychoanclytic Theory.

**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Political Science)**

**POLITICAL SCIENCE**

**Paper II: Recent Advances in the subject**

**Group –A: Political Theory**

1. Political theory; Meaning, Nature of Political Theory, Its distinction form ideologies- World view and cosmologies; Relevance of Political Theory
2. Types of Political Theory; Grand Theories; Little Theories etc
3. State of Political theory in the 21<sup>st</sup> century
4. End of Ideology, end of History, End of Sovereignty Debates
5. Environmentalism

**Group- B: Indian Politics And Administration**

1. Nature of Indian Political System: Historical and Contemporary Perspectives
2. Major constitutional issues : Review of Constitution Debates
3. Regionalism, Language politics, Communalism, Secularism, Terrorism, Criminalization of politics
4. Political Economy of India
5. Regional Political in India and issues with special reference to Uttarakhand

**Group – C: International Relation**

1. Nature of International relations in the 21<sup>st</sup> century Recent Approaches to the study of International Relations Realism, Neo-realism, PostModernism, Feminism, Constructivism, Rationalism, Critical Theory, Institutionalism

2. Cold war as a system; End of Cold war; Security dilemmas after the cold war
3. Globalization, Global Governance, Global Culture
4. Third World and International Relations
5. United Nations: Political Strength and Weaknesses
6. Role of Major Powers in World Politics China, USA, Russia, Germany, France and Britain



**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Geography)**

**GEOGRAPHY**

**Paper-II: Recent Advances in the subject :**

**Unit-I:** Emergence of Geography as Scientific Discipline: Impact of Explorations and Discoveries.

**Unit-II:** Dichotomies: Systematic and Regional, Determinism and Possibilism and Physical and Human Geography.

**Unit-III :** Impact of Quantitative Revolution in Geography: Development of Theories and Models.

**Unit-IV:** Introduction of Aerial Photographs, Satellite Data and Global Positioning System a

**Unit-V:** Introduction to Geographical Data in Geographic Information System and Science.

**References:**

1. Hartshorne. R.           The Nature of Geography, 1939
2. Hartshorne, R.           Perspective on the Nature of Geography. 1959
3. Minshull, R            The Changing Nature of Geography. London. 1970
4. Minshull,R.            Regional Geography. Theory and Practice. 1967
5. Spate, O.H.K.           Let me Enjoy-Essays Partly Geographical
6. Taylor. G(ed)           Geography in the twentieth Century. 1951
7. James & James(eds.)   American Geography- Inventory and Prospect, 1954
8. Wooldridge and East   The Spirit and purpose of Geography, London .1958
9. Wooldridge            The Geographer as Scientist essays on the scope and nature of Geography: London, 1956
10. Board and Others     Progress in Geography, Vol.I to V.
11. Harve , D.            Explanation in Geography, London,1969
12. Freeman. T.W         A Hundred Years of Geography. London. 1961

13. Dickinson and Howarth    The Making of Geography, Oxford, 1933
14. Spilphus                    The Background of Geography
15. Bundury, E.H.              A History of Ancient Geography
16. Newton                      Travels and Travelers in the Middle Ages
17. Pensore, B                 Travels and Discovery in Renaissances, 1952
18. Tozer, H.F.                 A History of Ancient Geography
19. Kimbli, G.H.T.             Geography in the Middle Ages
20. Singh, L.R.                 Bhoogol KI Prakriti (in Hindi)
21. Brock J.M.                 Geography: Its scope and spirit
22. Stamp, L.D. & Wooldridge    London Essays in Geography. 1951
23. Prakasa, Rao, V.L.S.        Regional Planning
24. Daysh, G.H.J.              Essay in Regional Planning
25. Dickinson, R.E.            City and Region-A Geographical Interpretation
26. Dickinson, R.E.            The Makers of Modern Geography, 1969
27. Dickinson, R.E.            Geography as Ecology
28. Stamp, L.D.                Applied Geography
29. Singh. R.L.(ed)             Applied Geography
30. Willam Bunge                Theoretical Geography
31. Haggett and Chorley        Models in Geography. London. 1967
32. Cooke. F.D & Johnson       Trends in Geography
33. Haggett, Peter              Geography: A Modern Synthesis, New York, 1975
34. James, P.E.                All Possible worlds-A History of Geographical Ideas. 1980
35. Helt Jensen. A.             Geography: Its History and Concepts
36. Dikshit. R.D.                Geographical Thought, Prentice Hall India. 1997
37. Adhikari, S.                Fundamentals of Geographical Thought, Chaitanya. Allahabad
38. Haggett. P. & Chorley        Models in Geography, London, 1969

