Tribhuvan University

Faculty of Management

Office of the Dean

Course detail of
BITM (Bachelor of Information Technology Management) 1st Semester

Effective from the Admission Batch 2025 AD Onwards

ITM 101 Introduction to Computing and Information Technology	3 Cr. Hrs.
ITM 102 Structured Programming in C	3 Cr. Hrs.
ENG 103 English I	3 Cr. Hrs.
MGT 103 Foundation of Business Management	3 Cr. Hrs.
MTH 103 Basic Mathematics	3 Cr. Hrs.

November 2025

Tribhuvan University
Faculty of Management

Level: Bachelor

Program: Bachelor of Information Technology Management (BITM)

Course Title: English I
Credit Value: 3 Credits
Course Code: ENG 103
Semester: I

Course Description

English I is a foundational course designed to enhance students' proficiency in academic reading, critical thinking, and effective writing within cross-cultural, ethical, and professional contexts. The course integrates literary and expository texts to cultivate analytical and reflective abilities while promoting clarity, coherence, and purpose in writing. It further emphasizes paragraph and essay development, unity and coherence, descriptive and reflective writing, and editing skills essential for academic and professional success. Students will learn to interpret texts critically, relate readings to personal and social experiences, and express their ideas effectively in organized short essays. By engaging with global and local issues through language and literature, the course aims to develop not only linguistic competence but also ethical awareness and cross-cultural sensitivity.

Course Objectives

By the end of this course, students will be able to:

- Develop coherent and well-structured academic essays using appropriate rhetorical patterns.
- Demonstrate effective reading comprehension and critical response to academic and professional texts.
- Apply the stages of the writing process—prewriting, drafting, revising, and editing—in producing essays.
- Enhance vocabulary, cohesion, and grammatical precision for academic and workplace communication.
- Foster reflective, analytical, and creative thinking across literary readings.
- Critically examine moral and ethical issues reflected in contemporary readings and express informed personal viewpoints in written form.

Course Details

Unit 1: Cross-cultural Communication **8 LHs**

American Values and Assumptions (Gary Althen); Where Do We Stand? (Lisa David); Time Talks with an Accent (Robert Levine); The Teacher Who Changed My Life (Nicholas Gage)

Learning Outcomes: Understand the concept of culture, communication styles, and the influence of cultural values on human interaction, identify key differences in time perception, hierarchy, and individual versus collective orientations (knowledge); analyze essays to extract implicit cultural assumptions and interpret contextual meaning, compare cross-cultural experiences and articulate them clearly in oral and written form (skills); and demonstrate cultural sensitivity,

empathy, and adaptability when communicating across cultures and apply intercultural communication principles in academic, social, and professional contexts (competency).

Unit 2: Mass Media, Information, and Technology **8 LHs**

Computers and the Pursuit of Happiness (David Gelernter); Propaganda Techniques in Today's Advertisement (Ann McClintock); Students Shall Not Download. Yeah, Sure (Kate Zernike); How the Web Destroys the Quality of Students' Research Papers (David Rothenberg).

Learning Outcomes: Identify the role of mass media and digital technology in shaping thought, behavior, and knowledge and recognize the ethical issues related to propaganda, digital piracy, and information credibility (knowledge); analyze persuasive techniques used in advertisements and online communication and evaluate the impact of digital media on academic research and personal development (skills); and integrate technology responsibly in learning and writing, exercise media literacy, ethical judgment, and critical thinking when dealing with information (competency).

Unit 3: Issues of Ethics **8 LHs**

A Gas Station Burns in the Forest (David A. Shapiro); The Trumpet of Conscience (Dr. Martin Luther King, Jr.); Heart Speaks to Heart Across a Cultural Divide (Gail Saunders); Born for Each Other (Pamela Withers).

Learning Outcomes: Understand ethical principles and moral reasoning expressed in literature and social contexts and understand the human values of justice, compassion, and conscience (knowledge); interpret ethical dilemmas through textual evidence and discussion and write analytical and reflective essays on moral and social issues (skills); and demonstrate moral reasoning and empathy in decision-making and engage in respectful, ethical discourse on issues affecting humanity and society (competency)

Unit 4: Tradition, Progress, and Development **8 LHs**

Modern Society and the Quest for Human Happiness (Dalai Lama); Development, democracy, and the Village Telephone (Sam Pitroda); The Friendship Bond (Mary Brown Parlee); Courtesy: Key to a Happier World (Dr. Norman Vincent Peale).

Learning Outcomes: Explain the interrelation between tradition, progress, happiness, and social responsibility and understand global perspectives on development and ethical modernization (knowledge); analyze texts for contrasting views on technological and moral advancement and compose reflective essays connecting traditional values with modern human concerns (skills); and integrate ethical and humanistic perspectives into views of progress and social change and exhibit balanced judgment and civic awareness in addressing contemporary challenges (competency).

Unit 5: Self, Reflection, and Experience **8 LHs**

From Paragraph to Short Essay; A Memorable Day: Writing from Personal Experience; Lessons from Life: Turning Experience into Reflection; Editing for Personal Voice and Clarity

Learning Outcomes: Understand the structure and function of paragraphs and short essays and recognize the role of reflection in personal growth and effective writing (knowledge); develop coherent essays using personal experiences, logical flow, and stylistic clarity and edit and revise for unity, coherence, and tone (skills); and express personal insights and experiences confidently in academic writing and demonstrate self-awareness, creativity, and voice in reflective and narrative essays (competency).

