COURSE WORK

for

DOCTOR OF PHILOSOPHY

Prepared by

The Directorate of Research

Uttarakhand Open University

2021

Preamble

Research is a methodical and logical process of analyzing information to increase our understanding of the phenomenon under study. It adds to our existing knowledge of the phenomenon and helps to communicate that understanding to others.

Therefore the PhD programs of Uttarakhand Open University are designed to accomplish local and regional aspirations, fulfil national obligations and honour international commitments through high quality research in various disciplines. The pre-PhD course work, thus aims to provide scientific understanding of research to the researchers.

Important Points to be noted

This program admits a small core of research oriented students each year. Before undertaking the research work, Coursework is necessary as it provides an evidence of ability to conduct research. Therefore frame of the course work designed is as -

Course Work Assessment:

Subject Code	Modules included in the Course	Evaluation (Theory)	Evaluation (Assign.)	Evaluation (Project)	Remarks
CW01	Module I: Introduction of Research	80 Written Examination	20		Policies regarding the evaluation system of the University as prescribed by Examination Section or decisions taken at a later date shall prevail.
CW02	Module II: Tools and techniques for data collection Module III: Research Writing and Technological Inputs in Research	80 Written Examination	20	-	Policies regarding the evaluation system of the University as prescribed by Examination Section or decisions taken at a later date shall prevail.
CW03	Module IV: Discipline	80	20	-	Policies regarding the evaluation

	Specific Research Methodologies Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches	Written Examination			system of the University as prescribed by Examination Section or decisions taken at later date shall prevail.
CW04	Module VI: Formulating a Research Proposal			100 (Project Evaluation - 50) Presentation and Viva – 50)	Policies regarding the evaluation system of the University as prescribed by Examination Section or decisions taken at later date shall prevail.
CW05	Research and Publication Ethics (RPE)	80	20		Policies regarding the evaluation system of the University as prescribed by Examination Section or decisions

					taken at a later date shall prevail.

Subject Code	Module Name	Total Credit	Total Marks Assigned (100)			Administered by/Competed by	Evaluation Pattern
			Evaluation (Theory)	Evaluation (Assign.)	Evaluation (Project)	To be administered by	
CW01	Module I: Introduction of Research	02	80	20	-	Directorate of Research & Innovation	Paper shall be of Eighty (80) marks divided into two (02) Sections A and B. SECTION – A (Long-answer - type questions). SECTION – B (Short – answer – type questions)

CW02	Module II: Tools and techniques for data collection	03	80	20	-	Directorate of Research & Innovation	Paper shall be of Eighty (80) marks divided into two (02) Sections A and B. SECTION – A (Long-answer - type questions). SECTION – B (Short – answer – type questions)
	Module III: Research Writing and Technological Inputs in Research	02			-	Directorate of Research & Innovation	
CW03	Module IV: Discipline Specific Research Methodologies	03	80	20	-	Concerned Department	Paper shall be of Eighty (80) marks divided into two (02) Sections A and B. SECTION – A (Long-answer - type questions). SECTION – B (Short – answer – type questions)
	Module V: Emerging Trends and Major Thrust areas in Discipline Specific	02				Concerned Department	

	Research Approaches					
CW04	Module VI: Formulating a Research Proposal	02	-	-	100 (Proposal Evaluation -50) Presentation and Viva – 50)	Concerned Department (with the help of Directorate of Research and Innovation)	
CW05	Research and Publication Ethics (RPE)	02	80	20	-	Directorate of Research & Innovation	Paper shall be of Eighty (80) marks divided into two (02) Sections A and B. SECTION – A (Long-answer - type questions). SECTION – B (Short – answer – type questions)

Module I: Introduction of Research

- Research: Meaning and Characteristics. Why Research? Areas of Research.
- Objectives of Research: Exploration, Description, Explanation, Prediction, Influence.
- Research Method, Methodology & Designs.
- **General Kinds of Research (Brief Introduction):-**
  - Basic/Fundamental Research, Applied Research, Action Research; Orientational Research;
  - **Quantitative Research:**
    - Experimental Research (True and Quasi): Concept, Types, Internal & External Validity, Experimental Designs.
    - Non-Experimental Research/Descriptive Study
    - Assessment Research
    - Evaluation Research
    - Descriptive Research
      - (a) Interrelationship Study: Ex-Post Facto Research/Causal Comparative Study,
      - (b) Co-relational Study
      - (c) Developmental Study
        - (i) Growth Study- Longitudinal and Cross Sectional Study
        - (ii) Trend Developmental Study
  - **Qualitative Research:** Concept, Characteristics & Types
    - Historical Research: Concept, Resources, Facts & Evidence, Criticism in Historical Researches
    - Philosophical Research
    - Case Study
    - Grounded Theory
    - Phenomenological Research
    - Ethnographical Research
    - Ethno-methodological Research
    - Symbolic Interactionism

- **Mixed Research:** Concept, Characteristics & Types
- Epistemology, Knowledge and its Sources (Tenacity, Authority/Expert Opinion, Intuition, Empiricism (Experience), Rationalism (Reasoning- Inductive & Deductive), Scientific Approach: Basic Assumptions of Science, Scientific Methods- Exploratory and Confirmatory)
- Forms of Knowledge: Information & Facts; Concepts and Constructs; Hypotheses, Theories & Laws; Rules, Principles and Generalisation; Assumptions.
- Hypothesis: Concept, Characteristics of good Hypothesis, Types of Hypothesis (Research Hypothesis: Directional & Non-directional, Null Hypothesis, Alternative Hypothesis; Simple & Complex Hypothesis; Causal & Descriptive Hypothesis), Hypothesis Testing, Area of Acceptance, Area of Rejection, Level of Significance, Level of Confidence, Confidence Interval, Type I Error, Type II Error.
- Variables: Qualitative Variables (Organismic or Attribute Variables), Quantitative Variables (Continuous and Discrete Variables); Independent/Experimental Variables (Treatment/E-Type Variables, Attribute/S-Type Variables) Dependent Variables, Intervening Variables (Confounding Variables and Extraneous Variables).
- Universe, Population (Homogeneous & Heterogeneous, Finite & Infinite, Existent & Hypothetical), Sample, Sampling Units, Sampling Frame, Sample Units, Sampling Fraction, Response Rate, Sampling Method, Inferential Statistical Methods, Statistical Inferences, Parameters & Statistics, Sampling Distribution, Standard Error, Central Limit Theorem, Types of Sampling: Probability/Random (Unrestricted/Simple Random, Restricted: Systematic, Cluster, Stratified, Multistage), Non Probability/ Non Random (Incidental/Accidental/Convenience, Quota, Purposive/Judgmental, Snowball); Sampling in Qualitative Research; Basis of determining the Sample Size.

