

NATIONAL UNIVERSITY BANGLADESH



First Year Syllabus Department of Economics

Four-Year B.S.S. (Honours) Course
Effective from the Session: 2024–2025

NATIONAL UNIVERSITY
Syllabus for Four Year B.S.S. Honours Course
Subject: Economics

FIRST YEAR

Paper Code	Paper Title	Marks	Credits
212201	Microeconomics-I (SC)	100	4
212203	Macroeconomics-I (SC)	100	4
212205	Mathematics for Economist-I (SC)	100	4
212207	Statistics for Economist -I (SC)	100	4
212009	Introducing Sociology (SSAEC) (or)	100	4
212109	Introduction to Social Work (SSAEC)		
219901	History of Bangladesh: Language, Culture and Identity	100	4
219903	Information and Communication Technology (ICT)	75	3
219904	Lab-Information and Communication Technology (ICT)	25	1
Total =		700	28

Breakdown of Courses Arrangement for First Year

Category of Courses		No. of Courses	Credits	Total Credits
A	Subjective Courses (SC)	04	04	16
B	Common Core Courses (CCC)	02	04	08
C	Subject Specific Allied Electives Courses (SSAEC)	01	04	04
Total Courses and Credits for First Year		07	X	28

Mission

promote “Progress for Everyone” by fostering transformative education, conducting pioneering research, and encouraging meaningful collaboration with individuals, communities, and partners both in Bangladesh and around the world.

Vision

We expect that on the hundredth anniversary of the National University, our commitment to “Progress for Everyone” will be evident in all areas of our operations and stakeholder engagements.

We leverage our core strength in education, research, and community engagement to address pressing global issues and foster sustainable development.

By 2042, National University aims to strengthen its position as Bangladesh’s top academic institution and rank among the world’s leading universities. Our focus will be on expanding expertise, building strategic partnerships, and increasing our global influence. Our services will be measured by the achievements of the individuals and communities we serve.

Name of the Program

Bachelor of Social Science in Economics [BSS (Honours) in Economics]

PROGRAM LEARNING OBJECTIVES:

The objective of an undergraduate economics program is to train students with a strong foundation in economic theory, analytical skills, and the capability to apply economic principles to real-world issues. This includes understanding how individuals, businesses, and governments make decisions in the face of scarcity and how these decisions impact the entire economy as a whole. Some of the specific objectives includes;

- The study in Economics, answer how societies find solutions of the what, how, and for whom questions. The purpose of economics is to understand how an economic system works, to assess its strengths and weaknesses, and to resolve economic problems.
- From studying consumer behaviour to understanding global financial markets, undergraduate program in Economics helps to assess complex situations, weigh costs and benefits, and consider both short- and long-term consequences. This approach to problem-solving is invaluable in any profession and also in personal life
- Economics Graduates able to comprehend the basic concepts and methodology required to analyse basic economic problems, applying a conceptual framework to the specific circumstances of economic agents, whether they be individuals, businesses, institutions or governments. They are also capable to identify and anticipate relevant economic problems in each specific situation, to uncover the alternative solutions, to select the best options in each case and to evaluate the subsequent results.

PROGRAM LEARNING OUTCOMES:

The knowledge, experience, and opportunities gathered by the graduates to accomplish the educational objectives and to fulfill accreditation criteria, the graduates to exhibit their attainment the following outcomes:

- By formulating and applying models and with available information the graduates of economics effectively visualize, conceptualize, articulate, and solve complex problems or address problems that do not have a clear answer.
- Describe and critically interpret the relationship between economic variables using appropriate frameworks.
- Interpret complex economic data and concepts in a manner that is easily understandable and accessible to a diverse audience.
- Economics graduates develop deeper analytical, critical, and quantitative skills in specialized areas by applying economic concepts to real world situations.
- Economics graduates can easily broaden their global and interdisciplinary knowledge, enhancing their understanding of the world around them both within economics and beyond. In this way they build skills to work as part of a team and lead others.