39. K.K.Kampal, Handbook of Aerial Photography and Interoperation: A Handbook
- 40.P.Nag and M.Kundart. Digital Remote Sensing.
- 41.P.Guha. Remote Sensing for Beginners.
42. Paul A. Longley,Michael F.Goodchild, David Geographic Information System and Science
43. John P. Wilson and A.S. Fotheringham. The Geographic Information Science.

**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in History)**

**SYLLABUS FOR PRE-PhD COURSE WORK EXAMINATION-  
HISTORY (w.e.f.Session 2015-16 onwards)**

**Note: the question paper will be of three hour duration. It will be required to cover all the three periods, i.e., Ancient, Medieval and Modern India**

**Ancient India**

1. Indus Valley Civilization : Salient features
2. Vedic Age; Vedic Literature; Caste system
3. Buddhism and Jainism-Birth and expansion
4. Mauryan Period- Chandragupta Maurya and Asoka
5. Gupta Period-Chandragupta Viramaditya - Political and Cultural achievements
6. Harsa and his times; Rajput period
7. Economic and Social Changes in Ancient India

**Medieval India**

8. Advent of Islam - invasions of Mahmud Gaznavi and Mohammed Ghori
9. Delhi Sultanate-different dynasties
10. Mughal Period-Consolidation of Empire-Akbar, Shajahan and Aurangzeb; decline of the Empire
11. Economic and Social Changes in Medieval India

## **Modern India**

12. Advent of European Powers- English, French, Portuguese and Dutch  
East India company-Initial years; Dual Government in Bengal; Administrative Reforms under Warren Hastings and Lord Cornwallis; Struggle for supremacy against Marathas, Mysore, Gurkhas and Sikhs
13. Indian Renaissance: Raja Ram Mohan Roy, Dayanand Saraswati, Annie Besant, Swami Vivekanand
14. Resistance Against British rule: revolt of 1857; Indian National Congress; advent of Mahatma Gandhi; Constitutional reforms; Road to freedom-Quit India Movement; Independence and Partition of India
15. Economic and Social Changes in Modern India

**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Economics)**

Economics

Paper II: Recent Advances

Consumerism, Economic Integration, Developmental inequalities, Market vs. government & institutions, Social Welfare initiatives, Technology and Environmental aspects, Objectives of Modern economic Policies.

References:

- Blaug, M (1985) Great Economists since Keynes, Harvester Press, Sussex.
- Myrdal, G (1953) The Political Elements in the Development of Economic Theory, Routledge and Kegan Paul, London.
- Micheal P. Todaro, Economic Development in the Third world, longman, 1981
- G.M. Meir and Robert, E Baldwin, Development, Economic Development
- Anne O Kruger, Political Economy of Policy Reforms in Developing Countries, MIT Press Cambridge Mass. 1994
- Amartya Sen, Development as freedom, House, inc.1999
- Amartya Sen and Jean Derez, The Amartya Sen and Jean Derz Omnibus “Poverty and Famines” “Hunger and Public action” and “Economic Development and Social Opportunity” Oxford University Press, 2004
- Pant, K.C. India’s Development Scenario: Next Decade and Beyond, in Two volumes. Academic Foundation, New Delhi.
- Papola, T.S and Alakh N. Sharma, Employment and Poverty Reduction in India ILO Geneva. 2004
- Dev, M, Kannan, KP, and Ramachandran, N (eds) (2003) Towards a Food Secure India, Institute for Human Development, New Delhi

