



Krishna Kanta Handiqui State Open University

Hiranya Chandra Bhuyan School of Science and Technology

Discipline of Computer Science

Programme name:

CERTIFICATE IN FOUNDATIONAL AI AND DIGITAL TOOLS

Total Credits: 20

Minimum Qualification: Class 10+2 passed

Course Structure:

COURSE 1: OFFICE PRODUCTIVITY TOOLS
COURSE 2: DIGITAL FLUENCY AND EMERGING TECHNOLOGIES
COURSE 3: APPLIED AI AND GENERATIVE AI
COURSE 4: SOFT AND LIFE SKILLS
COURSE 5: PRACTICAL

DETAILED COURSE-WISE SYLLABUS

COURSE 1: OFFICE PRODUCTIVITY TOOLS

Course Type:	Core
Number of Credits:	4
Total Marks:	100

Course Objective:

- Understand the basic concepts of computer systems, operating systems, and hardware components essential for digital literacy.
- Develop practical skills in using office productivity tools such as word processors, spreadsheets, presentation software, and database management systems in both proprietary and open-source environments.
- Acquire the ability to create, format, manage, and analyse digital documents, data, and presentations for academic and professional purposes.
- Gain proficiency in regional language computing using Unicode standards and appropriate input tools for Assamese/Bengali/Bodo typing and formatting.

Course Outcome:

On completion of this course, the learners will be able to:

- Explain the components and functions of computer systems and operating systems.
- Create and format professional documents, spreadsheets, presentations, and databases using MS Office and LibreOffice tools.
- Apply spreadsheet formulas, data management techniques, charting tools, and database queries to organize and analyse data effectively.
- Demonstrate the ability to type, format, and manage documents in regional languages using Unicode fonts and appropriate keyboard/input tools.

Unit 1: Introduction to Computer System

Definition: Computer, Booting a computer, Hardware Components: Input, Output, Processing Unit and Computer Memory: Primary and Secondary (Hard Disk, Pen drive etc.)

Unit 2: Introduction to operating System

Definition: OS; Types of OS; Functions of OS; Open-source vs Proprietary OS: Major OS: Windows (11); Linux; Mac OS;

Unit 3: Introduction to LibreOffice

Overview of LibreOffice software suite and its features, Advantages of using LibreOffice as an alternative to proprietary software, Installation and configuration of LibreOffice on different platforms

Unit 4: Introduction to Word Processing Software

Starting MS-Word in Windows 11; MS-Word User Interface; Creating and Editing a Document; Formatting Text; Paragraph Formatting; Working with Pages; Inserting Elements; Page Layout & Design; Saving, Sharing, and Exporting

Unit 5: Introduction to Spreadsheet Software

Starting Excel in Windows 11; Excel User Interface; Basic Excel Operations; Formatting Worksheets; Basic Formulas and Functions; Charts and Data Visualization; Basic Data Management: Sorting, Filtering;

Unit 6: Introduction to Presentation Software

Starting MS-PowerPoint in Windows 11; PowerPoint User Interface; Creating a New Presentation; Working with Slides; Adding and Formatting Text; Working with Objects; Transitions and Animations; Multimedia in Presentations; Working with Views; Preparing & Delivering a Presentation; Saving, Exporting & Printing

Unit 7: Introduction to Database Software

Overview of MS-Access; Starting MS-Access in Windows 11; MS-Access Interface; Database Objects in MS-Access; Creating and Managing Tables; Working with Data; Queries; Forms; Reports; Saving, Opening, and Closing Databases

Unit 8: Introduction to Word Processing in Regional Language Assamese/Bengali/Bodo

Word Processing Basics: Unicode, Importance of Unicode for Assamese/Bodo/Bengali, Unicode fonts for regional languages (examples), Difference between Unicode and non-Unicode fonts; Introduction to regional language keyboard layouts; InScript keyboard; Phonetic keyboards, Use of virtual keyboards, Typing tools and software, Google Input Tools, Indic IME / Keyman, Switching between English and regional language typing; Naming files in regional languages etc. **Text Formatting in Regional Languages:** Font selection (regional language fonts), Font size, style (bold, italic, underline), Text alignment (left, center, right, justify), Line spacing and paragraph spacing, Use of bullets and numbering in regional languages

Unit 9: Getting started with Writer

Launching Writer and creating a new document, Navigating the Writer interface and understanding the different components of the document window, Entering and formatting text, applying font styles, and working with paragraphs, Saving, closing,

and opening existing documents in different formats.