- An undergraduate economics degree equips students with valuable analytical, critical thinking, and quantitative skills applicable to a wide range of careers. Graduates can pursue careers in public policy, market research, financial analysis, management consulting, data analysis, and entrepreneurship, among others. They also gain a strong foundation for further academic pursuits, such as graduate/post graduates' studies in economics or related fields.

DETAILED SYLLABUS

Paper Code	212201	Marks: 100	Credits: 4	Class Hours: 60
Paper Title:	Microeconomics-I			

Course Learning Objective:

This undergraduate microeconomics course aims to equip students with a fundamental understanding of how individuals, firms, and markets make economic decisions under scarcity. Through analyzing consumer behavior, production theory, market structures, and welfare economics, students will develop critical thinking skills to evaluate resource allocation, pricing mechanisms, and government interventions in various market scenarios.

Course Learning Outcomes:

By completing this course, students will be able to:

- Explain core microeconomic concepts including opportunity cost, marginal analysis, and equilibrium
- Apply utility theory and budget constraints to analyze consumer choice
- Derive demand and supply curves and interpret market equilibrium
- Calculate and interpret price, income, and cross elasticities
- Analyze production functions and cost curves in short-run and long-run contexts
- Compare market structures (perfect competition, monopoly, oligopoly) and their efficiency outcomes
- Evaluate market failures (externalities, public goods) and potential policy solutions
- Solve numerical problems related to consumer/producer surplus and welfare analysis
- Construct basic economic models using graphs and simple equations
- Apply microeconomic principles to analyze real-world business and policy issues

COURSE LEARNING OUTCOME (CLO)

After going through the course, the student should be able to learn the following outcomes

CLO1	(i)	Learn the concepts of resources and their limitations.
	(ii)	Explore different possibilities for utilizing scarce resources effectively.
CLO2		Extent the knowledge to find out different possibilities for use of scare resources.
CLO3	(i)	Understand how resources are allocated to meet human needs, particularly consumer demands. Grasp the concept of utility from both cardinal and ordinal perspectives.
	(ii)	Learn how consumers reach equilibrium in purchasing decisions for goods and services.
	(iii)	Match consumer preferences with budget limitations to determine demand.
CLO4	(i)	Analyze producer decision-making in choosing production methods based on profitability.
	(ii)	Study the principles of supply, considering resource constraints and optimality analysis.
CLO5		Evaluate critical decisions by consumers and producers using elasticity analysis (price, quantity, income, etc.).
CLO6	(i)	Understand short-run production decisions—when to start, continue, or stop production.
	(ii)	Examine the use of production factors through cost analysis.
CLO7		Learn how production factors are allocated across different market structures.
CLO8	(i)	Analyze the interaction between consumers and producers and how equilibrium is achieved under various market conditions.
	(ii)	Recognize standard market tools that influence economic behavior.

Course Contents:

Topic	Teaching Learning Strategy	CLOs
1. Introduction: Definition, Nature and Scope of Economics; The Economic Problem: Scarcity and Choice of Economics- Scarcity, Choice, Opportunity Cost, Economic Systems; Microeconomics vs. Macroeconomics; Positive and Normative Economics. Interaction the activity between Producer's and Consumer's thru Circular Flow.	Lecture, Assignment and Short Video clips	CLO1 & CLO2
2. Utility Analysis: Total and Marginal Utility; Law of Diminishing Marginal Utility; Equi- Marginal Principle; Derivation of Demand Curves. Indifference curve, budget constraint. Optimizing behavior- consumer's equilibrium.	Lecture, Assignment, and Group Discussion	CLO3
3. Demand and Supply: Demand & Supply and their Determinants; the Law of Demand and the Law of Supply; Movement and Shifts of Demand and Supply curves; Market Equilibrium and Changes in Market Equilibrium- Excess	Lecture, Field Work, Assignment	CLO3