Sen, AK (1995) Inequality Re-examined, Harvard Univ. Press, Mas  
Bassanini,

A, Scarpetta, S and Visco, I (2000) “Knowledge Technology and  
Economic Growth. Recent Evidence form OECD Countries”

Dasgupta, P and Malor, KG(1997) The Environment and Emerging  
Development Issues, Clarendon, Oxford

Datt, G and Ravallionm M (1998) “ Why have Some Indian States  
Done Better than Others at Reducing Rural Poverty?” Economics 65  
(257),pp 17-38.

<http://www.worldbank.org> <http://www.Planningcommmission.nic.in>, <http://www.rib.in>.  
<http://www.mospi.gov.in> <http://www.Infr.org>  
<http://www.ncaer.org> <http://www.openlibrary.org>, Economics Survey  
Released by Govt. of India, Union and State Budgets. Finance  
Commission Reports, Economics policy reports, Reports Released by  
different committees set up by Govt of India of India and Institutions  
relating to economic Interest. Five Year Plans, Economic Times,  
Financial times, Economics and Political Weekly, Indian Economic  
Review. Yojana, IMF, World Bank. ADB,ILO,FAO,WTO Study Papers  
and Reports.

**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Sociology)**

**SOCIOLOGY**

Paper II: Recent Advances

Mean nature and types of sociological theory, Structural – functional theory, Status and Role theory  
Mobility theory – migration (emigration, immigration)  
Modernization-Concept and indicators of modernization, Tradition and Modernity,  
Social Change-Patterns and theories of social change, Sanskritization and Westernization  
Development –Social, Human and sustainable development, Indicators of development, Theories of development  
Globalization, Ethno-methodology, Phenomenology



**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Drawing & Painting)**

**DRAWING & PAINTING**

Paper II: Recent Advances in the subject

Methods and techniques used recently by Contemporary Indian Artists.

(M.F.Husain, P.N.Choyal, Satish Gujral, Jatin Das, Tayab Mehta, Mansa Ram, Arpana Caur, Vikash Bhattacharya, Yusuf Arakal, Vivek Sundram, Atul Dodia, Rajeev Lochan, Jahangir Sabbawala, Method, Material & other recent technologies etc.)

**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Psychology)**

**PSYCHOLOGY**

Paper II: Recent Advances in Psychology

- 1. Paradigms: Concept of Paradigms:** Ontology, Epistemology, and Methodology and Methodology; Key paradigms: Positivism, Post-positivism, the Critical Perspective and Social Constructionism, Participate Research/Co-operative Enquiry; Existential-Phenomenology.
- 2. Indian psychological concepts:** Introduction to Indian Perspectives.  
Upanishads, Samkhya, Vedanta, Jainism, Buddhism, Nyaya, Charvak, Bhagavadgita; Methods of knowing. Consciousness and Self and Identity.
- 3. Positive Psychology:** Identifying and measuring strengths: Positive self, traits, emotional strength, and flow. Promoting positive relationship: Compassion, forgiveness, gratitude, Empathy, Yoga, Health and Well-Being
- 4. Social issues:** Critical Psychology: Examining the relationship between political processes, cultural realities, historical forces & subjective experience. The interpersonal & intrapsychic formation of our gendered subjective: Masculinity, femininity & the “recovery” of women voices. Poverty, Deprivation and disadvantage.
- 5. Cultural Indian Psychology:** The Pan-Indian Identity; A critical look into “The Inner World” the meeting place for childhood and Society. Symptoms and Healing Traditions in India; In India Intimate Fusion: Fantasies and fears of Indian Men and Women, Analysis of Social Violence.