Module II: Tools and Techniques for Data Collection

- Concept of Measurement, Evaluation, Assessment & Appraisal; Scales of Measurement: Nominal, Ordinal, Interval and Ratio.
- Data: Concept and its types (Qualitative & Quantitative, Parametric & Nonparametric)
- Connotation of Tools and Techniques.
- Techniques for data collection: Observation Technique, Self Reporting Technique, Testing Technique, Sociometry Technique, Projective Technique.
- Tools for data collection: Objective & Subjective Tools. Continuum of Objectivity in context of tools.
- Different tools and their developmental procedures: Questionnaires, Schedules, Inventories, Interviews, Check Lists, Rating Scales (Numerical, Graphical, Ordering, Position, Forced Choice), Projective Tools (TAT, CAT, Ink Blot Test, Sentence Completion, Word/Picture/Sentence/Free Association Test, Psycho-drama), Sociometry (Sociometric Matrix, Sociogram, Sociometric Index), Observation, Tests, Test Battery, Attitude Scales (Thurston, Likert), Q-Short Method, Semantic Differential Scale, Cumulative Record, Anecdotal Record, Content Analysis.
- Characteristics of good research tools: Objectivity, Reliability, Validity, Norms & Usability.

Module III: Research Writing and Technological Inputs

(A) Review, Research Proposal and Research Paper Writing

- Role of library in Research process
- Literature survey & review writing
- Techniques of Research Paper Review
- Techniques of Article Review
- Techniques of Book Review
- Basic Principles of Writing Research Paper
- Basic Principles of Abstract Writing
- Brief introduction about Seminar, Conference, Convention, Symposium, Workshop, Training Programme & Brain Storming Session
- Synopsis: Meaning, Significance, Components and Structure
- Research Proposals of Minor & Major Projects

(B) Writing Research Report

- Research report writing and dissemination of research findings.
- Structure of Doctoral Dissertation (Thesis)
- Basic technicalities of Report Writing
- Documentation, styles of documentation, use of Footnotes or Endnote
- Citation styles; Style guides with examples (APA, MLA & Chicago)
- How to write References and Bibliography

(C) The application of Information and Communication Technologies in Research

- Introduction to computers and Internet
- Role of computer in knowledge management
- Open Education Resources and Research
- Introduction to Windows XP/Vista
- Introduction to operating systems– handling different operating systems PC / Mac etc.

- Role of web media for Literature survey
- Using word processing software – MS Word / Latex / others,
- Data analysis and Computer
- Drawing graphs and diagrams through computer
- Microsoft Power point presentation
- Microsoft Excel
- Microsoft Publisher
- SPSS

Module IV: Discipline Specific Research Methodologies

(03 Credits: 90 Hrs.)

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches

(02 Credits: 80 Hrs.)

Module VI: Formulating a Research Proposal

(02 Credits: 80 Hrs.)

CW 05 Research and Publication Ethics (RPE)

Philosophy and Ethics- Introduction to philosophy: definition, nature and scope, concept, branches

Ethics: definition, moral philosophy, nature of moral judgements and reactions

Scientific Conduct-Ethics with respect to science and research

Intellectual honesty and research integrity

Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP)

Redundant publications: duplicate and overlapping publications, salami slicing

Selective reporting and misrepresentation of data

Publication Ethics-Publication ethics: definition, introduction and importance

Best practices / standards setting initiatives and guidelines: COPE, WAME, etc.

Conflicts of interest

Publication misconduct: definition, concept, problems that lead to unethical behaviour and vice versa, types

Violation of publication ethics, authorship and contributorship

Identification of publication misconduct, complaints and appeals

Predatory publishers and journals

- **Open Access Publishing-** Open access publications and initiatives

SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies

Software tool to identify predatory publications developed by SPPU

Journal finder / journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggested, etc.

- **Publication Misconduct-** Group Discussions- Subject specific ethical issues, FFP, authorship

Conflicts of interest

 Complaints and appeals: examples and fraud from India and abroad

Software Tools- Use of plagiarism software like Turnitin, Urkund and other open source software tools

- **Database and Research Metrics-** Databases and Research Metrics

  Indexing databases, Citation databases: Web of Science, Scopus, etc.

  Research Metrics- Impact Factor of journal as per Journal Citation Report, SNIP, SIR, IPP, Cite Score

  Metrics: h-index, g index, i10 index, altmetrics

History

Ph. D Course Work in History

Module IV: Discipline Specific Research Methodologies

Unit 1 The debates about history's claim to tell the truth about the past

    a. Karl popper- The Poverty of Historicism

    b. Edward Thompson: The Poverty of Theory

    c. Richard Rorty: Philosophy in History

Unit 2 Important categories that have shaped historical writings in the 20th century

    a. Gender

    b. Class

    c. Environment

    d. Nation

Unit 3 Debates in History

    a. Aryan

    b. Feudalism

    c. Colonialism

    d. Postmodernism

Unit 4   Reading Texts in History

    a. Imagined Communities

    b. Hidden Transcripts

Unit 5 New   Trends in Historiography

Unit 6 Understanding the ancient past

    a. Historical Archaeology

    b. History of the Caste system

    c. Religion and Society in Early India

    d. Literature and Society

    e. The State in Early India

    f.   Agriculture and Village communities in early India.

    g.   Trade and Traders in Early India

           or

Unit 6 Understanding the medieval past

    a.   Understanding the changing in polity, Society and Religion From Pre Turkish rule to Turkish rule.

    b.   Theory of static Society, Theory of purity and pollution, theory of Sanskritization and de-sanskritization

    c.   Social formation of ruling classes from tribal to racial based socio-political hierarchy in the ruling classes, State and ruling Classes, Controlling each other; Social hegemony of the ruling class .

    d.   Concept of Indian Middle class – Professional and social role in the society.

    e.   Peasants- Identity of a Peasant; Social stratifications and status in the society ; Religion between ruling class and Peasants

    f.   Religion and Society

    g.   Rise of Monotheistic saints and their popularity in the masses.

    h.   Religious and political nature of the State.

           or

Unit 6 Understanding the Modern-era

    a.   Colonialism: information and knowledge

    b.   The History of caste

    c.   The social History of Law

    d.   Gender and the Hindu Nation; religious community, revival and reform

    e.   Agrarian relations and Peasant rebellion;

    f.   Famines, epidemics and the crises of society

    g.   Army, war and society

Unit 7 Economic History of India

    a.   Debating the great divergence

    b.   Debating the Drain of Wealth from India

    c.   Debating Agricultural production trends and the standard of living in India

    d.   Explanations for population increase in twentieth century India

e. Typology: Nationalism in sovereign and colonial societies

f. Debate about the making of nations and nationalism

g. Debate over making of Agrarian protests and Movements

h. Debating Politics of incision and affirmative action in contemporary India.