Unit 6: Observation, Change, and Description **8 LHs**

Describing People and Places: Sensory Language and Detail; Change over Time: Writing about Growth and Transformation; From Observation to Interpretation: The Art of Detail; Editing and Revising Descriptive Essays for Clarity and Precision

Learning Outcomes: Explain the principles of descriptive and observational writing and recognize the importance of sensory details and change in narrative description (knowledge); use figurative language, imagery, and sensory perception to create vivid descriptions and observe, interpret, and represent experiences effectively through writing (skills); and produce descriptive and interpretive essays that reveal depth, clarity, and transformation and demonstrate mastery of observation and revision as tools for clear communication and insight (competency).

Pedagogical Strategies

- Interactive lectures, pair/group discussions, and guided reading
- Group discussions, peer review, and editing sessions
- Process writing workshops (brainstorming, outlining, revising)
- Reading logs, reflection journals, and response papers
- Problem-based learning for decision-making and planning exercises
- Guest lectures from national and international professors and experts
- Multimedia presentations to visualize concepts

Mode of Delivery

- In-person classroom lectures and discussions
- Blended learning with online resources and assignments
- Simulations

Internal Assessment Methods and Types

Assessment Type	Weightage	Details
Class participation & attendance	10%	Contribution to discussions, engagement in class activities
Quizzes / short tests	15%	Periodic quizzes to assess comprehension
Assignments / case study reports / project & live projects	20%	Individual or group written analysis of management cases
Mid-term examination	25%	Written test
Pre-board examination	30%	Comprehensive written test covering all units

External Assessment Methods and Types

Final/board examination in written to test remembering, understanding, application, analyzing, evaluating, and creating.

Mapping Course: Learning Outcomes and Program Learning

Course Learning Objective (CLO) Dimensions	Knowledge (K)	Skills (S)	Competence (C)
Total Learning	40%	30%	30%

Suggested Readings

Gardner, P. (2005). *New directions: Reading, writing, and critical thinking (2nd ed.)*. Cambridge University Press.

Oshima, A., & Hogue, A. (2017). *Academic writing (4th ed.*). Pearson Education.

Savage, A., & Shafifi, M. (2007). *Effective academic writing 1: The Paragraph*. Oxford University Press.

Savage, A., & Mayer, P. (2005). *Effective academic writing 2: The short essay*. Oxford University Press.

Smalzer, W. R. (2022). *Write to be read: Reading, reflection, and writing (2nd ed.)*. Cambridge University Press.

*****

Tribhuvan University
Faculty of Management

Level: Bachelor

Program: Bachelor of Information Technology Management (BITM)

Course Title: Introduction to Computing and Information Technology

Course Code: ITM 101

Nature of the Course: Theory + Practical **Credit Value:** 3

Semester: I **Total Hours:** 48 (Th.) + 16(Pr.)

Course Description

This course provides a general overview of Information Technology (IT), which includes computer fundamentals, hardware, software, data management, networking, multimedia, and information systems. It also covers cybersecurity, IT ethics, and emerging technologies such as AI, blockchain, cloud computing, and IoT. Students will acquire practical skills and knowledge to apply IT in business, communication, education, and modern society with a on secure and ethical use of technology.

Course Objectives

By the end of this course, students will be able to

- Understand the fundamentals of computers, including types, structure, number systems, and data representation.
- Gain an acquaintance with hardware devices, mass storage media, I/O devices, and their management.
- Explore software types, operating systems, programming languages, and translators.
- Understand data administration concepts, databases, and the data processing life cycle.
- Gain knowledge of networking fundamentals, Internet technologies, protocols, and applications such as e-commerce and digital marketing.
- Gain awareness about cybersecurity, IT ethics, and professional standards in IT.
- Get familiar with emerging technologies like AI, blockchain, cloud computing, IoT, and digital transformation, and how they are applied in today's society and business.
- Apply IT knowledge to real-world problem-solving and decision-making at work and in daily life.

Course Details

Unit 1: Computer Fundamentals **5 LHs**

Definition, Characteristics and Application of computers; Generations and Classification (based on working mechanism and size) of Computer; Architecture, Von Neumann model; Introduction

to Number Systems (binary, octal, decimal, hexadecimal) and conversion; Data representation (ASCII, Unicode)

Learning Outcomes: Define computers, their characteristics, and applications. (Remember); Classify computers based on generation, size, and functionality. (Understand); Explain the Von Neumann architecture and system components. (Understand); Convert numbers among binary, octal, decimal, and hexadecimal systems. (Apply); Describe data representation methods using ASCII and Unicode. (Understand)

Unit 2: Hardware & Peripherals **8 LHs**

Introduction to Hardware; CPU, Components of CPU; Primary memory and its Types (Registers, Cache Memory, ROM and its types, RAM and its types); Secondary storage(Hard Disk Drives, Magnetic Tapes, Optical disc, SSDs, USB Flash Drives and Memory Cards); Memory hierarchy; System Buses and its type; Input devices(Keyboard, Mouse, Scanner, Microphone, Webcam, Joystick, Touch panel); Output devices (Monitor(CRT, LCD,LED, Plasma), Printer(Impact(Dot Matrix) and Non-Impact(Ink Jet and Laser)), Speakers); Motherboards (Definition and functions).

