CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

Scheme of Examination & Syllabus for PrePhD Course Work

Recommended by Academic Council in its Meeting held on 02-12-2009

S. No.	Subject	Scheme of Teaching			Scheme of Examination		Total Marks	Credit
		L	T	P	TA	ESE		
1.	Research methodologies & Computer Application (Common to all disciplines)	3	3	2	50	100	**150**	**6**
2.	Term Paper I (Subject Specific)	4	6	-	100	-	**100**	**7**
	Term Paper II (Subject Specific)				100	-	**100**	
3.	Literature Survey	-	-	6	150		**150**	**3**
Grand Total		**7**	**9**	**8**	**400**	**100**	**500**	**16**

L – Lecture, T – Tutorial, P – Practical, ESE – End Semester Examination, TA – Teacher's Assessment

Note:

1. For successful completion o f the course work, the candidate has to secure minimum 50% of the total marks in aggregate with at least 40% marks in ESE of the subject at Sr. No. 1 which is common to all disciplines.

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI (C.G.)

Detail Syllabus for PrePhD Course Work

Subject: **Research Methodologies & Computer Application**
Total Theory Periods: **40**
Total Marks in End Semester Examination: **100**
Duration of End Semester examination: **Three Hours**

Branch: common to all disciplines
Total Tutorial Periods: **10**
Total marks in Teacher's Assessment: **50**

Section – A (Marks Allotted: 60)

Introduction: Concept, Meaning of Research, Objectives of Research , , research approaches, Types of Research , significance ; research methods/methodology; research& scientific methods-Inductive and deductive; Characteristics of Good Research;

Research Process: Research Plan ,Steps, Research problem Identification, definition, Formulation , Research Objectives;

Research Designs: Concepts, features, Types- Exploratory, Descriptive and Causal Research Designs, and its methods, Research Budget.

Data for research: Collection and Preparation: Primary and Secondary; Sources of data; methods for data collection, Data Tabulation, Editing and Coding. ; Survey and Observation methods; Motivation Research and Projective Techniques. Types of Data, Questionnaire Design: Techniques and Precautions; Summarizing the Data: Mean, Median, Mode and Standard Deviation –numerical for practice.

Sampling Fundamentals: Sampling Plan, Design: Sampling methods- Probability sampling methods – simple random sampling with replacement, simple random sampling without replacement, stratified sampling, cluster sampling. Non-probability sampling method – convenience sampling, judgment sampling, quota sampling.
Sample Size Determination, Reliability and Validity.

Measurement and Scaling Techniques: Rating Scale and Ranking Scales.

Concept of Hypotheses: Formulation of Hypotheses, Testing of hypotheses, Parametric and non-parametric tests. Testing of significance mean, proportion, variance and correlation- coefficients. (Numerical pertaining to applicability for practice: Chi Square, t –test, z-test ANOVA,)

Data Processing and Analysis Techniques: Univariate and Bivariate Analysis (Chi Square, t –test, z-test ANOVA, -numerical for practice)

Multivariate Analysis: Introduction to Discriminant Analysis, Cluster Analysis, Factor Analysis, Multiple Linear Regressions.
Importance of statistics in research, descriptive vs inferential

Interpretation and Report Writing: Data Interpretation, Techniques of Interpretation, Steps in Writing Report, Generic layout of a Research Report

Application of Research in engineering , sciences, social sciences , humanities , Management etc

Application of software tools in research (practice session)

PTO

Section – B (Marks Allotted: 40)

Computer Applications:

Word Processing Tool: Simple typesetting, fonts, type size, Document class, page style, page numbering, formatting lengths, word count, parts of a document, dividing a document, spell check, insertion of objects in a text. *Word processing tools like MS-Word, Latex, Open office or similar tool.*

Spreadsheet Tool: Introduction to spreadsheet application, features and functions, Using formulas and functions, Data storing, Features for Statistical data analysis, Generating charts/ graph and other features. *Tools used may be Microsoft Excel, Open office or similar tool.*

Presentation Tool: Introduction to presentation tool, features and functions, Creating presentation, Customizing presentation, Showing presentation. *Tools used may be Microsoft Power Point, Open Office or similar tool.*

Web Search: Introduction to Internet, Use of Internet and WWW, Using search engine like Google, Yahoo etc, Using advanced search techniques.

Application of Internet in research : INFLIBNET, Use of Internet, sights (DOAJ), Use of E Journals, Use of E-library.

Research Communication:

Basics of Communication skill: need and features, English Grammar: Word Choice, Sentence Structure, paragraph structure, Types of Scientific Communication, Importance of publishing research paper, Publishing research paper: Preliminaries, Format, Choosing Journal, Title, Running Title. Authors: Single and Multi authorship. Writing Abstract, Selecting Keywords, Introduction section. Materials and Methods Section, Result Section, Figures, Design Principles. Legends, Table components, Graphs: types, Style, Tables v/s Graph, Discussion Section: Format, Grammar Style, Content, Acknowledgements, References: Different Styles, Communication with the Editor. Handling Referee's comments. Writing Review Articles, Preparing Posters for Scientific Presentation, Preparing and Delivering of Oral Presentation, Writing Practical Reports. Avoiding Plagiarism.

Reference Books:

- Montgomery, Douglas C. (2007), 5/e, Design and Analysis of Experiments, (Wiley India)
- Montgomery, Douglas C. & Runger, George C. (2007), 3/e, Applied Statistics & Probability for Engineers (Wiley India)
- Kothari C.K. (2004), 2/e, Research Methodology - Methods and Techniques (New Age International, New Delhi)
- Krishnaswamy, K.N., Sivakumar, Appa Iyer and Mathiranjan M. (2006), Management Research Methodology; Integration of Principles, Methods and Techniques (Pearson Education, New Delhi)
- The complete reference Office Xp – Stephan L. Nelson, Gujulia Kelly (TMH)
- Basic Computer Science and Communication Engineering – R. Rajaram (SCITECH)
- Book for Open Office.
- Bajpai S. R. (1975) Methods of Social Survey and Research, Kitabghar, Kanpur.
- Hans Raj (1988) Theory and Practice in Social Research, Surjeet Publication, Kolhapur.
- Krishnaswami O. R. (1988) Methodology of Research in Social Science, Himalaya Pub. House.
- Sadhu, Singh, Research Methodology in Social Science
- Bhandarkar, Research Methodology
- Kothari, C. R. (2005) Quantitative Technique, New Delhi, Vikas Publication House.
- Gautam, N. C. (2004) Development of Research tools, New Delhi, Shree Publishers.
- Gupta, Santosh (2005) Research Methodology and Statistical Techniques, Deep and Deep Publications.
- Chandera A. and Sexena T. P. (2000) Style Manual, New Delhi, Metropolitan Book Comp. Ltd.
- Shukla, J. J. (1999) Theories of Knowledge, Ahmadabad, Karnavati Publication.
- Bhattacharya, D. K. (2004) Research Methodology, New Delhi, Excel Books.
- Brymann, Alan and Carmer, D. (1995) Qualitative data analysis for social scientist, New York, Routledge Publication.
- Best J. W. and Khan J. V. (2005) Research in Education New Delhi, Prentice Hall India.
- The complete reference Office Xp – Stephan L. Nelson, Gujulia Kelly (TMH)
- LATEX Tutorials, A primer by Donald knuth
- First steps in Latex – George Gratzer
- Write and Publish a Scientific Paper by Robert A. day, Oryx Press
- Scientific Easy when you know how by Jennifer peat, BMJ Books.