Demand and Excess Supply; Consumer's and Producer's Surplus; Government Intervention in the Market.		
4. Elasticity of Supply and Demand: Concepts and Measurements of Various Elasticities of Demand and Supply.	Lecture, Problem Solving, Workshop and Assignment	CLO5
5. Theory of Production: Production Function and the Technology in Production Function; Production with One Variable Input- Average and Marginal Products, The Law of Diminishing Marginal Returns; Production with Two Variable Inputs- Isoquants; Returns to Scale.	Lecture, Group Discussion, Problem Solving and Assignment	CLO6
6. Theory of Cost: Economic Opportunity and Sunk Costs; Short-Run Total and Per-Unit Costs Curves; Costs in the Long-Run; Long-Run vs Short-Run Costs.	Lecture, Group Discussion, Workshop and Assignment	CLO6
7. Market-Perfect Competition: Concepts of Market, Assumptions and Implications of Perfect Competition; Profit Maximization- Average and Marginal Revenue; Profit Maximization in the Short- Run- Accounting and Operating Profits and Losses, Shut Down Point; Short-Run Supply Curve of the Firm and the Industry; Long-Run Competitive Equilibrium	Lecture, Problem Solving, Video Clips, Field Work and Assignment	CLO8
8. Market-Imperfect Competition-Monopoly: Demand, Average and Marginal Revenue; Monopolist's Output Decision and Supply Curve; Monopoly Profit-maximizing Price and Output Monopoly Power; Markup Pricing, Inefficiency of Monopoly, Deadweight Loss of Monopoly, Perfect Competition and Monopoly Compared. Natural Monopoly, Causes of Monopoly, Monopoly Behavior: Price Discrimination, First-Degree Price Discrimination, Second-Degree Price Discrimination, Third-Degree Price Discrimination, Bundling, Two-part Tariffs, Monopolistic Competition, Location Model of Product Differentiation	Lecture, Group Discussion, Workshop and Assignment	CLO8
9. Market-Imperfect Competition-Oligopoly: Strategy Choices, Cournot Model, Bertrand Model, Stackelberg Model, Upstream and Downstream Monopolies, Price Leadership Model, Many Firms in Cournot Model, Collusion, Punishment Strategies, Product Differentiation Models, Contestable Markets Model, Comparison of Solutions, Oligopoly and Monopolistic competition.	Lecture, Video Clips and Assignment	CLO8
10. Factor Markets: Determination of factor prices- rent, wages, interest and profit Monopsony- Price and Output Determination, Determining the Demand for Labour.	Lecture, Workshop, Video Clips	CLO7

	and Assignment	
11. Market Failures: Externalities, Public Goods, Natural Monopoly.	Lecture and Assignment	CLO8
12. Information Economics: Moral Hazard and Adverse Selection.	Lecture and Assignment	CLO2

References

Akerlof, G. A. (1970). The market for 'lemons': Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, 84(3), 488-500.
<https://doi.org/10.2307/1879431>

Case, K. E., & Fair, R. C. (2017). *Principles of microeconomics* (12th ed.). Pearson. New York. USA.

Henderson, J. M., & Quandt, R. E. (1980). *Microeconomic theory: A mathematical approach* (3rd ed.). McGraw-Hill. New York. USA.

Mankiw, N. G. (2015). *Principles of microeconomics* (7th ed.). Cengage Learning. Boston, USA

Samuelson, P. A., & Nordhaus, W. D. (2010). *Economics* (19th ed.). McGraw-Hill Education. New York. USA.