Learning Outcomes: Identify major hardware components and their functions. (Remember); Differentiate between types of memory and storage devices. (Analyze); Explain the role of input/output devices and system buses. (Understand); Illustrate the structure and function of a motherboard. (Apply); Compare performance characteristics of storage and display devices. (Evaluate)

Unit 3: Software **6 LHs**

Introduction to Software, Types of Software (System, Application, and Utility Software); Introduction to Operating Systems; Function of and Types(On the basic of User interface, Function and Number of Users) of Operating System; Open-source vs proprietary software; Programming languages (machine level, Assembly level and High Level), Scripting Language (Server and client side), Language Translator (assembler, compiler, interpreter)

Learning Outcomes: Define software and distinguish between system, application, and utility software. (Remember, Understand); Explain the functions and types of operating systems. (Understand); Differentiate between open-source and proprietary software. (Analyze); Classify programming languages and translators. (Understand); Apply appropriate software tools for given computing tasks. (Apply)

Unit 4: Fundamental concept of Data Management **4 LHs**

Introduction to Data and Information (Concept of data, information, and knowledge); Data representation and file organization; Database; Database approach vs. file-based system; DBMS, Components of DBMS, Data models (Introduction to Hierarchical, Network, Relational, and

Object-Oriented); Introduction to Data Processing, Steps of Data processing (Data collection, Data preparation, Data input, Data processing, Data output, Data storage).

Learning Outcomes: Define data, information, and knowledge. (Remember); Explain database concepts and components of DBMS. (Understand); Differentiate between file-based and database approaches. (Analyze); Describe the steps in the data processing cycle. (Understand); Apply data organization concepts in simple database examples. (Apply)

Unit 5: Networking & Internet **7 LHs**

Network fundamentals (Definition of a Network, Purpose of Networking, Uses of Networking, Advantages and disadvantages of Networking), Components of Network; Transmission Media(Introduction to Guided and Unguided media); Network Topologies(Bus, Ring, Star, Mesh and Hybrid); Types of Networks (Based on size and architecture), Overview of OSI and TCP/IP model; Protocols(Introduction to IP, HTTP, SMTP, POP, IMAP, FTP, Telnet, SSL, HTTPS); IP address (Introduction of IPV4 and IPV6); Introduction to WWW and DNS; Internet, Intranet, Extranet; Web pages and Websites; Search Engines; Email; Introduction to E-commerce, E-governance, Digital Marketing and Social Media; Censorship and privacy issues.

Learning Outcomes: Explain basic networking concepts and their purposes. (Understand); Identify network components, media, and topologies. (Remember); Differentiate types of networks and network architectures. (Analyze); Describe common Internet protocols and addressing schemes. (Understand); Apply networking concepts in Internet and e-commerce contexts. (Apply); Discuss privacy, censorship, and security concerns online. (Evaluate)

Unit 6: Multimedia **3 LHs**

Introduction to Multimedia (Definition, Characteristics and Importance), Multimedia Applications, Elements of a multimedia (Text, Image, Audio, Video and Animation); Image File Format (TIFF, JPEG, GIF, PNG)

Learning Outcomes: Define multimedia and its components. (Remember); Describe multimedia applications in communication and education. (Understand); Identify common image and video file formats. (Remember); Apply multimedia concepts in basic digital content creation. (Apply)

Unit 7: Introduction to IT & Information Systems **3 LHs**

Definition and concept of IT; Components of IT; Importance of IT in modern society; Role of IT in communication, education, business, and government; Definition and concept of Information System (IS); Relationship between IT and IS; Types of Information Systems (TPS, MIS, DSS, ESS); Role of IS in business decision-making.

Learning Outcomes: Define Information Technology and its components. (Remember); Explain the role of IT in business, education, and governance. (Understand); Describe types of information systems and their business roles. (Understand); Analyze the relationship between IT and IS in organizational decision-making. (Analyze)

Unit 8: Cybersecurity **4 LHs**

Computer Crime; Malware (Virus, Worm, Trojan, spyware, ransomware, adware); Type of attack (Interception, Interruption, Modification and Fabrication); Antivirus and Anti-malware; Hacking and Cracking; Software Piracy and Anti-Piracy; Security goal (CIA Triad); Basic of cryptography (Encryption and Decryption); Introduction to Firewall and its application; Introduction and need of Cyber law.

Learning Outcomes: Identify common cyber threats, attacks, and malware. (Remember); Explain the principles of the CIA triad and cryptography basics. (Understand); Apply basic security measures and use antivirus/firewall tools. (Apply); Discuss cyber laws and ethical security practices. (Evaluate)

Unit 9: IT Ethics **3 LHs**

Intellectual Property (Copyright, Patient, Trade Secrets); Intellectual Property Issues (Plagiarism, Reverse Engineering); IT ethics, professional codes of conduct; Ethics in Information Technology; Encouraging Ethical Use of IT Resources among Users; Ethical Hacking

Learning Outcomes: Define intellectual property and ethical principles in IT. (Remember); Explain plagiarism, software piracy, and reverse engineering issues. (Understand); Analyze professional codes of conduct and ethical dilemmas in IT. (Analyze); Promote responsible and ethical use of IT resources. (Evaluate/Create)

Unit 10: Emerging Technologies & Digital Transformation **5 LHs**

Overview of: AI, Machine Learning, Blockchain, VR/AR; Cloud Computing, Green Computing; Digital entrepreneurship, Emerging Trends in Data Management, Big Data and data analytics basics, Cloud-based data storage and management, Data governance, Data warehouses, data mining, cloud databases, Hybrid Storage:(Solid-State Hybrid Drives), IoT and Its integration in business, Smart City.