Unit 10: Working with templates and styles in Writer

Creating and using document templates for consistent formatting and layout, Creating and modifying paragraph and character styles for consistent text formatting, Managing styles in the Styles and Formatting dialog box.

Unit 11: Formatting documents in Writer

Adding and formatting images, tables, and other objects in a document, Applying advanced formatting options, such as page borders, columns, and page backgrounds, Using Writer's built-in tools for spell-checking, grammar-checking, and language translation.

Unit 12: Introduction to Calc

Overview of Calc and its features as a spreadsheet program, Launching Calc and creating a new spreadsheet, Navigating the Calc interface and understanding the different components of the worksheet window, Entering and formatting data, applying cell formatting, and working with formulas.

Unit 13: Working with functions and formulas in Calc

Using built-in functions and formulas for common calculations in Calc, Creating custom functions and formulas for complex calculations, Using conditional formatting to highlight data based on certain criteria.

Unit 14: Advanced formatting and charting in Calc

Applying advanced formatting options, such as conditional formatting, data validation, and custom number formats, Creating and modifying charts to visualize data in different ways, Using Calc's built-in tools for filtering, sorting, and analyzing data

Unit 15: Introduction to Impress

Overview of Impress and its features as a presentation program, Launching Impress and creating a new presentation, Navigating the Impress interface and understanding the different components of the slide window, Adding and formatting slides, applying transitions, and customizing presentation settings, Adding images, audio, and video to a presentation, Creating and modifying animations to enhance visual effects, Using Impress's built-in tools for recording and rehearsing presentations

Unit 16: Introduction to Base

Overview of Base and its features as a database management tool, Launching Base and creating a new database, Navigating the Base interface and understanding the different components of the database window, creating tables, forms, queries, and reports using Base's built-in tools

COURSE 2: DIGITAL FLUENCY AND EMERGING TECHNOLOGIES

Course Type:	Core
Number of Credits:	4
Total Marks:	100

Course Objectives:

- Understand the fundamental concepts of e-learning, digital platforms, and online collaboration tools used in modern education and business environments.
- Develop practical skills in using digital tools and services such as Google applications, video conferencing platforms, social media, and e-commerce systems.
- Gain foundational knowledge of emerging technologies including Artificial

Intelligence, Data Science, IoT, Cloud Computing, Big Data, and Blockchain.

- Understand digital governance systems and the role of technology in transforming public services, industry, and society (Industry 4.0 and Education 4.0).

Course Outcome:

On completion of this course, the learners will be able to:

- Effectively use e-learning platforms, search engines, Google services, and video conferencing tools for academic and professional purposes.
- Apply digital communication and collaboration tools, including social networking platforms and e-commerce applications, in real-world scenarios.
- Explain the basic concepts, applications, and societal impact of emerging technologies such as AI, Machine Learning, IoT, Cloud Computing, Big Data, and Blockchain.
- Demonstrate awareness of digital governance models and online public service systems, and evaluate their role in promoting digital transformation and inclusive development.

Unit 1: Introduction to eLearning

Definition, Asynchronous/Synchronous Learning, e-learning Platforms: Proprietary and open source, Learning Management System (LMS), MOOCs: definition, various MOOC platforms like SWAYAM, Coursera, Edx, Audacity, FutureLearn etc.

Unit 2: Searching Techniques

Search Engines, Searching Techniques; Google, Bing, Advanced Search Options in Google, Translator: Google, Bing

Unit 3: Working with Google Services I

Working with Gmail, Google Docs: creating and posting; Google Sheets: creating and editing; Google Drive: uploading and sharing of files and folders

Unit 4: Working with Google Services II

Google Forms: Creating and analysis of response; Google Voice Assistant; Google Classroom: Creating classroom, Taking class etc.

Unit 5: E-commerce

Introduction, Types of E-commerce, Applications of E-commerce with examples

Unit 6: Video Conferencing Tools

Introduction, Working with various video conferencing tools like Google Meet, Zoom, WebX, Microsoft Teams, etc

Unit 7: Working with Social Networks

Introduction, Working with various Social Networking Sites like WhatsApp, Youtube, Telegram, Facebook, X, Instagram etc.

