Paper Code: S3BG230611P

Paper Title: Advanced IT Tools and Techniques

PROGRAM OUTCOMES (POs)

PO1 – Knowledge & Technical Competence:
Apply fundamental and advanced concepts of IT tools to solve real-world tasks using spreadsheets, AI tools, and automation.

PO2 – Problem Solving & Innovation:
Identify problems and develop analytical, data-driven, and AI-supported solutions.

PO3 – Tool Proficiency:
Demonstrate proficiency in contemporary digital tools such as Excel, LLMs, AI image tools, and productivity platforms.

PO4 – Critical Thinking & Analysis:
Analyze data, evaluate results, and interpret outputs using advanced IT tools.

PO5 – Communication & Digital Literacy:
Create effective textual, visual communication using modern AI-enabled content-creation tools.

PO6 – Ethics & Responsible Technology Use:
Apply ethical principles in the use of AI tools and data handling.

PO7 – Lifelong Learning:
Use emerging technologies, AI tools, and digital platforms for continuous personal and professional development.

COURSE OUTCOMES (COs)

Module 1: Advanced Excel

CO1: Apply advanced Excel formulas and functions for data computation and manipulation.
CO2: Perform data management tasks such as validation, sorting, filtering, consolidation, and pivot reporting. **CO3:** Create effective data visualizations, dashboards, and dynamic reports.
CO4: Improve work efficiency using Excel shortcuts, navigation tools, and customization features.

Module 2: Text Generation and Language Tools (LLMs)

CO5: Explain the fundamentals of LLMs and their applications in content generation.
CO6: Apply prompt-engineering techniques to generate, refine, and modify text content.
CO7: Use grammar, editing, and AI content-polishing tools for professional communication.

Syllabus Contents:

Module 1: Advanced Excel

- **Formulas and functions**
    - Maths functions
    - Lookup and reference
    - Logical and conditional
    - Text Functions
    - Date and time functions

- **Data management and analysis**
    - Data validation
    - Sorting and filtering
    - Data consolidation
    - Tables
    - PivotTables and PivotCharts
    - What-If Analysis
- **Data visualization**
    - Charts
    - Dashboards
    - Slicers and timelines
- **Efficiency and shortcuts**
    - Navigation and shortcuts
    - Paste Special
    - Customization

Module 2: Text Generation and Language Tools (LLMs)

- **Introduction to LLMs**
- **Prompt Engineering Basics**
- **Content Creation**
- **Editing and Grammar Tools**

Teaching–Learning Methods

- Demonstrations
- Guided lab practice
- Case-based exercises

Practical Assesment

- Full Marks**: 50**
- Continuous Assessment: **48**
- Attendance: **2**

Suggested Software/Resources

- Microsoft Excel (2019 or later)
- AI tools (ChatGPT or equivalent)
- Online datasets for practice