**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in Home Science)**

**HOME SCIENCE**

A: Foods and Nutrition

Unit I – Food Science

- Introduction to food science – evolution of food industry and allied industries.
- Understanding food groups for balanced diet, structure and composition, nutritive value processing techniques of cereals, pulses and legumes, fruits and vegetables, nuts and oil seeds, milk and milk products, egg, meat and fish.
- Sugar, spices and condiments
- Processed food: jams, jellies, squashes, pickles
- Beverages – Coffee, Tea, Cocoa, carbonated and non carbonated, alcoholic beverages
- Food additives, food colour, emulsifiers, stabilizers and flavors
- Leavened products
- Food fortification, enrichment and supplements
- Sensory evaluation of food products
- Food spoilage and food poisoning – Spoilage caused by micro – organisms, enzymes, pests and rodents
- Principles of food preservation – food dehydration, heat preservation, cold preservation
- Food irradiation and microwave heating
- Fermentation and fermented foods

## Unit II – Human Nutrition and Dietetics

- Nutrients in foods: Their function, requirements and sources, digestion absorption and utilization of nutrients. Effect of low and excess intake of nutrients on human body, B.M.R.
- Recommended dietary allowances and nutrition for different age sex and activities
- Methods of assessment of nutritional status
- History of dietetics, effect of illness on food acceptance, role of dietician, dietetic counseling
- Therapeutic modification of normal diet, food exchange lists, special feeding methods
- Causes, symptoms and principles of dietetic managements of
  - Fevers
  - Peptic ulcer
  - Gastritis, diarrhea, constipation
  - Jaundice
  - Hepatitis
  - Cardiovascular disease
  - Nephritis and renal disorders
  - Gout
  - Arthritis
  - Diabetes mellitus
  - Obesity
  - Under weight, (PCM)
  - Cancer
  - Diet in surgery, burns, injury and allergy
  - Nutritional Management of eating disorders-Anorexia Nervosa, Bulimia, Binge eating.

### **Unit III Community Nutrition**

- National and international agencies and various programmers dealing with nutrition of community in India
- Nutritional education-Rationale, planning, execution and evaluation
- Food security : food distribution system, PDS, FCI
- Magnitude of nutritional problems in India: Major deficiency disorders PEM, Vitamin A deficiency, endemic goiter, fluorosis etc.
- Concept of health, vital statistics and demographic indicators
- Community nutrition as a field: public health nutrition, goals of nutrition programme, dietary guidelines, present trends and focus on community nutrition, methods of assessing nutritional status
- National food and nutrition policy, plan of action and programmes
- Primary health care-concept and organization, current status of health care system in India
- Nutrition and infection

### **Unit IV Nutrition during life span**

- Nutrition in infancy – growth and development, nutritional requirements, feeding pattern, weaning practices, weaning and supplementary foods
- Pre-School age-growth and development, nutritional requirements, special care in feeding them, nutritional problems of this age - School age and adolescents-growth and development, nutritional requirements, nutritional problems
- Young adults-nutritional requirements, nutritional status of India adult population, nutritional problems common to this age

- Elderly-nutritional requirements, special needs, nutritional problems
- Pregnancy-Physiological adjustments, nutritional requirements, nutritional status of India pregnant women, effect of malnutrition on outcomes of pregnancy
- Lactation-Physiology of lactation, factors affecting lactation, nutritional requirements

## **B: Clothing and Textile**

### **Unit I Textile Science**

- Natural fibers: Physical and chemical properties and fabric manufacture
- Man made fibers: Physical and chemical properties and fabric manufacture
- Blends and mixtures, yarn classification, spun yarns, filament yarns
- Labels and their classification
- Identification of fibers
- Laundering of textiles
- Soaps and detergents, bleaches, whitening agents and blues
- Hard and soft-water
- Care and storage of textiles

### **Unit II Fabric Formation and finishes**

- Method of fabric formation
- Basic weaves, non woven fabric construction, knitted fabrics
- Looms
- Special finishes – Bleaching, scouring, degumming, carbonizing, mercerizing, sanforzing, beetling, creping, glazing, calendaring, flocking, napping, tentering, shearing