Paper Code	212203	Marks: 100	Credits: 4	Class Hours: 60
Paper Title:	Macroeconomics-I			

Course Learning Objectives:

This macroeconomics course aims to provide students with a comprehensive understanding of how economies function at the aggregate level, covering key concepts such as national income accounting, inflation, unemployment, money and banking, and fiscal and monetary policy. Students will analyze the determinants of economic growth, business cycles, and the interplay between aggregate demand and supply in both short-run and long-run contexts. The course explores consumption and investment behavior, including Keynesian psychological laws and the marginal efficiency of capital, while examining monetary theories (Quantity Theory, Keynesian and Friedman's approaches) and their implications for inflation and interest rates. Additionally, students will study labor market dynamics, macroeconomic equilibrium under different economic conditions (recessionary gaps, inflationary pressures), and policy tools to stabilize economies. By evaluating real-world economic issues such as financial crises, stagflation, and unemployment, learners will develop critical analytical skills

to assess government and central bank policies. The course equips students with the theoretical foundation and practical insights needed for careers in economic policy, financial markets, development planning, and research, fostering an ability to interpret macroeconomic indicators and understand their broader societal impacts.

Course Learning Outcome:

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

- Interpret macroeconomic indicators and their policy implications.
- Analyze fiscal and monetary tools used to stabilize economies.
- Evaluate the trade-offs between inflation, unemployment, and growth.
- Apply theoretical models to real-world economic issues, such as financial crises or stagflation.
- Critically assess government and central bank policies in both closed and open economies.

COURSE LEARNING OUTCOME (CLO)

After going through the course, the student should be able to learn the following outcomes

CLO1		Understand the process of aggregation considering the micro individuals. Grasp the different tools for aggregation.
CLO2		Comprehend the different process for estimating national income
CLO3	(i)	Perception the functional relation among national income, consumption and savings.
	(ii)	Learn the critical tools of national income, consumption and savings.
CLO4		Know the determinants of investment and acquire the investment decision.
CLO5		Understand the tools of inflation/deflation and analyze its effects
CLO6		Apprehend money as a medium of exchange and explore its multiplayer role
CLO7		Analyze the classical full employment with different dynamics
CLO8		Grasp the employment situation thru different aggregate models
CLO9		Analyze the short run and long run dynamics of macroeconomics and its effects.

Course Contents:

Topic	Teaching Learning Strategy	CLOs
1. Introduction: Objectives and Instruments of Macroeconomics; Fundamental Concepts of Macroeconomics; Potential GNP, GNP Gap, Okun's Law; Natural Rate of Unemployment; Business Cycles; Budget Deficit and International Deficit; Aggregate Demand and Aggregate Supply.	Lecture, and Assignment	CLO1
2. National Income Accounting: Circular Flow of Income; Injections and Leakages; Various Concepts of National Income:	Lecture, Assignment,	CLO2

Gross National Product (GNP), Gross Domestic Product (GDP), Net National Income (NNP), National Income at Factor Cost, Market Price and Constant Price, Personal Income, Disposable Income, Real and Nominal GDP, Net Economic Welfare (NEW); The CPI and the GDP Deflator; Methods and problems of computing National Income: The Expenditure Approach, The Income Approach, The Output Approach; Limitations of National Income accounting. Informal Economics, Non-market works and Satellite Accounts of National Income.	Video Clips and Group Discussion	
3. Consumption and Saving Function: Consumption and Consumption Function; Definition of Autonomous Consumption and Induced Consumption; Average Propensity to Consume (APC), Marginal Propensity to Consume (MPC) Saving and Saving Function; Average Propensity to Save (APS), Marginal Propensity to Save (MPS), Short Run and Long Run View; Keynes Psychological Law; Kuznet's Puzzle.	Lecture, Field Work, Assignment	CLO3
4. Investment Function: Determinants of Investment; MEC, MEI, Present Value Criteria; Autonomous Investment and Induced Investment.	Lecture, Problem Solving and Assignment	CLO4
5. Inflation: Definition and Causes of Inflation; Source of Inflationary Pressure; Consequences of Inflation; Control of Inflation; Deflation and its Consequences.	Lecture, Group Discussion, and Assignment	CLO5
6. Money: Meaning and Functions of Money; Different Types of Money (M1, M2, M3); Credit Creation of Banks; The Money Multiplier; Value of Money, Fisher's Quantity theory of money. Keynesian and Friedman Approach of Money.	Group Discussion, Workshop and Assignment	CLO6
7. Economy at Full Employment: Classical model, Quantity of labor employed and real GDP, Determinants of demand for labor and supply of labor, Labor market equilibrium, Determinants employment, Real wage rate, Business investment decisions and household saving decisions, Determinants of real interest rate, Classical model and potential GDP.	Lecture, Video Clips, Field Work and Assignment	CLO7
8. Aggregate Demand (AD) and Aggregate Supply (AS): Determinants of AS and AD, Macroeconomic equilibrium, the effects of changes in AS and AD on economic growth, Inflation, and business cycles.	Lecture, Group Discussion, and Assignment	CLO1
9. Employment: The Classical and Keynesian Models of Income and employment; Inflationary and Deflationary Gaps and Measures to Bridge the Gap; Theory of Multiplier and Accelerator; Measuring Unemployment and Its Impacts on the Economy; Types of Unemployment; Removing Unemployment.	Lecture, Video Clips and Workshop	CLO8