Unit 8: Introduction to Artificial Intelligence and Machine Learning

Definition of Artificial Intelligence (AI); Brief history of AI; Types/Categories of AI; Applications of AI: Healthcare, Agriculture, Education etc.; Machine Learning: definition, Supervised learning, Unsupervised learning; Introduction to Industry 4.0 and applications, Introduction to Education 4.0. and applications;

Unit 9: Introduction to Data Science

Definition, of Data Science; Components of Data Science; Data Scientist: Role and Responsibilities; Tools and Technologies used; Applications of Data Science: Healthcare, Education etc.

Unit 10: Introduction to IoT

Definition, basic concepts of IoT and its applications like Smart Home, Smart vehicles, IoT in Agriculture

Unit 11: Introduction to Cloud Computing

Cloud Computing: Definition; Types of Cloud: Public cloud; Private cloud; Hybrid cloud; Community cloud; Types of Cloud services: Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS), Applications of Cloud Computing

Unit 12: Introduction to Big Data

Big Data: Definition, Characteristics, Types of Big Data: Structured, Un-structured, Semi-structured; Apache Hadoop; Big Data Platforms, Applications of Big Data

Unit 13: Introduction to Blockchain Technology

Introduction to Blockchain Technology and its Importance, Evolution of the Blockchain Technology, Elements of a Blockchain, Blockchain Applications

Unit 14: E-Governance and Application

E-Governance Models: (G2B,G2C,C2G,G2G), Challenges to E-Governance, Strategies and tactics for implementation of E-Governance, Applications of E-Governance; Digilicker; ADDAR; PAN card; UPPAR ID; mParivathan; DigiYatra;

COURSE 3: APPLIED AI AND GENERATIVE AI

Course Type:	Core
Number of Credits:	4
Total Marks:	100

Course Objective:

- Understand the basic concepts and applications of Artificial Intelligence (AI).
- Explore the various subfields of AI including computer vision, NLP, and robotics.
- Introduce the learners to Machine Learning and Deep Learning concepts.
- Apply AI concepts in real-life applications such as education, office, and social media.

Course Outcome:

On completion of this course, the learners will be able to:

- Define AI and its subfields including its impact and evolution.
- Identify the application of AI in areas like computer vision and NLP.
- Explain machine learning and deep learning concepts.
- Apply Generative AI techniques in education, office, and social environments.

Unit 1: Introduction to Artificial Intelligence

Definition of Artificial Intelligence; Introduce the fundamental concepts of Artificial Intelligence (AI) and its real-world applications; History and evolution of AI; Importance and impact of AI in modern society

Unit 2: AI Applications

AI applications in education, healthcare, agriculture etc.; AI in smart devices and services; Ethical concerns and future possibilities

Unit 3: Computer Vision, NLP and Speech Processing

Introduction to Computer Vision and applications; Introduction to Natural Language Processing (NLP) and applications; Introduction to Speech Processing and Applications

Unit 4: Robotics & Expert Systems

Fundamentals of Robotics and applications; AI-Powered Autonomous Systems;

Expert Systems: Definition, Components, and applications

Unit 5: Machine Learning & Deep Learning

Introduction to Machine Learning; Types of Machine Learning: Supervised, Unsupervised, Reinforcement Learning and applications; Introduction to Neural Networks, Deep Learning and applications

Unit 6: Introduction to Generative AI

Definition and Basics of Generative AI; Basics of LLM, how LLM works;

Unit 7: Commonly Used Generative AI Platforms

Introduction to Commonly Used Generative AI Platforms: ChatGPT, Gemini, Copilot, Perplexity, DeepSeek, Grok etc.

Unit 8: Prompt Engineering

Basics of Prompt Engineering; Effective Prompting Techniques for AI Models; Use Cases of Prompt Engineering in AI Applications

Unit 9: Generative AI in Education

AI-Powered Learning Assistants; AI for Content Generation; AI for Personalized Learning Experiences; Ethical Considerations

Unit 10: Generative AI in the Office Environment

Generative AI in the Office Environment; AI-Enhanced Correspondence; AI in Documentation and Reporting; AI for Meeting Management; AI in Proposal Development; AI for Document Summarization and Report Generation; AI-Powered Virtual Assistants in Workplaces;

Unit 11: Generative AI in Social Media

AI for Facebook, YouTube, Instagram, X etc.