- Functional finishes – water proof and water repellent finish, soil repellent finish, shrinkage control, wrinkle resistance, flame retardant finish, mildew proof, rot proof, moth proof, antistatic and antibacterial finish
- Adding colour textile: Natural and synthetic dyes
- Classification of dyes, dyeing techniques
- Textile and environment
- Printing techniques

### **Unit III Apparel Designing and Historic Textiles**

- Sources of inspiration for apparel designing
- Techniques of pattern making - Drafting their applications and limitation in clothing construction
- Psychological and sociological influence of dress
- Basic principles of construction of garments for different age
- Clothing – origin and reasons
- Costumes in ancient Indian civilization
- Indian embroideries

## **C: Human Development**

### **Unit I Life Span Development**

- Prenatal development stages – Genetic and environmental factors, critical influences, birth process
- Infancy (Birth to 2 years)
- Physiological, cognitive, social, physical emotional, motor development
- Early environment and its importance

- Child rearing practices
- Early childhood years – Physical, motor, emotional cognitive and language development
- Middle childhood – Physical and motor development, language and intellectual development, growth trends emotional, social and moral development
- The function of family, school and community in growth of children

## **Unit II Life Span Development II**

- Adolescence – Physical and social changes development of emotional maturity, personal and vocational interest, problems of this stage
- Early and middle adulthood – Meaning, development of self, physical, intellectual and personality development
- Old age – Older adults, characteristics physical, cognitive and personality changes attitude towards life, psychological changes, special needs of elderly

## **Unit III Theories of Human Development**

- Theories of Human development
- Learning theories
- Personality
- Mental development – Meaning, components, assessment, significance and types of mental tests
- Exceptional children
- Family relationship
- Juvenile delinquency -Mental hygiene



## **Unit IV Aspects of Human Development**

- Concept of human development, Human development index, human development indicators
- Millennium development goals and human development
- Human development in India and human rights
- Education and development education and social change. Population and education. Educational profile of India
- Elementary school and higher education in India
- National policies for education, National curriculum framework, NCERT 2005, DPEP, Right to education 2010 & MDM
- Social empowerment – education, health, nutrition, drinking water and sanitation
- Self help groups, women in agriculture, women and industry support services
- Legal empowerment – legal literacy on personal and family laws, role of family court and legal aid center
- Support system – role and functions of department of women and child development, central social welfare board, state social welfare boards, National Commission for woman
- Programmers for women and child development

## **Family Resource Management**

### **Unit I Theory of Management**

- History of home management
- Ends sought through management Goals – factors affecting, end Values – sources of values, patterns, status security Standards
- Management as a system
- Management abilities

- Decision Making – Meaning, types, modes and techniques and tools for decision making
- Management functions and process
- Planning organizing, guiding, controlling evaluation

## **Unit II Family Economics**

- Importance and relationship of economics to resource management
- Consumption functions and consumption pattern of families, elements of market, theory of consumer behavior – central problem of choice and utility, solution, law of diminishing and marginal utility and law of equi – marginal utility
- Planning of expenditure (account keeping and marketing-types), functions, importance and market devices – labels, packing, guarantee and brands
- Techniques of financial assessment budgeting taxes, saving and insurance
- Consumer behaviors
- Consumer protection government, public and private protection, role of consumer education, standardization of consumer goods and testing methods

## **Unit III Housing**

- Requirement of housing, history of housing, changes in housing, changes in housing need and standards
- Present housing condition in India
- Housing in India as effected by various trends
- Solving India's housing problems
- Factors affecting housing
- Approaches to housing
- Housing schemes and agencies, rent control policies
- Housing standards and housing legislation.

- Technical aspects of house design with reference to principles of planning
- Residential architectural design for various life styles
- Cost of housing design – estimating and costing in relation to land price and construction, factors influencing cost, sources of financial assistance
- Analysis of housing design – analysis of plans, material and construction techniques, study of different housing designs
- Housing research – agencies for research and development, methods and techniques
- Graphic representation of interiors and floor plans

## **E: Home Science Extension Education**

### **Unit I Extension Education System**

- History, philosophy, objectives, concepts, contribution, principles, development of extension, Extension education: meaning, process and principal of learning in extension
- Formal and non formal education, principles, significance, steps and types of program planning and evaluation
- Community development programmes in India
- Review of different rural development programme – IRDP, TRYSEM, JRY, NREGA, PMRY, SRY, SGSY
- Institutions for child and women development- WHO, UNICEF, UNESCO etc
- Support structures and their functions – Panchayats, panchayati raj institution, central social welfare boards, state social welfare boards, national level voluntary agencies, CAPART etc.