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches (03 Credits: 90 Hrs.) (History)

Latest trends in various areas of History

- Gender
- Class
- Environment
- Nation
- Aryan
- Postmodernism
- New Trends in Historiography
- Religion and society

Sociology

Ph. D Course work in Sociology

Module IV: Discipline Specific Research Methodologies

Paper-I   Social Research

Course outline

- Social Research & Social Survey- Meaning, Nature & Type
- Problems of Objectivity in Sociological Research
- Planning of Social Survey
- Essential Qualities of Social Investigator
- Basis of Enquiry- Logical, Historical & Scientific Methods
- Fact, Theory & Concept
- Hypothesis
- Research Design
- Sources of Data- Primary & Secondary Sources
- .Techniques of Data Collection
  - a.   Observation
  - b.   Interview
  - c.   Schedule
  - d.   Questionnaire
  - e.   Case Study
- Sampling-Meaning, Types & Problems
- Scaling techniques
- Projective Technique
- Content Analysis
- PRA
- Classification & Tabulation of Data
- Analysis & Interpretation of Data

- Preparing of Report
- Diagrammatic & Graphic Presentation of Data

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches

Modernity, Post-modernity, Neo-sociological Theories &Subaltern Discourse

- What is Modernity
- Modernization & Traditional Indian Society
- Post modernity & Social Pluralism
- Postmodern Social Theory

Postmodern Social Thinker

- Michel Foucault
- Jacques Derrida

New Sociological Theories

- Globalization
- From Structuralism to Post-structuralism
- The Structuration Theory-Anthony Giddens
- Neo-Marxist Theories: Habermas&Althuser

The following will be the optional specializations. Every student shall select any one of the following papers:

Paper III Option A- Rural Sociology

- Rural Sociology: An introduction
- Indian Rural & Urban Community
- Little Community, Peasant Society & Folk Culture
- Caste System & Caste Panchayat
- Inter Caste Relations &Jajmani System
- Dominant Caste & Rural Factions

- Rural Religion
- Rural Power Structure & Leadership
- Social Change in Village India
- Barriers to Social Change

Paper III Option- B- Urban Sociology

- Urban Sociology- Meaning

- Urban Sociology in India-Emerging trend in Urbanisation, Factors of Urbanisation, social Consequences of Urbanisation
- Classification of Urban Centers-cities & towns

- Issues of Urbanization- Problems of Housing, Slums, Urban Poverty, Urban Violence
- Issues of Urban Environment-Urban Transport, Water Crisis, Nosie& Air Pollution, Electricity Crisis & Industry.

Paper III Option C- Sociology of Family, Kinship & Marriage

- Kinship
- Marriage
- Family
- The Indian Context-Kinship Studies in India: Specific studies by Dumont, IrawatiKarve& T. N. Madan. Forms of marriage among different communities in India, Joint-Nuclear family debate,

Management Studies
Module IV: Discipline Specific Research Methodologies

Unit-I

Fundamentals of Management- Latest Trends and Key Issues

- Managing Ethically
- Statistical Methods used in Management Research
- Personnel Competence and Capability Building Systems
- Decision Making in Management Science
- Econometrics
- Economic Development & Growth
- Stress Management

Unit-II

Foundations of research in various functional areas of Management

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches

- Latest trends in various functional areas of Management (Human Resource, Finance, Marketing, International Business, Manufacturing and IT)
- Major Thrust areas in Management Studies
- Note:: The nature of this paper is dynamic, hence the paper has not fixed syllabus. It will be decided by the school for every batch.

Psychology

Module IV: Discipline Specific Research Methodologies

- Nature of Psychological Research

- Scopes /concerns/ priorities of Psychological Research

- Types of Studies in Psychological Research (Qualitative-Descriptive, Historical,Philosophical; Quantitative-Experimental (Experimental Designs, Ways of Controlling Extraneous Variables), QuasiExperimental, Causal comparative, Co-relational Research)

- Research Paradigm: Quantitative Research and Qualitative Research

- Methods of the Psychological Research

- Philosophical Research, Historical Research, Descriptive Research,Experimental Research, Causal-comparative Research (Ex-post FactoResearch), Correlation Research, and Action Research

- Limitations of Psychological Research

- Ethical issues and principal in psychological research

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches

(Psychology)

- **Applications of psychology: Unit-1 Guidance and Counseling:** Concepts, areas and Techniques of guidance- Group guidance, Role playing, Career counseling, Case study and Interview. Counseling- Nature, Goals and principles of counseling. Role and functions of counselors and their professional training. Approaches to counseling-Directive, Non Directive, Behaviouristic, Gestalt and humanistic. Areas of counseling- Educational, vocational, personal, occupational guidance programme.

  Unit-2 Cognitive Psychology: Learning and Memory, Attention and Perceptual Processes, Emotion and Motivation Thinking and Problem Solving, Personality and intelligence.

Unit-3 Clinical Psychology: Concepts and classifications of abnormality. Causes of abnormality. Psychopathology: Anxiety Disorder, Schizophrenia, Cognitive Disorders, Personality Disorders. Psychotherapeutic methods- Psychoanalytic, Behaviour Therapy, Group Therapy and Client Centered Therapy. Mental Health and hygiene.

Unit-4 Developmental Psychology: Issues and theories of human Developmental, Development during Early, late Childhood and Adolescence, Developmental disabilities, Emerging issues on child development in the Indian context: Child abuse, Media impact, Parenting practices in diverse family context, Disorders of infancy, childhood and adolescence Adjustment during Middle age and Old age.