Learning Outcomes: Identify key emerging technologies such as AI, IoT, blockchain, and cloud computing. (Remember); Explain how emerging technologies transform business and society. (Understand); Discuss trends in data analytics, big data, and green computing. (Evaluate); Apply digital transformation concepts to real-world business cases. (Apply/Create)

Pedagogical Strategies

- Lectures with demonstration
- Hands on lab sessions
- Problem-based learning
- Guest lectures from tech industry experts
- Continuous assessment and feedback
- Multimedia presentations to visualize concepts
- Mini Project

Mode of Delivery

- Lecture sessions (Theory)
- Demonstration
- Laboratory work (Practical)
- Mini project

Internal Assessment Methods and Types

Assessment Type	Weightage	Details
Class participation & attendance	10%	Contribution to discussions, engagement in class activities
Quizzes/short tests	15%	Periodic quizzes to assess comprehension
Practical/Project	20%	Lab sessions and mini project
Mid-term examination	25%	Written test
Pre-board examination	30%	Comprehensive written test covering all units

External Assessment Methods and Types

Out of the total 60% allocated for final assessment, 40% will be assigned to the written/board examination to evaluate students' abilities in remembering, understanding, applying, analyzing, evaluating, and creating**.** The remaining 20% will be assigned to the final practical and competency.

Mapping Course: Learning Outcomes and Program Learning

Course Learning Objective (CLO) Dimensions	Knowledge (K)	Skills (S)	Competence (C)
Total Learning	35%	40%	25%

Laboratory / Practical Component **16 LHs**

Hands-on exercises with Microsoft Office

Microsoft Word

Navigate the Word interface and manage documents (create, save, format).

Type, copy, paste, and format text.

Adjust document layout (margins, orientation, headers/footers, page numbers).

Create and format tables, insert images, shapes, charts, hyperlinks, and symbols.

Apply styles, themes, and templates.

Use reviewing tools (spell check, track changes, comments).

Generate a Table of Contents.

Apply all these features in creating reports, letters, and formatted documents.

Microsoft Excel

Navigate the spreadsheet interface, workbooks, and worksheets.

Enter and manage data efficiently.

Format cells and work with numbers, text, and dates.

Apply basic formulas: SUM, AVERAGE, MIN, MAX.

Use advanced functions: IF, VLOOKUP, COUNTIF, CONCATENATE, AND, OR, IFAND, IFOR

Visualize data using charts and conditional formatting.

Sort, filter, and organize data using tables.

Apply practical exercises like preparing budgets, sales reports, Marksheet, etc.

Microsoft PowerPoint

Create and design slides using layouts, themes, and design principles.

Add and format text, images, charts, SmartArt, tables, and Hyperlink.

Enhance presentations with animations, transitions, and multimedia (audio/video).

Apply techniques for effective presentations and collaboration.

Export slides and presentations.

Complete practical exercises by creating full presentations.

References

Turban, E., Pollard, C., & Wood, G. (2018). *Information technology for management*. Wiley.

Norton, P. (2008). *Introduction to computers.* Tata McGraw-Hill.

Morley, D., & Parker Charles (2015). *Understanding Computers: Today and Tomorrow, Comprehensive 15th Edition.* Cengage Learning.

Laudon, K. C., & Laudon, J. P. (2012). *Management information systems. Person education.*

Laudon, K. C., & Traver, C. G. (2016). *E-commerce: Business, technology, society.* Pearson.

Tribhuvan University
Faculty of Management

Level: Bachelor
Program: Bachelor of Information Technology Management (BITM)
Course Title: Structured Programming in C **Course Code:** ITM 102
Nature of the Course: Theory + Practical **Credit Value:** 3
Semester: I **Total Hours:** 48 (Th) + 16 (Pr)

Course Description

This course introduces students to the concepts of structured programming using C language. Students learn to write efficient, modular, and reusable code using variables, data types, control statements, functions, arrays, pointers, structures and unions, and file handling. The course emphasizes both theoretical understanding and practical application through hands-on coding exercises and projects. Upon completion, students will be able to design, develop, test, and debug programs effectively and will be prepared to advance to higher-level programming languages and software development courses.

Course Objectives

By the end of this course, students will be able to

- Understand the basic concepts of programming languages and the structure of C programs.
- Demonstrate knowledge of C programming fundamentals, including syntax, data types, operators, and expressions.
- Write and execute C programs using various programming constructs such as decision-making, looping, and functions.
- Apply structured programming principles to design modular and efficient programs.
- Utilize arrays, strings, pointers, and structures for solving computational problems.
- Implement file handling and dynamic memory allocation for real-world applications.
- Develop logical problem-solving skills to design and implement real-world solutions using the C language.

Course Details

Unit 1: Introduction to Programming Language 7 LHs

Definition of programming language, Importance of programming in computing, Types of programming languages; Programming Approach: Concept and definition of Top-Down Approach and Bottom-Up Approach; Algorithm (Definition and characteristics, Basic Operations of an Algorithm with example); Flowchart (Definition and symbols used, Guidelines for

flowcharting, Conversion of algorithm to flowchart, Basic Operations of a flowchart with examples).

Learning Outcomes: Define programming languages and their types (Remember); Explain programming approaches and their significance (Understand); Develop algorithms and flowcharts for simple problems (Apply); Convert algorithms to flowcharts and vice versa. (Apply).