10. The Dynamics of Inflation and Unemployment: Inflation expectation and the aggregate supply curve, short run and long run aggregate supply curve, Change in expected inflation rate, Dynamic AD, Adjustment process, Expectation and sluggish adjustment and dynamic adjustment.	Lecture, Workshop, Video Clips and Assignment	CLO9
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REFERENCES:

Case, K. E., & Fair, R. C. (2020). *Principles of macroeconomics* (Pearson Education Limited). Prentice Hall. New York, USA.

Dornbusch, R., & Fischer, S. (2005). *Macroeconomics* (6th ed.). Tata McGraw-Hill Publishing Company Limited. New York, USA.

Mankiw, N. G. (2010). *Principles of macroeconomics* (Edition). Cengage Learning. Boston, USA

Parkin, M. (2022). *Macroeconomics* (14th ed.). Pearson. New York, USA.

Samuelson, P. A., & Nordhaus, W. D. (2009). *Economics* (19th ed.). McGraw-Hill Education. New York, USA.

Paper Code	212205	Marks: 100	Credits: 4	Class Hours: 60
Paper Title:	Mathematics for Economist-I			

Course Learning Objectives:

This Paper focuses on the development of understanding of basic concepts, tools, symbols, terminologies and principles of mathematics used in the area of economics. Help students to build elementary skills in mathematical methods. Develop the level of students' ability to apply mathematical methods to solve problems in the area of economics and business.

Course Learning Outcome:

After completing this course students will be able to;

- Understand the needs of mathematics in economics
- Demonstrate the basic algebra and set theories
- Conceptualization of equation, function and relation and their application in economics.
- Sketch graphs of linear, quadratic, cubic, exponential and logarithmic functions.
- Evaluate the rules of differentiation and integration and their application in economic optimization problem.

COURSE LEARNING OUTCOME (CLO)

After going through the course, the student should be able to learn the following outcomes

CLO1	(i)	Acquire a foundational understanding of mathematical principles for real-world application in analysis and problem-solving.
	(ii)	Comprehend essential mathematical elements including numbers, variables, parameters, and constants to develop proficiency in function formulation and model construction.
CLO2		Understand key concepts and principles foremost set formation and operations
CLO3		Analyze functional relationships between variables and solve systems of simultaneous equations to address economic problems.
CLO4		Master geometric interpretation and practical applications of linear equations in economic modeling
CLO5		Develop proficiency in static analytical tools and their application to real-world economic problems
CLO6	(i)	Analyze and model functional relationships among economic variables to understand their interdependencies.
	(ii)	Develop the ability to quantify precise relationships between variables and articulate them in the context of economic theories and concepts.
CLO7	(i)	Apply differential calculus to estimate and analyze critical economic equations
	(ii)	Utilize calculus-based methods to examine dynamic relationships among economic variables
CLO8	(i)	Derive optimal solutions for producer and consumer decision problems
	(ii)	Solve economic optimization problems using marginal analysis techniques
CLO9	(i)	Analyze time-dependent economic relationships through differential equations
	(ii)	Model continuous economic processes and their progression paths