Unit-5 Social Psychology and Industrial Psychology: Nature, Scope and theories of social psychology. Methods of social psychology. Attitude- Nature and development. Measurement and theories of attitude change. Prejudice and Stereotypes, Interpersonal attraction. Group processes- Group formation, group effectiveness and group dynamics Types and theories of leadership. Prosocial behavior, Social Problems, Industrial Psychology: Industrial Morale and Performance Appraisal, Motivation and Job Satisfaction, Monotony Boredom and Industrial Accidents.

Unit-6 Health Psychology: Meaning, Nature and Scope of Health Psychology, Types and Theories, Pain, Stress management, Causes and Prevention of CardiovascularDisease,Cancer and HIV/AIDS, Money and Happiness and Well being, Optimism, Empathy, Gratitude and Forgiveness.

Computer Science

Module IV: Discipline Specific Research Methodologies

Soft Computing

Introduction to Neuro-Fuzzy and Soft Computing- Fuzzy Sets- Basic Definition and Terminology- Set-Theoretic Operations-Member Function Formulation and Parameterization-Fuzzy Rules and Fuzzy Reasoning-Extension Principle and Fuzzy Relations-Fuzzy If-Then Rules- Fuzzy Reasoning-Fuzzy Inference System-Mamdani Fuzzy Models-Sugeno Fuzzy Models-Tsukamoto Fuzzy Models-Input Space Partitioning and Fuzzy Modeling. ANN, DNA Computing, Genetic Algorithms, Simulated Annealing, Gradient Free Optimization.

References

1. J.S.R. Jang, C.T. Sun and E. Mizutani," Neuro-Fuzzy and Soft Computing", PHI, New Delhi
2. Timothy J. Ross," Fuzzy Logic with Engineering Applications", McGraw-Hill, 1997

e-Initiatives Strategies, Policies and Governance

E-Governance: Needs of e-governance, Issues in e-governance applications and the digital divide; Evolution of e-governance, its scope and content; Present global trends of growth in e-governance, other issues. Model of Digital Governance: Broadcasting, Evolution Wilder Dissemination Model, Critical Flow Model, Comparative Analysis Model, Mobilization and Lobbying Model, Interactive-Service Model/ Government-to-Citizen-to-Government Model(G2C2G); Evolution in e-governance and maturity models: Five Maturity Levels, Characteristics of Maturity Levels. key areas, towards good governance through e-governance models.

E-Readiness- digital system infrastructure, legal infrastructural preparedness, institutional infrastructure preparedness, human infrastructure preparedness, technological infrastructure preparedness, ; Evolutionary stages in e-governance, social media, web semantics, intellectual web.

Cyber Security

Security Policies and Management, Security Models, Physical and Environmental Security, Application Security, Communications and Operations Management, Business Continuity Planning and Management, Access Control, Software development, maintenance and support, Cyber Forensics, Introduction to Information Security Standards, Compliance

Introduction to e-learning

Introduction to Learning Theories – Behaviorism - Cognitivism - Constructivism - Informal and post-modern theories, Other learning theories, Different Learning theorists, Standardized curriculum, Case studies highlighting learning theories , Comparison of learning theories

e-Learning basics, Trends in E-learning, The Emergence of Blended Learning, Learning Theory in the Online Classroom: recent research findings, Online Instructor Roles, Training, Incentives, and Supports, Explosion of Online Programs, Universities, Courses, New learner roles, Expectations, Issues, Dilemmas, and Resolutions, Learners of 21st century, Mobile, Wireless, and Ubiquitous Learning

Web 2.0 tools and open educational resources, Free and Open Source Software- Online Interactivity, Engagement, and Social Presence, synchronous and asynchronous communication , Informal learning through social networking sites, collaborative content development **.**

Building learning communities, Adapting Classroom Based Activities to Cyberspace, Choosing an Effective Communication Tool, Authoring tools for creating e-content, freely available content development tools, Ethical Use of Digital Resources, Understanding Copyright and Fair Use, creative commons

Measuring Online Learning: Student Performance, Course Evaluation, Program Evaluation, Survey and Quiz Technology, Creating Assignments and Assessments, Open and free Assessment tools

SUGGESTED READINGS:

Anderson, Terry & Fathi Elloumi (Eds). (2004). Theory and practice of online learning (An edited collection of research and reflection on online learning by AU authors). Canada: Athabasca University. (**Free Online Book**) available at :. http://cde.athabascau.ca/online_book/

Bonk, C. J., & King, K. S. (Eds.). (1998). *Electronic collaborators: Learner-centered technologies for literacy, apprenticeship, and discourse*. Mahwah, NJ: Erlbaum.

Bonk, C. J., & Zhang, K. (2008). *Empowering Online Learning: 100+ Activities for Reading, Reflecting, Displaying, and Doing*. San Francisco, CA: Jossey-Bass

Edmunson, A. (ed). (2007). Globalized e-learning: Cultural Challenges. Hershey, PA: Information Science Publishing.

Selinger, M. (2004). *Connected schools: Thought leaders (essays from innovators)*. London, UK: Premium Publishing and Cisco Systems **(free book)** http://www.cisco.com/application/pdf/en/us/guest/about/about/c644/ccmigration_09186a00802bf23d.pdf

Bonk, C. J. (2004, June). *The perfect e-storm: Emerging technologies, enormous learner demand, enhanced pedagogy, and erased budgets.* London: UK: The Observatory on Borderless Higher Education. (can be seen at http://mypage.iu.edu/~cjbonk/article.html or http://www.publicationshare.com/ http://mypage.iu.edu/~cjbonk/part1.pdf and http://mypage.iu.edu/~cjbonk/part2.pdf)

Kim, K.-J., & Bonk, C. J. (2006). The future of online teaching and learning in higher education: The survey says… *Educause Quarterly*, *29*(4), pp. 22-30 available at http://www.educause.edu/ir/library/pdf/eqm0644.pdf

Graham, C. R. (2006). Chapter 1: Blended learning systems: Definition, current trends, future directions. In C. J. Bonk & C. R. Graham (Eds.). *Handbook of blended learning: Global Perspectives, local designs*. San Francisco, CA: Pfeiffer Publishing. http://mypage.iu.edu/~cjbonk/graham_intro.pdf

