RESEARCH AND CONTENT DEVELOPMENT

V Semester: AE / CSE / IT / ECE / EEE / MECH

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AHS106	Skill	-	-	2	1	30	70	100

I. COURSE OVERVIEW:

Research-based learning (RBL) presents as an alternative learning model that can develop the criti-cal thinking skills. The research-based learning is conducted under constructivism which covers four aspects: learning which constructs students understanding, learning through developing prior knowl-edge, learning which involves social interaction process, and meaningful learning which is achieved through real-world experience. The major focus is to engage students in the inquiry process where they formulate questions, conduct investigations, apply information and media to learning, and gener-ate products that illustrate learning. The 5E learning cycle adopted for RBL leads students through five phases: Engage, Explore, Explain, Elaborate, and Evaluate which results in greater benefits concerning students ability for scientific inquiry.

II. OBJECTIVES:

The course should enable the students to:

I.   Gain a practical understanding of the various methodological tools used for social scientific research.
II. Learn the ethical, political, and pragmatic issues involved in the research process.
III. Improve their ability to develop technical writing.
IV. Identify the overall process of designing a research study from its inception to its report.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**Apply** the knowledge of research in finding the gaps from literature survey to formulate new ideas.	Apply
CO 2	**Apply** the techniques of data collection and sample design involved with different case studies for solving the research problem.	Apply
CO 3	**Analyze** the process of testing involved with the survey results for implementing novel models.	Analyze
CO 4	**Understand** the concepts of formatting styles for different documentation procedures.	Understand
CO 5	**Explore** the knowledge on multimedia tutorials and blogs for research paper development.	Apply
CO 6	**Develop** the presentation skills on the literature findings and research methodologies for advanced interacting tools.	Apply

IV. SYLLABUS:

Week - l, 2, 3	LATEX FOR DOCUMENTATION

Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check and Track Changes using LaTeX; Mathematical expressions, Subscripts and superscripts, brackets and parentheses, fractions and binomials, aligning equations, operators, spacing in math mode, integrals, sums and limits, display style in math mode, list of Greek letters and math symbols, mathematical fonts; Prepare class timetable and student marks list using LaTex;

Week - 4	RESEARCH FORMULATION AND DESIGN

1. Topic/Title Selection for Research and Problem Statement
2. Title Selection and / or Methodology Formulation
3. Finalization of tentative Methodology

Week - 5	DATA COLLECTION

Data Preparation: Data Generation (simulated data) or Collection of Real Data – Part: I

Week - 6	DATA COLLECTION AND SAMPLING DESIGN

Data Preparation: Data Generation (simulated data) or Collection of Real Data – Part: II

Week – 7	IMPLEMENTATION

Implementation of Methodology on the Data and discussion of results - Part: I

Week – 8	IMPLEMENTATION

Implementation of Methodology on the Data and discussion of results - Part: II

Week – 9	IMPLEMENTATION OF METHODOLOGY

1. Block diagram / flowchart of Methodology or Algorithm
2. Testing of Methodology / algorithm, discussion of Results

Week – 10	RESULTS

Evaluation of Methodology / Algorithm, Discussion or Results and conclusion

Week – 11	PLAGIARISM ANALYSIS

Documentation / Paper formatting of Review / Research Article – Part: I (Plagiarism analysis)

Week – 12	DOCUMENTATION

Documentation / Paper formatting of Review / Research Article – Part: II (Paper ready for submission)

Text Books:

1. Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, "An Introduction to Research Methodology", RBSA Publishers. U.K., 2002.

2. Kothari, C.R, "Research Methodology: Methods and Techniques". New Age International. 418p, 1990.

3. Stefan Kottwitz , " LATEX Beginner's Guide", Packt Publishing Limited, 2011.

Reference Book:

1. Meenakshi Raman, Sangeeta Sharma, "Technical Communication", Oxford Publishers, 1st Edition, 2004.

2. Sinha, S.C. and Dhiman, A.K., 2002. Research Methodology, Ess Publications. 2 volumes.

3. Trochim, W.M.K., 2005. Research Methods: the concise knowledge base, Atomic Dog Publishing. 270p.

Web References:

1. https://www.techwhirl.com/what-is-technical-writing/
2. https://www.mit.edu/me-ugoffice/communication/technical-writing
3. https://www.vocabulary.com/dictionary/technical

E-Text Books:

1. www.ebooksgo.org/
2. www.e-booksdirectory.com