Unit 12: Generative AI in Healthcare and Agriculture

AI Application in Healthcare and Agriculture

Unit 13: Exploring Various AI Tools I

Hands-on Experience with various AI Tools in various domains; Practical Use Cases and Demonstrations

Unit 14: Exploring Various AI Tools II

Exploring Various AI Tools developed in India

COURSE 4: SOFT AND LIFE SKILLS

Course Type:	Core
Number of Credits:	4
Total Marks:	100

Course Objective:

- Develop effective communication skills including listening, speaking, reading, writing, and non-verbal communication for academic, professional, and social contexts.
- Enhance interpersonal, leadership, and collaborative skills necessary for group discussions, interviews, teamwork, and workplace interactions.
- Build cognitive, managerial, entrepreneurial, and financial management skills for career readiness and responsible decision-making.
- Acquire essential life skills including digital literacy, ethical conduct, self-management, adaptability, and basic life-saving competencies for personal and professional well-being.

Course Outcome:

On completion of this course, the learners will be able to:

- Communicate effectively using verbal and non-verbal techniques, demonstrate active listening, and produce structured written content in different modes.
- Participate confidently in group discussions, interviews, presentations, and collaborative activities while exhibiting leadership and teamwork qualities.
- Apply managerial, entrepreneurial, financial, and digital literacy skills responsibly in personal and professional environments.
- Demonstrate life skills such as self-management, ethical decision-making, adaptability, emergency response awareness, and culturally appropriate behavior in diverse situations.

Unit 1: Listening and Speaking

Effective Listening and Speaking, Listening and Comprehension, Probing Questions and Their Importance in Listening and Speaking, Barriers to Effective Listening, Pronunciation and Its Importance, Enunciation and Its Importance, Vocabulary and Its Role in Effective Listening and Speaking, Fluency and Its Importance in Speaking and Common Errors in Listening and Speaking

Unit 2: Reading, Writing and Different Modes of Writing

Steps in the Process of Reading, Meaning of Writing, Techniques of Effective Writing, Different Modes of Writing and Common Uses of Writing

Unit 3: Digital Literacy and Social Media, Digital Ethics and Cyber Security

Microsoft Office Suite Proficiency, Virtual Communication Platforms, Cybersecurity Awareness, Digital Ethics and Etiquette

Unit 4: Nonverbal Communication

Meaning of Verbal and Nonverbal Communication, Functions of Nonverbal Communication, Purposes of Using Nonverbal Communication, Types of Nonverbal Communication, Examples of Different Nonverbal Communications, Advantages and Disadvantages of Nonverbal Communication, Importance of Nonverbal Communication

Unit 5: Group Discussion Skills And Interview Skills

Meaning of Group Discussion and Interview, Objectives of Group Discussion, Types of Group Discussion, Importance of Group Discussion, Way to Conduct a Group Discussion, Process of Group Discussion, Essential Skills for Group Discussion, Interview, Interview Skill

Unit 6: Exploring Career Opportunities And Résumé Skills

Knowing Yourself while Looking for a Job, Need for the Right Job or Employment, Career Information: Sources and Availability of Career Opportunities, What is a Résumé? Components of a Good Résumé, Difference between a Résumé, CV and Biodata

Unit 7: Cognitive And Non-cognitive Skills, Presentation Skills And Listening Skills

Meaning of Skills, Meaning of Cognitive and Non-Cognitive Skills, Meaning of Presentation Skills, Meaning of Listening Skills

Unit 8: Trust And Collaboration, Brainstorming, Social And Cultural Etiquettes And Internal Communication

Meaning of Teamwork and Collaboration, Trust and Collaboration, Brainstorming, Social and Cultural Etiquettes

Unit 9: Leadership skills, Innovative Leadership And Design Thinking

Leadership: Meaning and Importance, Characteristics and Theories of Leadership,

Leadership styles, Basic Leadership Skills, Innovative Leadership, Concept of Emotional and Social intelligence, Leaders in the Era of Globalisation, Design Thinking