Bonk, C. J., & Kim, K. J. (2006). Chapter 39: Future directions of blended learning in higher education and workplace learning settings. In C. J. Bonk & C. R. Graham (Eds.). *Handbook of*

blended learning: Global Perspectives, local designs. San Francisco, CA: Pfeiffer Publishing. http://mypage.iu.edu/~cjbonk/c083_bonk_future.pdf

Lenhart, Amanda, & Fox, Susannah (2006, July 19). *Bloggers: Portrait of America's new storytellers*. Washington, DC: Pew Internet & American Life Report available at : http://www.pewinternet.org/pdfs/PIP%20Bloggers%20Report%20July%2019%202006.pdf

Liu, X., Bonk, C. J., Magjuka, R. J., Lee, S. H., & Su, B. (2005). Exploring four dimensions of online instructor roles: A program level case study. *Journal of Asynchronous Learning Networks*. *9*(4), pp. 29-48. http://www.sloan-c.org/publications/jaln/v9n4/index.asp and http://www.sloan-c.org/publications/jaln/v9n4/v9n4_liu_member.asp

Bezroukov, N. (2005a). Open source software development as a special type of academic research (Crique of Vulgar Raymond). *First Monday available at* http://www.firstmonday.dk/issues/issue4_10/bezroukov/index.html

Pan, G., & Bonk, C. J. (2007, March). The Emergence of Open-Source Software, Part II: China. *International Review of Research in Open and Distance Learning* . See http://www.irrodl.org/index.php/irrodl/article/view/331/762; special issue on the "Changing Faces of Open and Distance Learning in Asia" is found at http://www.irrodl.org/index.php/irrodl/

Stephenson, R. (2006). Open source/Open course learning: Lessons for educators from free and open source software. *Innovate*, http://www.innovateonline.info/index.php?view=article&id=345

List of Open Source Tools: http://www.debianhelp.co.uk/tools.htm

Johnstone, S. M. (2005). Open educational resources serve the world. *EDUCAUSE Quarterly*, *28*(3), 15-18. Available at http://www.educause.edu/apps/eq/eqm05/eqm0533.asp

Geser, Guntram (ed.). (2007, January). Open Educational Practices and Resources: OLCOS Roadmap 2012 (149 pages). Available at http://www.olcos.org/english/roadmap/ and http://www.olcos.org/english/roadmap/download/

Carmean, C., & Haefner, J. (2002, November/December). Mind over matter: Transforming course management systems into effective learning environments. *Educause Review*, 37(6), 27-34. Available at http://www.educause.edu/ir/library/pdf/erm0261.pdf

Carmean, C., & Haefner, J. (2003). Next-generation course management systems. *EDUCAUSE Quarterly,* 26*(1)*), pp. 10–13. Available at http://www.educause.edu/ir/library/pdf/EQM0311.pdf

Traxlar, John (2007, June). Defining, discussing and evaluating mobile learning: The moving finger writes and having writ…. *International Review of Research in Open and Distance Learning.* Available at http://www.irrodl.org/index.php/irrodl/article/view/346/875 or http://www.irrodl.org/index.php/irrodl/article/view/346/875oor

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches

Cloud Computing

Understanding Cloud Computing: Introduction to cloud computing, are you ready for cloud computing?, surveying the Role of Cloud Computing, developing the cloud services.

Understanding Windows Azure Platform Architecture: The Windows Azure

Developer Portal, Creating and running Projects in the Azure Development Platform, Using Azure Application Templates for Visual Studio 2008, Taking advantage of Auxiliary Cloud Services, Deploying Application and Services to the Azure Cloud.

Analyzing the Windows Azure Operating System: The Lifecycle, Securing and Isolating Services and Data, Assuring Fabric Controller Availability, Virtualizing Windows Server for Azure.

Scaling Azure Table and Blob Storage: Creating Storage Accounts, Using or Wrapping the Azure Storage Services' REST APIs, Understanding Azure Table Storage, Storing and retrieving Blobs.

Minimizing Risk When Moving to the Azure Cloud Service: Bypassing the Barrier to Cloud Computing, Implementing the Secure Sockets Layers Transmission,Encryption for Web Roles, Encrypting Personal Information in Azure Storage Services, Auditing Conformance to Regulatory and Industry Standards.

Authenticating and Authorizing Service User: Taking Advantage of ASP.NET Membership Services, Adapting ASP.NET Authentication and Role Management to Windows Azure Web Role, Analyzing the AspProviders Library's Classes, Moving the AspProvidersDemo's Data Source to the Cloud, Integrating Membership Services with an Azure Service, Authenticating users with Windows Live ID.

Optimizing the Scalability and Performance of Azure Tables: Assigning Primary Key Values to Entities, Handling Associated Entities, Taking Advantage of Entity Group Transactions, Uploading the table data, Displaying the Data from Heterogeneous Tables in Grids.

Massaging with Azure Queues: Creating and Processing Azure Queues and Messages, Enhancing the Thumbnails.sin Sample Solution.

Authenticating Users with .NET Access Control Services: Creating the .NET Services Solution, Installing the .NET Services SDK and other Tools, Crating the CardSpace Credentials at Federatedidentity.net, Using a Managed CardSpace Credential with ACS.

Interconnecting the Services with the .NET Service Bus: Creating .NET Service Solution and Installing Prerequisites, Relaying Message with SB, Analyzing the .NET Services SDK's EchoSample Solution, Using the Configuration File to Specify

WSHttpRelayBinding.

Exploring .NET Service Bus Queues and Routers: Persisting Messages in Service Bus Queues, Delivering Message with Service Bus Routers.

Text Book:

"Cloud Computing with the Windows Azure Platform", Roger Jennings, Wiley.

Reference Books:

1. "Cloud Computing", Michael Miller, Pearson Education.

2. "AJAX Construction Kit: Building Plug-and-Play Ajax Applications," Michael Morrison.

3. "AJAX Security", Billy Hoffman and Bryan Sullivan.