Course Contents:

Topic	Teaching Learning Strategy	CLOs
1. Review of Some Core Concepts: Nature of Mathematical Economics; Real Number System; Even, Odd, Prime, Composite Numbers; Fractions; Exponents; Variables, Constants and Parameters; Importance of Model Building, etc.	Lecture, and Assignment	CLO1
2. Concepts of Sets: Some Basic Definitions- Set, Elements, Finite, Infinite, Null, Unique, Equal, Equivalence, Subset, Comparability, Disjoint, Power, Family and Universal Sets; Venn Diagrams; Representation of Set-Basic Operation; Union, Difference and Intersection; De' Morgan's Law; Idempotent Law, Identity Law; Partition of Set.	Lecture Group Discussion	CLO2

3. Equation System: Solution of Equations; Simultaneous Equation System; Solution of Simultaneous Equation Systems with Specific Applications to Economic Problems; Inequalities.	Lecture, Field Work and Problem Solving	CLO3
4. Geometry: Cartesian Co-ordinate System; Distance between Two Points, Straight Line; Application of Linear Equations.	Lecture, Problem Solving and Assignment	CLO4
5. Elementary Static Analysis: Meaning of Equilibrium; Partial Equilibrium in Markets; National Income Analysis and its Solution.	Lecture and Assignment	CLO5
6. Function, limit and Continuity: Concept of function, classification and type, and their diagrammatic representation, graphs of the function, slope, intercept, graph of linear function, quadratic, cubic function, inverse function, and two variable functions. Limit of a function, continuity of a function, exponential function, Rules for Logarithms; Common Logarithms; Calculation of Logarithm of a Number; Natural Logarithm.	Lecture and Assignment	CLO6
7. Elementary Differential Calculus: Derivative, slope of a curvilinear function, differentiation, higher order derivatives, concavity, convexity, curve sketching, inflection point, total derivative, partial derivative, total differential, partial differential, implicit and inverse function rule, differentiation of logarithmic and exponential function.	Lecture, Problem Solving, and Assignment	CLO7
8. Optimization: Optimum value and extreme value, relative extremum values, first order and second order derivatives tests, Mclaurin and Taylor series, Nth derivative test, optimization of multivariable function, the differential version, quadratic forms, optimizing with equality constraint, Lagrange multiplier.	Lecture, Group Discussion, Field Work and Assignment	CLO1
9. Elementary Integral calculus: Definition of Integration- Rules of integration- definite and Indefinite integral.	Lecture, and Problem solving	CLO8

References

Allen, R. G. D. (1965). *Basic mathematics*. Allen & Unwin. Macmillan Co. Ltd. London, UK.

Chiang, A. C. (1984). *Fundamental methods of mathematical economics* (4th ed.). McGraw-Hill. New York, USA.

Dinwiddy, C. L. (1967). *Elementary mathematics for economists* (pp. 370). Oxford University Press. UK

Dowling, E. T. (2001). *Schaum's outline of mathematical economics* (3rd ed.). McGraw-Hill. New York, USA.

Simon C. P. & Blume L. (1994). *Mathematics for Economists* (3rd ed.). W.W. Norton Company, Inc. New York, USA.

Paper Code	212207	Marks: 100	Credits: 4	Class Hours: 60
Paper Title:	Statistics for Economist -I			

Course Learning Objectives:

This course familiarizes students with basic concepts of statistics, introduces the use of statistical methods and tools in evaluating data for economic decision making. The course is designed to explain statistical techniques to decision-making situations & how to interpret the results. Throughout the learning session the students will be able to apply statistical techniques with the help of data.