### **Unit II Communication Technologies in Extension**

- Types of communication systems – concept, functions and significance

- Interpersonal, characteristics and scope of mass communication
- Mass communication – Elements, characteristics, models, theories, scope and challenges
- Traditional and modern methods of communication
- Media systems: Trends and techniques, concepts, scope, relevance of media in society functions, reach and influences of media
- Participatory rural appraisal PRA and RRA techniques
- Elements of diffusion of innovation and decision making process

### **Unit III Research Methods and Statistics**

- Research in home science concept, need and approaches
- Types of research: Historical, survey, experimental and case study
- Definition and identification of research problems, hypothesis, basic assumption and limitation of research problem
- Sampling: Types and selection of samples
- Data collection and processing methods
- Role of statistics in research – elementary statistics, classification and tabulation and frequency distribution of data, , mean, median, mode, probability
- Use of computer for analysis of data

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**Faculty of Art**  
**Ph.D. Course Work Module for Research Paper III**  
**Paper III: On specialized branch of the subject**

**Introduction:** This paper is specially meant to adjudge the acquired knowledge and ability of candidate in the specialized branch of the subject related to which the candidate will finally submit the Ph.D. **Memoir (i.e. Maxima)** for evaluation. Hence, this is advisable that in place of a separate theory based examination candidate may be asked to prepare a **dissertation** work therewith called **Minima**) on major themes and or broader issues of the specialized aspects of the subject-field (in which the candidate wishes to pursue the research work) in consultation with his/her supervisor.

**Frame work of Minima:** Through out the course period candidate will primarily consult the supervisor and candidate will be deeply involved in information search and consulting the library. The **Minima** work can be organized as follows.

**Topic:** To be chosen from the **specialized** branch approved by the supervisor.

**Content:**

- (i) Principles and Theory (historical and modern perspective).
- (ii) Review of research (national and international status). This will help researchers identifying the research gaps and all be further useful while framing the research objectives in a more rational manner.
- (iii) Materials and Methods (Standard and innovative methods. if any).
- (iv) References, Bibliography/Webliography (this would include complete list of consulted journals, books, memoir including the published unpublished Ph.D. theses, web-pages and search engines etc.).

(Minima work can be limited to 100 printing pages including the chart, figures and references).



**Department and Faculty of Commerce & Management**  
**Syllabus for Ph.D. Course Work Paper – I**  
**(Research Methodology in Commerce & Management)**

**Paper-I: Research Methodology in Commerce & Management**

**Contents:**

Nature of scientific research: Quantitative and qualitative approaches  
Role of research in functional areas of business – Accounting, finance, Marketing, Human Resource Management, Planning and business management

Research Method, Research Methodology and Research Process.

Defining Research Problems, Setting Objectives, Formulating Hypothesis,

Research.

Design, Sample Design.

Business Surveys – Collection of Primary and Secondary data, Design of questionnaire.

Data processing – Classification, Tabulation. Editing.

Analysis and Interpretation of Data: Uni – variate, bi-bivariate and multi-variate analysis.

Report Writing: Categories of Report, Parts of Report, Presentation of a Report

**Suggested Readings:**

- (1) Blaxter, L. Hughes, C & Tight, M., “How to research” Viva Books, Pvt Ltd., New Delhi, 1999.
- (2) De Vaus, D.A., “Surveys in Social Research”, Rawat Publications, 2003.
- (3) May, Tim, “Social Research: Issues, methods and Process”, Open University Press, 2001
- (4) Henn, M., Weinstein, M. & Ford, N., “A short Introduction to Social Research”, Vistaar Publications, 2006.