4. "Parallel Programming", Barry Wilkinson and Michael Allen

Geographical Information Systems

Introduction to GIS Database & Scales Concepts in GIS Components in GIS Application of GIS

Components of a Toposheet : Latitude & Longitude, Scale, Legend, North Features in a Toposheet : Drainage Pattern, Slope, Landform features, Settlement shapes Toposheet Scales and Numbering System Buffering, Clip, Union, Intersect, Identify, Erase

Data : Spatial & Non-spatial I

Introduction to Spatial Data Concepts of Geoid, Datum, Spheroid, Lat/Long Types of Projection Systems Choice of a Projection system Introduction to Non-Spatial Data Linking of spatial and Non-spatial data

Remote Sensing: Introduction to Remote Sensing Electromagnetic Spectrum Components of RS : Spectral Response, Push Broom, Whisk Broom Resolutions: Spatial, Spectral, Radiometric, Temporal

Satellites and Sensors: Single Band, Multispectral

2021

Concepts of GPS Types of GPS GPS Errors and Correction Application of GPS : Locaiton, Height, Track, Navigation, Timing

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पी—एच.डी. कोर्स वर्क
योग

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Module IV: Discipline Specific Research Methodologies

मॉड्यूल – 1

<u>इकाई –1 दार्शनिक क्षेत्र</u>

वेद, उपनिषद्, भारतीय दर्शन, पुराण, स्मृतियां, गीता, महाभारत, रामायण, आयुर्वेद का संक्षिप्त परिचय तथा उनमें सहित सम्भावित अनुसंधान क्षेत्र।

<u>इकाई –2 साहित्यकीय क्षेत्र</u>

पातंजलयोगसूत्र, हठप्रदीपिका, घेरण्ड संहिता, स्वामी चरणदास कृत भक्तिसागरादि (अष्टांगयोग), शिवस्वरोदय, वशिष्ठ संहिता,शिव संहिता एवं गोरक्ष संहिता का संक्षिप्त परिचय एवं इनके संभावित अनुसंधान क्षेत्र।

<u>इकाई –3 संतो एवं योगीजनों का परिचय व योग के क्षेत्र में योगदान</u>

संत कबीर, तुलसीदास, स्वामी चरणदास, स्वामी दयानन्द सरस्वती, श्री अरविन्द, स्वामी विवेकानन्द,महर्षि रमण,श्यामाचरण लाहिडी,नीब करोली बाबा, शिरडी के साई बाबा ,स्वामी शिवानन्द सरस्वती, स्वामी सत्यानन्द सरस्वती, स्वामी कुवल्यानंद, श्रीराम शर्मा आचार्य का संक्षिप्त परिचय तथा योग के क्षेत्र में उनके योगदान सम्बन्धित सम्भावित अनुसंधानीय क्षेत्र।

Module V: Emerging Trends and MajorThrust areas in Discipline Specific Research Approaches

मॉड्यूल – 2

<u>इकाई –1 स्वास्थ्य एवं चिकिस्कीय क्षेत्र</u>

आहार एवं स्वास्थ्य की मूलभूत जानकारी, नियमावली, चिकित्सीय उपयोगिता, स्वर आधारित स्वस्थवृत्त नियमावली एवं सम्भावित अनुसंधान क्षेत्र। स्वास्थ्य एवं व्याधि की अवधारणा, यौगिक चिकित्सा की अवधारणा, क्षेत्र, सिद्धान्त एवं सीमायें कायिक, मनोकायिक एवं मनोरोगों सम्बन्धी अनुसंधान के उदाहरण सहित सम्भावित अनुसंधानीय क्षेत्र। यौगिक चिकित्सा एवं वैकल्पिक चिकित्साओं का सम्बन्ध व उदाहरण सहित सम्भावित अनुसंधान क्षेत्र ।

इकाई–2   शिक्षण क्षेत्र

प्राथमिक, माध्यमिक, उच्च व उच्चतर विद्यालयीन शिक्षा में योग शिक्षा का स्वरूप, सिद्धान्त व विधियां तथा उदाहरण सहित उनके अनुसंधान क्षेत्र, विद्यालयीन शिक्षा में योग शिक्षा लागू करने के आवश्यक पहलू तथा रूकावटें व सम्भावित अनुसंधानीय क्षेत्र। सामाजिक, औद्योगिक, प्रशासनिक, शारीरिक शिक्षा व खेलकूद तथा नैतिक शिक्षा में योग की भूमिका व सम्भावित अनुसंधानीय क्षेत्र।

इकाई–3

वर्तमान में परिचलित योग के विभिन्न प्रारूप एवं अधुनातन प्रवृत्तियाँ।

Jyotish

Module IV: Discipline Specific Research Methodologies

1- ज्योतिषशास्त्र अर्थ :, उत्पत्ति, उपयोगिता, अवधारणा

2- प्रमुख त्रिस्कन्ध गणित), फलित एवं संहिता ज्योतिष के विविध पक्ष एवं बहुस्कन्धात्मक ज्योतिष (

3- ज्योतिष शास्त्र के प्रवर्त्तक एवं आचार्य तथा उनका प्रमुख सिद्धान्त

4- ज्योतिष शास्त्र का इतिहास काल विभाजन के आधार पर :

5- ब्रह्माण्ड एवं काल, सृष्टि एवं प्रलय सिद्धान्त

6- पंचांग समीक्षा एवं मुहूर्त्त

7- प्राच्य   पाश्चात्य ज्योतिष का तुलनात्मक अध्ययन –

8- वेदांग ज्योतिष

9- ज्योतिष शास्त्र की प्रासांगिकता

10- करण एवं सिद्धान्त ग्रन्थों का तुलनात्मक अध्ययन

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches

- सिद्धान्त एवं फलित ज्योतिष में उभरती प्रवृत्तियाँ

- सिद्धान्त एवं फलित ज्योतिष में शोध के प्रमुख विविध क्षेत्र

Note: The nature of this paper is dynamic, hence the paper has not fixed syllabus. It will be decided by the school for every batch.

Ph.D. in Education

Module IV: Discipline Specific Research Methodologies

Education

- Nature of Education Research.
- Scope/concern/priorities of Educational Research.
- Types of Study in Educational Research (Qualitative-Descriptive, Historical, Philosophical; Quantitative- Experimental (Experimental Designs, Ways of Controlling Extraneous Variables), Quasi Experimental, Causal Comparative, Co relation Research).
- Research Paradigm: Quantitative Research and Qualitative Research.
- Methods of the Educational Research.
- Philosophical Research, Historical Research, Descriptive Research, Experimental Research, Casual Comparative Research (Ex-post Facto Research), Correlation Research, Correlation Research, and Action Research.
- Limitation of Actual Research.