Unit 2: Basic Elements of C **6 LHs**

C Standards; Features of C; Structure of a C program; compilation and execution; Character Set; C Tokens(Keywords, Identifiers, Constants, Strings, Operators, Delimiters); Data Types; Escape Sequences; Variables, Constants(Literal Constants and Symbolic Constants); Writing Comments; Expressions and Statements; Preprocessor Directives; Arithmetic Operators; Unary Operators; Relational and Logical Operators; The Comma Operator; Assignment Operators; The Conditional Operator; Size of Operator; Operator Precedence and Associativity.

Learning Outcomes: Describe the structure and features of a C program (Understand); Identify tokens, data types, and operators in C (Remember); Use variables, constants, and expressions correctly (Apply); Construct simple programs using correct syntax and operator precedence. (Apply)

Unit 3: Data Input and Output **3 LHs**

Introduction; Single Character Input and Output; The printf() and scanf() Functions; Conversion Characters; Formatted and Unformatted I/O.

Learning Outcomes: Explain standard I/O operations in C. (Understand); Use printf() and scanf() for formatted I/O. (Apply); Write programs that take input and display output. (Apply)

Unit 4: Control Statements **6 LHs**

Introduction to simple and compound statement; Sequential statement; Branching statement (Simple if statement, if-else statement, Nested if-else statement, else-if ladder, switch statement, go to statement); Looping statement (for loop, while loop, do while, Nested loop); Loop interruption (break, continue)

Learning Outcomes: Explain the role of control statements in programming. (Understand); Implement decision-making and looping constructs. (Apply); Design structured programs using nested loops and conditions. (Create); Use loop interruption statements effectively. (Apply)

Unit 5: Functions **5 LHs**

Introduction to function; Advantages of function; Types of Function (Built-in and user defined function); Elements of user-defined function(Function definition, Function prototype, Function parameters); Scope rules (Global Variables and Static Variables); Category of User defined

functions(Functions with no arguments and no return values, Functions with arguments and no return values, Functions with arguments and return values, Functions with no arguments and return values); Recursive functions; Function call by values and reference.

Learning Outcomes: Define and classify types of functions in C. (Remember, Understand); Implement user-defined functions with different argument and return types. (Apply); Differentiate between call by value and call by reference. (Analyze); Apply recursion and modular design in program development. (Apply, Create).

Unit 6: Arrays and Strings **5 LHs**

Defining and Processing Arrays; Types of Arrays: Single dimensional and Multidimensional; Array Initialization; Passing Arrays to Functions; Character Arrays; Strings; String Definition; NULL Character; String Initialization; Reading and Writing Strings; Processing Strings; Passing Strings to Functions; Library Functions for String Handling.

Learning Outcomes: Define and differentiate between arrays and strings. (Remember, Understand); Manipulate single and multidimensional arrays. (Apply); Use standard string functions for processing text. (Apply); Design programs using arrays and strings for data handling. (Create).

Unit 7: Pointers **5 LHs**

Basics of Pointer; The & and * Operators; Pointer Declaration; Pointer Arithmetic; Pointers and Arrays; Dynamic Memory Allocation (malloc, calloc, free, realloc); Operations on Pointers; Array of Pointers, Passing and Returning Pointers to/from a Function.

Learning Outcomes: Explain the concept and use of pointers in C. (Understand); Perform pointer operations and arithmetic. (Apply); Implement dynamic memory allocation using standard functions. (Apply); Develop programs using pointers for arrays and functions. (Create)

Unit 8: Structures and Unions **5 LHs**

Defining a structure; Declaring and accessing structure elements; Initializing structure; Array of structure; Pointer within structure; Structure within structure; Array within structure; Passing and returning structures to/from function; Unions; Comparison between structure and union.

Learning Outcomes: Define structures and unions and their uses. (Remember); Access and manipulate structure members. (Apply); Differentiate between structures and unions in terms of memory and usage. (Analyze); Design programs using structures and unions for complex data handling. (Create)

Unit 9: File Handling **4 LHs**

Introduction to Files, Text and Binary Files; File Modes; File Operation (open, read, write, append, close); Accessing the File sequentially and randomly.

Learning Outcomes: Explain file concepts, types, and modes. (Understand); Implement file operations (open, read, write, append, close). (Apply); Develop programs for sequential and random file access. (Create).

Unit 10: Introduction to Graphics **2 LHs**

Concepts of Graphics, Graphics Initialization and Modes, Introduction to Graphics Function.

Learning Outcomes: Describe the basic concepts of graphics programming. (Understand); Initialize and use basic graphics functions. (Apply); Create simple graphical programs to draw and display objects. (Create).

Pedagogical Strategies

- Lectures with demonstration
- Hands-on lab sessions
- Problem-based learning
- Guest lectures from tech industry experts
- Continuous assessment and feedback
- Multimedia presentations to visualize concepts
- Mini project

Mode of Delivery

- Lecture sessions (Theory)
- Demonstration
- Laboratory work (Practical)
- Mini project

Internal Assessment Methods and Types (40%)

Assessment Type	Weightage	Details
Class participation & attendance	10%	Contribution to discussions, engagement in class activities
Quizzes/short tests	15%	Periodic quizzes to assess comprehension
Practical/Project	20%	Lab sessions and mini project
Mid-term examination	25%	Written test
Pre-board examination	30%	Comprehensive written test covering all units

External Assessment Methods and Types (60%)

Out of the total 60% allocated for final assessment, 40% will be assigned to the written/board examination to evaluate students' abilities in remembering, understanding, applying, analyzing, evaluating, and creating**.** The remaining 20% will be assigned to the final practical examination to assess hands-on programming skills and competency.