Unit 10: Managerial Skills

Basic Managerial Skills, Managing Conflict, Types of Conflict and their Management, Resolving Conflict Through Negotiation, Self-Management Skills, Understanding Self-Concept, Self-management, Managing Personal Finance

Unit 11: Entrepreneurship Skills, Ethics And Integrity

Basics of Entrepreneurship, Classification and Types of Entrepreneurships, Traits and Competencies of Entrepreneur, creating Business Plan, Ethics and Conduct, Importance of Ethics, Personal and Professional Moral Codes of Conduct

Unit 12: Financial Management Skills

Basic financial management skills: Budgeting, income and expense tracking, saving habits, banking fundamentals, digital payment systems, and basic investment awareness.

Unit 13: Basic Acclimatizing Skills

Essential life skills: adapting to independent living, basic cooking skills: kitchen safety, hygiene practices, basic food preparation techniques, simple meal planning, nutrition awareness, and safe handling of cooking equipment.

Unit 14: Basic Life Saving Skills

Fundamental life-saving skills especially emergency response techniques: basic first aid principles, CPR (Cardiopulmonary Resuscitation), handling minor injuries, emergency preparedness, safety awareness, and responsible response during accidents or health emergencies.

COURSE 5: PRACTICAL

Course Type:	Core
Number of Credits:	4
Total Marks:	100

Additional content or changes may be incorporated into the practical component as deemed necessary.

Practical Components of: OFFICE PRODUCTIVITY TOOLS

1. For MS-Word: Create formatted letters, resume, notice/circular and insert: Table, Images, page numbers and also use page layout options, margins and orientation and save document in: .docx and PDF formats
2. For MS-Excel: Create student mark sheet/salary sheet/budget sheet and use formula's like SUM, AVERAGE, IF; Also apply: Sorting, Filtering and Create charts: Bar chart, Pie chart and use conditional formatting.
3. For MS-PowerPoint: Create slide presentation on any topic and apply Themes, Transitions, Animations and insert images, audio, video and use rehearse timing.
4. For MS-Access: Create a database for Student record system OR Library management. Create: Tables with primary key, Data entry, Queries (simple select query), Forms, Reports
5. Word Processing in Regional Languages: Install Indic typing tools and type paragraph in Assamese/Bengali/Bodo and save file with Unicode naming.

6. Download and install LibreOffice.
7. LibreOffice Writer: Create formatted document like official letter. Use options like Styles, Templates and Insert: Table, Images, Page borders and Apply: Columns, Spell-check.
8. LibreOffice Calc: Create data sheet and apply: Formulas, Functions and use: conditional formatting, data validation, create charts and analyze data using filters.
9. LibreOffice Impress: Create professional presentation; Apply slide master, Add animations, transitions, Insert multimedia.
10. LibreOffice Base: Create database, Create tables, Define primary key, Create form, Run query, Generate report.

Practical Components of: DIGITAL FLUENCY AND EMERGING TECHNOLOGIES

11. Perform advanced Google searches
12. Create: Google Doc, Google Sheet, Google Form
13. Create and manage a Google Classroom
14. Host a meeting on Google Meet/Zoom.
15. Create professional social media profile.
16. Explore DigiLocker, mParivahan, DigiYatra portal.

Practical Components of: APPLIED AI AND GENERATIVE AI

17. Use: ChatGPT, Gemini, Copilot, Perplexity
18. Write basic prompts and then improve using: Role prompting, Few-shot prompting, Chain-of-thought prompting
19. Using Gen. AI: Lesson plan, Quiz questions, Learning objectives
20. Draft official mails using Gen. AI and generate meeting minutes
21. Generate: Instagram captions, YouTube script
22. Hands-on exploration of AI tools like: Canva AI, Notion AI, Grammarly, DeepSeek, Indian AI platforms (Bhashini, Krutrim, etc.)

Practical Components of: SOFT AND LIFE SKILLS

23. Preparation of monthly budget and income-expense tracking sheet.
24. Demonstration of kitchen safety.
25. Nutrition awareness poster creation.
26. First aid demonstration.
27. CPR demonstration (using dummy/mannequin if available).
28. Emergency response drill.
29. Disaster preparedness role-play.