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches.

- Emerging Trends in Educational Research.
- Major Thrust areas in Educational Research.
- Research in Teacher Education in ancient, mediaeval and Modern Time.
- Research of National Education Policy in Modern Times.
- Teacher Training System in India (Needs, Laval, Steps and Organizations etc.).

Note: The Nature of this paper id dynamic, hence this paper has not fixed syllabus. it will be decide by School for Every Batch.

Ph.D. in English

DEPARTMENT OF ENGLISH

MODULE IV Discipline Specific Research Methodologies:

1. An Introduction to Research Methodologies in Literature

2. Structuralism

3. Post Structuralism and Deconstruction

4. Psychoanalytical Approach

5. Marxist Criticism

6. Stylistics

7. Archetypal Criticism

MODULE V Emerging Trends and Major Thrust Areas in Discipline Specific Research Methodologies

1. Post Modernism

2. Post Colonialism (Including Subaltern and Dalit Discourses)

3. Ecocriticism

4. New Historicism and Cultural Materialism

5. Feminism and Gender Studies

6. Hermeneutics

**Phd Course work
Tourism**

Module IV: Discipline Specific Research Methodologies

- Nature of Tourism Research

- Scope/concerns/priorities of Tourism Research

- Types of Studies in Tourism Research (Qualitative-Descriptive, Historical, Philosophical; Quantitative-Experimental (Experimental Designs, Ways of Controlling Extraneous Variables), Quasi Experimental, Causal comparative, Co relational Research)

- **Research Paradigm:** Quantitative Research and Qualitative Research

- Methods of the Tourism Research

- Philosophical Research, Historical Research, Descriptive Research, Experimental Research, Causal-comparative Research (Ex-Post Facto Research), Correlation Research and Action Research)

- Limitations of Tourism Research.

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches

- Changing Scenario of the Tourism Industry

- Tourists with Special needs and the Differently –Abled Tourists

- **Emerging Types of Tourism:** Cruise Tourism, SpiritualTourism, Space Tourism, Underwater Tourism, Virtual Tourism, Dark Tourism, Disaster Tourism, Extreme Tourism, Perpetual Tourism, Accessible Tourism, Film Tourism, Tribal Tourism and Wedding Tourism

- **Tourism Distribution Systems:** Information and Communication Technology and Global Distribution Systems.

- Online Travel Agents

- Present Accommodation Scenario and Measures taken by the Central/State Government.

- **Trends and Developments in Aviation:** Developments in Aviation, Cost cutting measures and Air Cargo Management.

- Trends in Catering: Need for Trained Staff

- Environment Concerns- Going Green: Global Warming

- Government Initiatives to develop Tourism Industry in India

Political Science

Module IV : Discipline Specific Research Methodologies

Political science is a genre of social science. In which the political aspects of the society especially the static and dynamic sides are studied. In which many changes have come with time, will continue to come on which continuous research is going on.

Therefore the field of methodology concern to political studies is growing rapidly, enhancing the quality of empirical research and making important methodological contributions within political science .

1. Meaning and nature of research

2. Objective of research in Political science

3. Scope and motivation in Political Research

4. Types of research to be study in Political science: Descriptive and Analytical, Applied – Fundamental ,Qualitative –Quantitative , Conceptual – Empirical,

5. Significance of research in Political Science .

6. Criteria of Good research

7. Philosophy of Social Science, knowledge and knowing in Social Science and Research

8. Forms of knowledge: Laws, Explanation and Interpretation in the study of Social Sciences

9. Objectivity and Value

10. Methodological Individualism and Holism in Political Research

11. Formulation of research question

12. Answering research question: Requirements, components and construction

13. Research design:

14. How to research in practice

   o Experimental Research

   o Comparative Research

   o Surveys

   o Interviewing and focus groups

   o Decision Oriented

Module V : Emerging Trend and Major Thrust area in Discipline Specific Research Approaches

Dynamic aspects along with static elements are also studied in political science. Which not studies only the present but also the possibilities of future challenges and their solution.

For this, philosophical and practical aspects are important in political research. Some of the major thrust area which is emerging in Political Science Research, which is given below .

1. **Political Theory:** New Liberalism, Globalization, Civic Society, Post Modernity, Importance of Public sector to minimization of gap between individual and community .

2. **Comparative Politics :** Political Culture with special reference to form of government

3. **Indian Political System:** Nature of Indian federation ,

 Election and voting behavior with special reference to Indian social structure

Indian Democracy and Social transformation

Politics of polarization in democracy special reference to India

4. **Public Administration :**

Public Administration in Democratic form of government

Ecology of Administration with special reference to India

Ecology of Administration with special reference to Uttarakhand

5. New debate in emergence of Political Thought

6. Structural and Functional Democracy

Welfare in Democracy

 Empowerment in Democracy

7. Public Policy and Good Governance :

 Nature and importance of Public policy in democracy.

Progress needs Good governance.

8. Centralized VS Decentralized development

This is important to say that above course is relative to time and place. The dynamism of subject is subject to periodic revision from time to time.

Sanskrit

Module IV: Discipline Specific Research Methodologies

1. संस्कृत वांगमय के दार्शनिक पक्षों का विहंगावलोकन।

2. वैदिक एवं लौकिक साहित्य के सन्धिकाल पर विराजमान ग्रंथों का इतिहास दर्शन।

3. पौराणिक एवं महाकालव्यकालिक सामाजिक,राजनीतिक,सांस्कृतिक परिवेशों का अनुशीलन।

4. संस्कृत नाटकों में मानव तथाप्रकृति के संबंधों का मूल्यांकन।

5. रससिद्ध कवियों की परम्परा में दार्शनिकों का ऐतिहासिक अध्ययन।

6. वेदांत दर्शन का महाकाव्य काल सेतुलनात्मक अवलोकन।

7. संस्कृत काव्यशास्त्र की परंपरा में भरतमुनि से लेकर पंडित जगन्नाथ तक के मन्तव्यों का सिंहावलोकन।

8. आधुनिक संस्कृत साहित्य में संस्कृत के नवीन विधाओं का दर्शन।

9. आधुनिक संस्कृत काव्यएवं उपन्यासों का इतिहास ज्ञान कराते हुए कथा साहित्य संस्कृत पर विमर्श।