Mapping Course: Learning Outcomes and Program Learning

Course Learning Objective (CLO) Dimensions	Knowledge (K)	Skills (S)	Competence (C)
Total Learning	35%	40%	25%

Laboratory Works (16 hours)

The laboratory work includes writing C programs for implementing the concepts of C Tokens and datatypes, Formatted and unformatted Input/output, Branching control structure, Looping control structure, User-defined functions, Array, String handling function, Pointers, Structure and Union, and File handling.

References

Gottfried, B. (2018). *Programming with C*. McGraw Hill Education.

Kelley, A. & Pohl, I. (1998). *A Book on C*. Pearson Education.

Kernighan, K.A. & Ritchie, D.M. (1988). *The C programming Language*. PHI Publication.

Srivastava, S. K. & Srivastava, D. (n.d), *Programming in C: In Depth*. BPB Publications.

Balagurusamy, E. (2019). *Programming in ANSI C*. TMH publication.

Schildt, H. (2000). *C: The Complete Reference*. Osborne/McGraw-Hill Publication.

Tribhuvan University
Faculty of Management

Level: Bachelor

Program: Bachelor of Information Technology Management (BITM)

Course Title: Basic Mathematics

Course Code: MTH 204 **Credit Value:** 3

Semester: I **Total Hours:** 48

Course Description

Numbers and their properties. Introduction to complex numbers, Concepts of Functions, Limits, and Continuity. Differentiation and Its Application in business and economics. Concepts of integration and its application. Differential Equations. Concept of vectors and matrices. Method of least squares.

Course Objectives

The purpose of this basic mathematics course is to increase students' mathematical knowledge and skills required to understand management, IT, and computing courses as they apply to many aspects of business and to help make them more valuable players in the business arena.

Course Details

Unit 1: Set Theory and Real Number System **6 LHs**

Concept, notation and specification of sets, Types of sets, Relation between sets, Venn diagrams, Operations on sets. Laws of algebra of sets (without proof), Number of elements in a set and the problems relating up to three sets. Sets of numbers (Natural numbers, Integers, Rational numbers, Irrational numbers, Real numbers), Representation of real numbers on the real line. Properties (addition multiplication, cancellation, distributive, order) of real numbers (without proof), Inequalities and their properties. Intervals, Modulus of a real number and its properties.

Learning Outcomes: Define and classify different types of sets and numbers. (Remember); Illustrate relationships among sets using Venn diagrams and perform set operations. (Understand); Apply the laws of algebra of sets and properties of real numbers to solve quantitative problems. (Apply); Analyze real number inequalities and represent them on the number line. (Analyze)

Unit 2: Complex Numbers **4 LHs**

Definition of a complex number, Integral powers of i, Algebra of complex numbers (sum, difference, multiplication, division), Properties of complex numbers, Conjugate of a complex number and its properties, Modulus of a complex number and its properties, Representation of a complex number by a point in a plane (Argand's diagram), Polar representation of a complex

number, Square roots of a complex number, De-Moivre's theorem (statement only) and its application to find up to cube roots of a complex number.

Learning Outcomes: Recall the definition, notation, and algebraic operations of complex numbers (Remember); Illustrate complex numbers geometrically on the Argand plane and interpret their modulus and argument (Understand); Apply De Moivre's theorem to compute powers and roots of complex numbers(Apply); Analyze and compare different forms (algebraic, polar) of complex numbers for problem solving (Analyze).

Unit 3: Functions, Limits and Continuity **6 LHs**

Constant and variable, Concept of functions, Types of functions, Graphic representation of algebraic, logarithmic and exponential functions, Computation of functional values, Domain and range of a function. Application of functions to business and economics. Idea of a limit, Limit of a function at a particular point and at infinity, Properties of limits (without proof) and use in evaluating limits involving algebraic functions. Concept of continuity and discontinuity, Test of continuity and discontinuity for simple algebraic functions.

Learning Outcomes: Define functions, limits, and continuity, and distinguish different types of functions (Remember/Understand); Represent and interpret functions graphically and identify domain and range. (Understand); Limit properties to evaluate limits of algebraic and exponential functions. (Apply); Test the continuity and discontinuity of simple algebraic functions. (Analyze).

Unit 4: Differentiation and Its Application **8LHs**

Average rate of change, Definition of derivative, Derivative as a slope of tangent to the curve, Differentiation by the first principle of algebraic, logarithmic and exponential functions, Methods of differentiation (power rule, sum rule, product rule, quotient rule chain rule), Differentiation of implicit and parametric functions, Increasing and decreasing function, Stationary point, Point of inflection, Higher order derivatives (up to 3rd order). Economic applications of derivatives for maximum and minimum points.

Learning Outcomes: Explain the concept of derivative as a rate of change and slope of tangent *(Understand)*Apply standard differentiation rules (power, product, quotient, chain) to algebraic and exponential functions (Apply); Analyze functions to determine increasing/decreasing intervals, stationary points, and points of inflection (Analyze); Apply differentiation techniques to solve business and economic optimization problems. (Apply/Evaluate).

Unit 5: Integration and Its Application **6 LHs**

Concept of integration, Techniques of integration (Standard forms, Substitution method, Integration by parts), Integration of algebraic, logarithmic, and exponential functions. Definite integral, Methods of evaluating definite integrals, Area under a curve, Application of integration in business and economics (including consumer's surplus and producer's surplus).

