Gyanmanjari Innovative University

Course Syllabus
Gyanmanjari Science College
Semester-4 (M.Sc.)

Subject: Dissertation- MSCXX14519

Type of course: Major (Core)

Prerequisite: Basic knowledge of research, Analytic skills and review article writing and preparation of thesis.

Rationale: Develop research/ experimentation skills as well as enhancing project writing and oral presentation skills. The basic purpose of this subject is to provide students with a structured, hands-on learning experience that bridges theoretical knowledge with real-world application. It encourages independent learning, ethical research practices, and professional presentation abilities, preparing students for both academic success and future career challenges.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
CI	T	P	C	ESE(E)	CA	ESE(V)	CA(I)	
0	0	36	18	0	0	80	20	100

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; V – Viva; CA - Continuous Assessment;

Course Content:

- **Introduction to subject/ literature search**
  Understanding the scope, purpose, and goals of the Research project.
  - Overview of Research methodology.
  - Research work planning and scheduling.
  - Selection of Research topics.
  - Literature review and background research.

- **Research Proposal**
  Developing a research proposal that outlines the research question, objectives, methodology, and timeline.
  - Writing a research proposal.
  - Defining research scope and objectives.
  - Selecting methodology (qualitative/quantitative).
  - Setting timelines and milestones.
  - Identifying resources required for the research project.
- **Literature Review**
  Conducting a thorough review of existing research and sources related to the dissertation topic.
  - Methods of reviewing academic papers and sources.
  - Summarizing findings and identifying gaps.
  - Developing a theoretical framework for the project.

- **Research Methodology**
  Choosing and applying appropriate research methodologies.
  - Qualitative vs. Quantitative research methods.
  - Data collection techniques (On field, Site visit, Surveys, Experiments).
  - Data analysis methods (Statistical analysis, Data Interpretation).
  - Ethical considerations in research.
- **Data Collection and Analysis**
  Collecting and analyzing the data to address the research questions or project goals.
  - Planning and Design of the experiment.
  - Laboratory Work
  - Record Keeping
  - Data Integrity
  - Statistical software/tools for analysis (e.g., SPSS, Excel).
  - Interpreting and presenting results.

- **Discussion and Interpretation**
  - Compare with Previous Studies:
  - Explain Findings:
  - Limitations of the research
- **Thesis Writing**
  Reporting the project process, findings, and conclusions in a formal report.
  - Structure of a project report (Introduction, Methodology. Results. Discussion and Conclusion).
  - Writing an abstract and summary.
  - Referencing and citation styles (APA, MLA, etc.).
  - Proofreading and editing.

- **Presentation and Defense**
  Presenting the research findings to an academic or professional audience.
  - Creating an effective PowerPoint/visual presentation.
  - Delivering a clear and concise oral presentation.
  - Responding to questions and feedback.
  - Project defense (if applicable).
- **Review and research articles Preparation**
  Publishing article in peer-reviewed journals, conference papers, and more.
  - Writing the Article Review/ Research paper
  - Presentation and Peer Review in conference or journal

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	**Thesis assessment** Students need to prepare and submit project report and submit to the Faculty.	20
	Total	**20**

Suggested Specification table with Marks (Theory): NA

Distribution of Marks **(Revised Bloom's Taxonomy)**						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	-	30%	30%	20%	10%	10%

Course Outcome:

After learning the course, the students should be able to:	
CO1	Gain practical experience in research project design, implementation, and evaluation.
CO2	Develop problem-solving skills and the ability to work independently.
CO3	Enhance research, critical thinking, and communication skills.
CO4	Prepare a thesis and presenting the research findings.

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.