Module V: Emerging Trends and Major Thrust Areas in Discipline Specific Research Approaches

1. संस्कृत में शोध के उभरती प्रतिभाएं ।

2. संस्कृत में शोध के प्रमुख क्षेत्र।

Module IV: Discipline Specific Research Methodologies
(03 Credits: 90 Hrs.)
(Social Work)

☐ Nature of Social Work Research
☐ Scope /concerns/ priorities of Social Work Research

☐ Types of Studies in Social Work Research (Qualitative-Descriptive, Historical, Philosophical; Quantitative-Experimental (Experimental Designs, Ways of Controlling Extraneous Variables), Quasi Experimental, Causal comparative, Co relational Research)
☐ Research Paradigm: Quantitative Research and Qualitative Research
☐ Methods of the Social Work Research
☐ Philosophical Research, Historical Research, Descriptive Research, Experimental Research, Causal-comparative Research (Ex-post Facto Research), Correlation Research, and Action Research
☐ Limitations of Social Work Research

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches
(03 Credits: 90 Hrs.)
(Social Work)

☐ Emerging Trends in Social Work Research
☐ Major Thrust areas in Social Work Research
Note: The nature of this paper is dynamic, hence the paper has not fixed syllabus. It will be decided by the school for every batch.

Commerce

The Ph. D course work of Commerce is proposed as below:

Paper I: Introduction to Research in Commerce & Recent Trends in Commerce

Note: *The aspects related to review of literature and research methodology shall be covered in the general modules meant for the scholars of all the disciplines.*

Unit 1: Accounting and Finance

- Contemporary Issues in Accounting

- Management of Working Capital

- Corporate Risk Management

- Tax Planning and Managerial Decisions

- Security Markets, Public Issue and Portfolio Analysis

- Computer Application in Accounting, Finance and Income Tax and Tax Planning

Unit 2:   Marketing Management

- Marketing Research, Issues and Developments in Marketing
- Customer Relation Management
- Role and Relevance of Advertisement and sales Promotion
- Social, Ethical and Legal Aspects of Marketing in India
- New Issues in Marketing

Unit 3:   Personnel Management and Industrial Relations

- Motivation Group Dynamics and Team Development
- Corporate Governance and Business Ethics
- Human Resource Management in Changing Environment
- Performance Appraisal and Evaluation: New Trends in Appraisal
- Industrial Relations and Trade Unions in India

Unit 4:   Indian Financial System and International Business

- Banking Sector Reforms in India and E-banking
- Regulation and Promotion of Foreign Trade
- Working of Stock Exchanges in India
- Foreign Direct Investment and Multinational Corporations
- RBI Recent Monetary and Credit Policies
- WTO and its impact on the different sectors of the economy
- Economic Reforms and Industrial Growth
- International and Technological Environment
- Policy Environment: Liberalization, Privatization and Globalization

Physics

Course Name: Basic Solid state physics and Material Science

Course code: CW03 (PHDPH708)

Module IV: Overview of materials
Unit –1:   Crystalline and amorphous materials, crystal structure, structure of material, glasses, semiconductors materials, compound semiconductors, solar energy materials, luminescent and optoelectronic materials.

Unit –2: classification, of material Polymer, liquid crystals, ceramics, classification according to bonding, Pauling and Philips theories, Metals and its basic properties.

Unit –3: Synthesis and preparation of materials, Single crystal growth, zone refining, doping techniques of elemental and compound semiconductors,

Unit –4: Fabrication and control of thin films, PVD and CVD processes
Unit –5: Principles of polymer processing, preparation of ceramics powders, mechanical and chemical methods

Module V: Emerging trends and major Thrust area in Discipline
Unit –6: Imperfection in material, Defects and microstructures; Diffraction techniques: X-ray diffraction, structure determination from XRD data, Qualitative, quantitative analysis.

Unit –7:   Thermal methods: DTA, TGA, DSC;

Unit –8: Microscopy: TEM, SEM
Unit –9:   Optical spectroscopy: UV and IR

Unit –10: Nuclear techniques: NMR, ESR, Mossbauer and Positron annihilation, Heat treatments, quenching and annealing; Radiation damage
Unit –11:   Basic properties of Polymers, Polymerization mechanism, Polymer structures, Deformation of polymers, Behavior of polymers.
Unit –12:   Basic properties of Ceramics, Ceramic phases, Structure, classes, Effect of structure on the behaviour of ceramic phases, composites.

Unit –13:   Glasses, Definitions, properties of glass transition, tunneling states, Selection of nanomatrials.

Reference Books:

1. G.K. Narula, K.S. Narula, and V.K. Gupta, Material Science, TMH, New Delhi.
2. A.J. Dekker, Solid State Physics, McMillan Co.
3. V. Ragavan, Material Science and Engineering, Prentice Hall of India, New Delhi.
4. M. Arumugam, Materials Science, 3rd Edition, Anuradha Agencies.

Environmental Studies

Module IV: Discipline Specific Research Methodologies (Environmental Studies) (03 Credits: 90 Hrs.)

Unit 1 Literature review and its importance: Referencing, Keeping uptodate with current literature, Use of Scientific database like Web of Science, Scorpus, Science Direct, Pubmed etc., Footnotes and bibliography Unit 2 Scientific Research: What is scientific research?, Nature and types of research, formulation of objectives, experimental design, and research plan, Research methods (Descriptive/ observations, Experimental, case studies, historical and comparative methods) Unit 3 Concepts of Ecology, biodiversity and climate change Unit 4 Qualitative and Quantitative research in Environmental Studies (ecology); Ecological sampling techniques; Community classification, community ordination, community interpretation Unit 5 Instrumentation and good laboratory practices: Use of routinely used various laboratory equipment; setting up Experiments; Safety measures to be followed; disposal of Hazardous/ Poisonous chemical/biological agents Unit 6 Scientific writing: Writing Research papers, Review articles, Research Projects, writing dissertation/ thesis

Module V: Emerging Trends and Major Thrust areas in Discipline Specific Research Approaches (Environmental Studies) (03 Credits: 90 Hrs.) • Emerging Trends in Environmental Studies and related discipline • Major Thrust areas in Research on Environmental Issues • Review writing and seminar presentation Module VI: Formulating a Research Proposal (03 Credits: 90 Hrs.)