Detailed Syllabus

Curriculum Designed for: UG		**Grant-In-Aid**
Semester:2	**Course No.:205**	**Course Code: AEC** **Course Title: Advanced Spreadsheet Tools**
Credits:	**02 (Theory 50% | Practical 50%)**	**Course Category:-Ability Enhancement Course**

Course Objectives:

Number	**Objective**
Objective 1:	Develop advanced spreadsheet and data handling skills.
Objective 2:	Enable analysis and interpretation of structured datasets.
Objective 3:	Train students in MIS reporting and presentation.
Objective 4:	Build practical skills for workplace applications.
Objective 5:	Promote analytical and decision-making abilities.

Course Outcomes: On successful completion of the course, the learner will be able to

CO#	**COGNITIVE ABILITIES**	**COURSE OUTCOMES**
CO1	REMEMBERING	Disciplinary Knowledge
CO2	UNDERSTANDING	Critical Thinking
CO3	APPLYING	Problem Solving
CO4	APPLYING	Communication Skills
CO5	ANALYSING	Digital Literacy
CO6	IMPLEMENTING	Ethics & Professional Responsibility

Course Contents:

Unit No.	Unit Contents	Sessions Allotted
1	Advanced Spreadsheet Functions & Data Management ➢ Logical Functions & Conditional Analysis ▪ Concept and syntax of IF function; Nested IF for multi-condition evaluation; IFS (where applicable); IFERROR for handling formula errors; practical applications such as grading systems, eligibility criteria, and classification of data ➢ Lookup & Reference Functions ▪ VLOOKUP (exact and approximate match), limitations of VLOOKUP; introduction to XLOOKUP (latest approach); INDEX and MATCH combination for flexible lookup; referencing across worksheets; real-life applications such as record retrieval and database linking ➢ Data Cleaning & Preparation Techniques ▪ Text functions (LEFT, RIGHT, MID, CONCAT/TEXTJOIN); TRIM and CLEAN for removing inconsistencies; removing duplicates; handling missing/incorrect data; data validation (list, range, custom rules); preparing clean datasets for analysis ➢ Conditional Formatting & Advanced Sorting ▪ Highlight cell rules (greater than, top/bottom values); duplicate value identification; use of color scales and icon sets; multi-level sorting; custom sorting for report preparation and data interpretation ➢ What-if Analysis & Decision Tools ▪ Goal Seek for target-based calculations; Data Tables (one-variable); basic introduction to Solver (conceptual understanding); applications in budgeting, forecasting, and scenario analysis	15
2	MIS Reporting, Data Visualization & Dashboard Basics ➢ Pivot Tables & Data Summarization ▪ Creation of Pivot Tables; organizing large datasets; grouping data (date/category-wise); value field settings (sum, count, average); sorting and filtering within pivot; introduction to Pivot Charts; use of slicers for interactive filtering ➢ MIS Report Preparation & Data Consolidation ▪ Concept and importance of MIS in organizations; structure of daily, weekly, and monthly reports; consolidation of data from multiple sheets; linking worksheets; formatting reports for clarity and presentation; standardization of reporting formats ➢ Data Visualization & Dashboard Design ▪ Principles of data visualization; selection of appropriate charts (column, bar, pie, line); combining charts and tables; use of conditional formatting for visual indicators; designing simple	15

	dashboards with clarity and readability ➢ Mini Project (Industry-Oriented Application) ▪ Preparation of a practical project using real-life dataset (e.g., survey data, student performance, NGO activity report, event budget, administrative records); includes data cleaning, analysis, visualization, and report preparation; submission with summary report	

REFERENCES:

1. Roman, Steven. *Microsoft Excel Data Analysis and Business Modeling*. PHI Learning.
2. Powell, Stephen G. & Baker, Kenneth R. *Management Science: The Art of Modeling with Spreadsheets*. Wiley.
3. Albright, S. Christian & Winston, Wayne L. *Business Analytics: Data Analysis and Decision Making*. Cengage Learning.

Online Learning Resources:

- Microsoft Learn / Google Workspace
- SWAYAM / NPTEL / DIKSHA
- Video tutorials
- LMS assignments
- Cloud collaboration tools