Learning Outcomes: Explain the concept of integration as the reverse process of differentiation (Understand); Apply different integration techniques (substitution, parts,

standard forms) to solve mathematical problems. (Apply); Evaluate definite integrals and determine the area under curves (Apply/Analyze); Apply integration in business and economics to calculate consumer's and producer's surplus (Apply/Evaluate).

Unit 6: Differential Equations **5 LHs**

Introduction to differential equations, Order and degree of a differential equation, Solution of a differential equation, General and particular solutions. Equations of the first order and first degree: a) variables separated from b) homogeneous equations, c) linear equations (without involving trigonometric functions).

Learning Outcomes: Define differential equations and classify them according to order and degree (Remember/Understand); Solve first-order, first-degree differential equations using separation, homogeneous, and linear methods (Apply); Analyze the relationship between general and particular solutions in applied contexts (Analyze).

Unit 7: Vectors **5 LHs**

Definition of a vector in a plane and space, Directed line segment, Magnitude of a vector, Types of vectors, Multiplication of a vector by a scalar, Addition of vectors, Parallelogram law of addition of vectors, Collinear and coplanar vectors, Linearly dependent and independent vectors, Scalar product of two vectors, Orthogonal vectors, Vector product of two vectors. Numerical Exercises

Learning Outcomes: Define and describe different types of vectors and their properties. (Remember/Understand); Apply vector algebra (addition, scalar, and vector products) to solve geometric and physical problems (Apply); Analyze linear dependence and independence of vectors in a plane or space (Analyze); Evaluate orthogonality and magnitude relationships among vectors (Evaluate).

Unit 8: Matrices and Determinants **6 LHs**

Introduction of matrices, Types of matrices, Equality of matrices, Algebra of matrices, Transpose of a matrix. Determinant of a Square matrix, Minors and cofactors of matrix, Singular and non-singular matrix, Adjoint and inverse of matrices. Solution of a system of linear equations up to three variables (Cramer's rule, Inverse matrix method, Gaussian elimination method).

Learning Outcomes: Define types and properties of matrices and determinants (Remember/Understand); Apply matrix algebra and determinant operations to solve numerical problems (Apply); Evaluate inverse and adjoint matrices and use them to solve systems of linear equations (Apply/Evaluate); Analyze alternative methods (Cramer's rule, Gaussian elimination) for solving simultaneous equations (Analyze/Evaluate).

Unit 9: Least Square Method **2 LHs**

Introduction to the least square method, Line of best fit (two variables only), Measurement of trends, Method of least square for time series analysis.

Learning Outcomes: Explain the concept and purpose of the least square method (Understand); Apply the least square method to find the line of best fit for two variables (Apply); Analyze time series data to measure trends using least square techniques (Analyze).

Pedagogical Strategies

- Lectures with real-world examples from technology-led business sector contexts
- Case study analysis (Nepal and global)
- Group discussions and role-plays on management scenarios
- Problem-based learning for decision-making and planning exercises
- Guest lectures from technology-led business sector managers
- Multimedia presentations to visualize concepts
- Flip classroom models

Mode of Delivery

- In-person classroom lectures and discussions
- Blended learning with online resources and assignments
- Field visits to organizations (if feasible)
- Simulations

Internal Assessment Methods and Types

Assessment Type	Weightage	Details
Class participation & attendance	10%	Contribution to discussions, engagement in class activities
Quizzes/short tests	15%	Periodic quizzes to assess comprehension
Assignments/case study reports/project & live projects	20%	Individual or group written analysis of management cases
Mid-term examination	25%	Written test
Pre-board examination	30%	Comprehensive written test covering all units

External Assessment Methods and Types

Final/board examination in written to test remembering, understanding, application, analyzing, evaluating, and creating.

Mapping Course: Learning Outcomes and Program Learning

Course Learning Objective (CLO) Dimensions	Knowledge (K)	Skills (S)	Competence (C)
Total Learning	30%	35%	35%

References

Bradley, T. (2013). *Essential mathematics for economics and business* (4th ed.). Wiley.

Brechner, R. (2008). *Contemporary mathematics for business and consumers*. Thomson South-Western.

Dowling, E. T. (2009). *Schaum's outline of mathematical methods for business and economics*. McGraw-Hill.

Martin, A., & Biggs, N. (2000). *Mathematics for economics and finance: Methods and modelling*. Cambridge University Press.

Rosser, M., & Lis, P. (2016). *Basic mathematics for economists* (3rd ed.). Routledge.

Thomas, G. B., & Finney, R. L. (1996). *Calculus with analytic geometry* (9th ed.). Addison-Wesley.

Wegner, T. (2010). *Applied statistics: Methods and Excel-based application*. Juta Academic.

Yamane, T. (1973). *Mathematics for economics: An elementary survey* (2nd ed.). Prentice-Hall.

Tribhuvan University
Faculty of Management

Level: Bachelor
Program: Bachelor of Technology Management (BITM)
Course Title: Foundation of Business Management
Course Code: MGT 103 **Credit Value:** 3
Semester: I **Total Hours:** 48

Course Description

This course is designed to equip students to grasp the essential ideas, principles, and practices of business management, with special emphasis on how they apply in the business context. It introduces students to the evolution of management thinking, key management functions and roles managers, organizational structure, leadership, and decision-making process. Students will explore contemporary issues and challenges facing businesses and discover common management principles, while integrating perspectives from technology-driven business environment.

