गुरु घासीदास विश्वविद्यालय

(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)

कोनी, बिलासपुर – 495009 (छ.ग.)

Guru Ghasidas Vishwavidyalaya

(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)

Koni, Bilaspur – 495009 (C.G.)

Department	**: *Mathematics***

Programme Name	**:** Pre-Ph.D. COURSE WORK

Academic Year : 2021-22

Courses which focuses on Professional Ethics, Gender, Human Values, Environment & Sustainability and other value framework:

Sr. No.	Course Code	Name of the Course
01.	MaPHD01	Reserch Methodology

Scheme and Syllabus

Department of Mathematics

Guru Ghsidas Vishwavidyalaya, Bilaspur (CG)

Minutes of BOS Meeting held on March 12, 2021

The Following Members were Present:

1.	**Dr. P. P. Murthy,** Head	Chairman
2.	**Professor Ravi Prakash Dubey**	Subject Expert
3.	**Professor A. S. Ranadive**	Member
4.	**Dr. Sandeep Singh**	Member
5.	**Dr. J. P. Jaiswal**	Special invitee
6.	**Dr. Dhananjay Gopal**	Special invitee
7.	**Dr. M. K. Gupta**	Special invitee
8.	**Dr.K. N. V. V. Vara Prasad**	Special invitee
9.	**Dr. Uma Devi Patel**	Special invitee
10.	**Dr. Santosh Verma**	Special invitee
11.	**Dr. Brijendra Paswan**	Special invitee

Chairman of BOS welcome all the honourable members of **Board of Studies** and special invitees in this meeting. In the meeting, the following agenda approved unanimously. Most of the papers offered at Pre-Ph.D. Course level revised thoroughly and introduced new papers.

Pre-Ph.D. COURSE WORK in Mathematics

Examination Scheme

- There shall be a Course Work Examination for all provisionally admitted students after atleast six months from the commencement of classes of Pre-Ph.D. Course Work.
- For Pre-Ph.D. Course Work Examination, there shall be three papers of 100 marks each or such papers as mentioned in Ph.D. regulations/ Ordinances as amended from time to time.
- The duration of examination for each question paper shall be of three hours and there shall be two sections in each question paper in the following manner:

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a. There shall be 10 (3 marks each) objective type or short-answer questions in first section/ part of the question paper for 30 marks.

b. There shall be 05 (14 marks each) descriptive / essay / interpretable type answer questions in second section/ part of the question paper for 70 marks.

♦ Examinee of Pre-Ph.D. Course Work has to score minimum 40 marks in each paper and overall, 55% marks in aggregate in examination in order to be eligible to continue in the program leading to the completion of Ph.D. thesis.

♦ Examinee of Pre-Ph.D. Course Work has to present a Seminar in the department. No marks shall be awarded for this Seminar presented by examinee; it can be assessed as Successful / Unsuccessful only. This qualifying seminar shall be evaluated by the concerned department only.

COURSE STRUCTURE

There should be **one compulsory paper, two optional papers** and **Seminar evaluations**. Students are required to choose any two (02) optional papers from the given list of Eleven (11) papers approved by BOS.

COMPULSORY PAPER

MaPhD01:   RESEARCH METHODOLOGY

OPTIONAL PAPERS (ANY TWO):

MaPhD02:   INTRODUCTORY FUZZY GROUP THEORY

MaPhD03:   APPLIED FUNCTIONAL ANALYSIS

MaPhD04:   CRYPTOGRAPHY

MaPhD05:   DYNAMICAL SYSTEM

MaPhD06:   GEOMETRY OF FINSLER SPACE

MaPhD07:   STRUCTURES ON MANIFOLDS

MaPhD08:   FIXED POINT THEORY AND APPLICATIONS

MaPhD09:   MECHANICS OF SOLIDS AND WAVE PROPAGATION

MaPhD10:   ADVANCED NUMERICAL ANALYSIS

MaPhD11:   ITERATIVE METHODS FOR SOLVING NONLINEAR EQUATIONS

MaPhD12:   FRACTIONAL CALCULUS

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MaPhD01: RESEARCH METHODOLOGY

Course Objectives:

This course is designed in such a manner which enables the students:

i.   to identify and discuss the role and importance of research in the Mathematical Sciences and its related areas.

ii. to identify and discuss the issues and concepts salient to the research process.

iii. to identify and discuss the complex issues inherent in selecting a research problem, selecting an appropriate research design, and implementing a research project.

iv. to identify and discuss the concepts and procedures of sampling, data collection, analysis and reporting.

v.   for Better presentation of the work in front of audience by using Latex.

vi. to understating MATLAB software for various implementation in the area of studies done by the candidate.

Philosophy and Ethics: Introduction to philosophy, definition, nature and scope, concept, branches, Ethics, definitions, moral philosophy, nature of moral judgments 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: definition, introduction and importance, Best Practices/standards setting initiative and guideline, COPE, WAME, etc. Conflicts of interest, Publication misconduct, definition, concept, problems that lead to unethical behavior and vice versa, types, Violation of publication ethics, authorship and contributor ship, Identification of publication misconduct, complaints and appeals, Predatory publishers and journals.

MATLAB: Basics of Mathematical calculations such as Integration, Solving Matrices, Drawing Graphs, Citation, etc.

Latex: Basics of Latex such as typing a research paper, Insertion of Table, Graphs, Pictures, etc.

Wring a review of at least 01 research paper suggested by supervisor (to his student who is allotted as a Pre-PhD Course Work student by the DRC as per university guidelines).

Learning Outcomes:

Students who successfully complete this course will be able:

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Dr. P. P. Murthy   Prof. Ravi Prakash Dubey   Prof. A. S. Ranadive

Dr. Sandeep Singh   Dr. J. P. Jaiswal   Dr. Dhananjay Gopal

Dr. M. K. Gupta   Dr. K. N. V. V. Vara Prasad

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