- (5) Boyatzis, R.E., “Transforming Qualitative Informing”, SAGE, 1998.
- (6) Thakur, D. “Research Methodology in Social Science”, Deep & Deep Pub. Pvt. Ltd., 2005.
- (7) McNiff, J. & Whitehead, J., “ Action Research: Principles and Practices”, Routledge Falmer, London, 2002.
- (8) Broota, K.D., “Experimental Designs in Behavioural Research”, New Age International Pub., 2006.
- (9) Kanji, G.K., “100 Statistical Tests”, SAGE, 2006.
- (10) Best, J.W. & Khan, J.V., “Research in Education”, Printice Hall of India, 2000
- (11) Kumar, R., “ Research Methodology”, SAGE, New Delhi, 1999.
- (12) Mohan, R., “Research in Education”, Neel Kamal Pub. Pvt. Ltd., 2003.
- (13) Shepard, K., “Presenting at Conferences, seminars and Meetings”, Response Books, New Delhi. 2005
- (14) Garrett, H.E., “Statistics in Psychology and Education” Paragon International Publishers, 2004
- (15) Lowenthal, K.M., “An introduction to Psychological Tests and Scales” Psychological Press (Indian Reprint), 2003
- (16) Freeman, F.S. “Theory and Practice of Psychological Testing”, Oxford & IBH Pub. Co. Ltd., New Delhi, 1955.

**Department and Faculty of Commerce & Management**  
**Syllabus for Ph.D. Course Work Paper – II**  
**(Recent Advances in the Field of Commerce & Management)**

**Paper-II : Recent Advances in the Field of Commerce and Management**

**Contents:**

- (1) Survey and research work in different functional areas of business.
- (2) Different dimensions of international business and its environment.
- (3) Policies and legal provisions of government with respect to the business environment in India.
- (4) Managerial economics and their applications in managerial decision making.
- (5) Understanding of finance functions and relevant techniques of financial management.
- (6) Recent changes in financial accounting and reporting practices.
- (7) Understanding of the services and its management.
- (8) An insight into the interface of information technology with business, and to familiarize them with computer applications in business decisions.
- (9) Changing dimensions of the Modern Organization and their Management.

**Suggested Readings:**

- (1) Sam Pitroda, “National Knowledge Commission: Report to the Nation”, 2006-2009, Govt of India, New Delhi.

- (2) Yazali Josephine, “Globalization and Challenges for Education”, NIEPA, Shipra Publication, New Delhi, 2003
- (3) Terenzini, P.N. & Chaffe, E.E., “Total Quality Management in Higher Education”, San Francisco, Jossey Buss, CA, 1991
- (4) University News: Vols. 47 (24); 47(40); 47(41); 47(43); 47(44); 47(50); 47(48); 47(50); 48(15); 48(18); 48(19); 48(20); Journal of Higher Education, Association of Indian Universities, New Delhi.
- (5) Bajaj: Management Processing and Organization, Excel Publication
- (6) Gosh: HRD and Management Vikas
- (7) Sundaram and Bank: International Business Environment Text and Cases, PHI.
- (8) Govt. of India, Latest Economic Survey.
- (9) Mary Ellen Ceuffey, Business English.
- (10) Edwin B Flippo, Personal Management.
- (11) Subrahmanyam, et,al Personality Development, Excel Books, New Delhi.
- (12) N. Vinaykn, A Prabile of Indian Capital Market.
- (13) RBI, Report on trends and progress of banking in India, Various Issues, Mumbai.
- (14) N. Ghosh, Management Control Systems. Prentice Hall of India.
- (15) Saunderr, Research Methods for Business Students (Person India, New Delhi).
- (16) Smith, Malcom, Research Methods in Accounting (Sage Publ, 2007).
- (17) Smith, Thorp and Lowe, Management Research (Sage Publication)
- (18) Cereensteinand Feinamn, Electronic Commerce, Tata Mv Cerawhill, New Delhi,

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