Course Objectives

By the end of this course, students will be able to:

- understand the evolution, concepts, and scope of management.
- identify and analyze the core functions of management: planning, organizing, leading, and controlling.
- apply management theories and principles in technology-driven business setting.
- demonstrate decision-making and problem-solving skills relevant to organizational challenges.
- evaluate ethical, cultural, and environmental considerations in technology-driven business sector.

Course Details

Unit 1: Introduction to Business and Management **LH 10**

Definition and nature of business, management, and business management; Functions and roles of managers; Evolution of management thoughts (Classical, Behavioral, System and Contingency); Common management practices in technology-drive business; Emergence of technology use in business; Business environment analysis: acquaintance to task and general environment of business, industry analysis using Porter Model; Business Management and Technology interface.

Learning Outcomes: Describe key management concepts and evolution of theories, and their relevance to business organizations (Knowledge); Common practices of management, analysis of business environment (Skills), Appreciate the role of management in business and use of technology, preparation of company profile (Competency).

Unit 2: Planning, Decision-Making and Problem-Solving **LH 8**

Nature and purpose of planning; Types of plans; Planning process; Strategic vs operational planning; Planning frameworks in business organizations. Decision-making models; Steps in decision-making; Tools and techniques; Problem-solving using technology. Decision-making practices and challenges in Nepalese technology-led businesses.

Learning Outcomes: Explain the planning process and its importance, recognize structured and unstructured decision-making processes (Knowledge); Develop basic action plans projects, apply technology-based decision-making tools (Skills); Apply planning principles to achieve business objectives, solve business problems effectively using technology (Competency).

Unit 3: Organizing **LH 8**

Concept of organizing and principles; Organizational structures and architecture; Authority, responsibility and accountability; Delegation of authority; Departmentalization; Emerging issues in organizing; Problems and perspectives in organizing in technology-led business organizations.

Learning Outcomes: Identify various organizational designs; knowing principles of organizing (Knowledge); Design an organizational chart for a technology-led business organization (Skills); Organize resources effectively using technology (Competency).

Unit 4: Leadership **LH 10**

Concept and roles of leadership in organization; Theories of leadership: behavioral theories (The Michigan, The Oho State & Managerial Grid), situational theories, emerging leadership theories and styles; Informal and Formal groups in organization; Role of leadership to make teams effective; Employee motivation practices and issues in Nepalese business organizations; Motivation theories (Maslow, Herzberg, McClelland, Equity); Communication in management; Meaning and importance of coordination; Issues of coordination in Nepalese business sector; Employee motivation through communication and coordination.

Learning Outcomes: Understand role of leadership in business management and theories, motivation theories (Knowledge); Demonstrate effective communication and leadership techniques for employee motivation (Skills); Inspire and guide teams in business organization (Competency).

Unit 5: Controlling **LH 6**

Nature and process of control; Types of control; Performance appraisal in technology-led business organizations; Transparency and accountability mechanisms and technology.

Learning Outcomes: Explain control systems (Knowledge); Develop performance evaluation criteria (Skills); Implement controlling systems for transparency and accountability in tech-led organizations (Competency).

Unit 6: Ethics, Social Responsibility, and Contemporary Issues **LH 6**

Ethical principles in management; Roots of unethical behavior; Corporate social responsibility; Arguments for social responsibility and Friedman doctrine; Technology driven management (AI, Big Data, digital transformation) for social responsibility; Technology for entrepreneurship and innovation in business management; ICT related contemporary issues in business management.

Learning Outcomes: Understand ethical frameworks, concept and significance, current development in technology in business (Knowledge); Identify unethical behavior and suggest solutions (Skills); Commit to ethical and sustainable management practices, identifying ICT related issues in business management (Competency).

Pedagogical Strategies

- Lectures with real-world examples from technology-led business sector contexts
- Case study analysis (Nepal and global)
- Group discussions and role-plays on management scenarios
- Problem-based learning for decision-making and planning exercises
- Guest lectures from technology-led business sector managers
- Multimedia presentations to visualize concepts
- Flip classroom models

Mode of Delivery

- In-person classroom lectures and discussions

- Blended learning with online resources and assignments
- Field visits to organizations (if feasible)
- Simulations

Internal Assessment Methods and Types

Assessment Type	Weightage	Details
Class participation & attendance	10%	Contribution to discussions, engagement in class activities
Quizzes/short tests	15%	Periodic quizzes to assess comprehension
Assignments/case study reports/project & live projects	20%	Individual or group written analysis of management cases
Mid-term examination	25%	Written test
Pre-board examination	30%	Comprehensive written test covering all units

External Assessment Methods and Types

Final/board examination in written to test remembering, understanding, application, analyzing, evaluating, and creating.

Mapping Course: Learning Outcomes and Program Learning

Course Learning Objective (CLO) Dimensions	Knowledge (K)	Skills (S)	Competence (C)
Total Learning	30%	35%	35%

References

Charles, W. L. H., & Steven, L. M. (2008). *Principles of Management.* McGraw-Hill.

Stephen, P. R., & Mery, A. C. (2021). *Management*. Pearson.

Richard, L. D. (2024). *Management*. Cengage Learning.

Griffin, R. W. (2012). *Management Principles and Applications.* Cengage Learning.

Misra, R. K., Shrivastava, A., & Sijoria, C. (2023). *Introduction to Technology, Management and Business: Evolving Perspectives*. https://doi.org/10.1108/S1877-636120230000031001

*****