Course Learning Outcome:

After completing this course students will be able to;

- Understand basic concepts of statistics and their application in economics.
- Explain data by using measures of central tendency and dispersion.
- Pertain measures of central tendency and dispersion in analyzing economic data.
- Apply the coefficient of correlation to measure association between two quantitative variables.
- Build up index numbers to compare business or economic measurements from one period to the next
- Understand the basic concept of regression analysis.

COURSE LEARNING OUTCOME (CLO)

After going through the course, the student should be able to learn the following outcomes

CLO1	(i)	Comprehend the basics of statistics covering scope and its application in economics.
	(ii)	Understand the data and variables
CLO2		Apprehend the data sources and its various way for presentations
CLO3		Understand the trend of data and figure out its overall concentration to describe the particular economic perspectives
CLO4		Grasp the disparity of data thru dispersion analysis
CLO5		Understand the overall trend other than central tendency
CLO6	(i)	Analyze and model functional relationships thru the correlation estimate and it specify particular relationship of the variables
	(ii)	Justify a specific relationship among the explanatory and explained variables by regression analysis. These estimates secure a particular statement that ensures the economic and business decisions.
CLO7		Understand the comparison of price, value and other over time. It helps the learners to know the comparative analysis and business decision.

Course Contents:

Topic	Teaching Learning Strategy	CLOs
1. Introduction to Statistics: Population and Sample; Discrete and Continuous Variables; Random Variables; Statistical Methods; Scope, Importance, and Limitations of Statistics.	Lecture, and Assignment	CLO1
2. Collection and Presentation of Data: Data Sources; Methods of Collecting Data; Designing a Questionnaire; Types and Principles of Classification; Tabulation of Data; Arranging Data Using the Data Array and the Frequency Distribution; Construction of a Frequency Distribution; Graphical Representation of Quantitative and Qualitative Data (Histogram, Ogive, Pie-chart, Bar Diagram and Frequency Polygon etc.).	Lecture Group Discussion and Field Work	CLO2
3. Measures of Central Tendency: Computation, Application, Advantages and Disadvantages of Different Measures of Central Tendency; Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode; Relationship between Mean, Median and Mode.	Lecture, Field Work Problem Solving and Group Discussion	CLO3
4. Measures of Dispersion: Definition, Importance and Computation, Application of Different Measures of Dispersion (Absolute and Relative)- Range, Quartiles, Percentiles, Inter-Quartile Range, Mean Deviation, Standard Deviation, Variance, and Coefficient of Variation, Properties of Standard Deviation.	Lecture, Problem Solving and Assignment	CLO4
5. Moments, Skewness, and Kurtosis: Concepts and Measures of Skewness, Moments and Kurtosis; Moments of Group Data; Population Moment.	Lecture and Assignment	CLO5
6. Correlation and Regression Analysis: Types of Correlation- Coefficient of Correlation; Limitations of Correlation; Measures of Correlation; Relationship between Correlation and Regression; Definition of Regression; Scatter Diagram; Method of Least Square; Estimating with Regression Line.	Lecture Problem Solving, Assignment and Assignment	CLO6
7. Index Number: Index Number and Three Index Numbers- Price, Quantity and Value Indices; Methods of Constructing Index Numbers- Unweighted Aggregates Index, Weighted Aggregates Index; Shifting Bases of Index Numbers; Issues in Constructing an Index Number.	Lecture, Problem Solving, and Assignment	CLO7

References

- Gupta, S. C., & Kapoor, V. K. (2000). *Fundamentals of mathematical statistics* (10th ed.). Sultan Chand & Sons. New Delhi, India.
- Gupta, S. C., & Kapoor, V. K. (2022). *Fundamentals of applied statistics* (4th ed.). Sultan Chand & Sons.
- Mann, P. S. (2010). *Introductory statistics* (7th ed.). Wiley. New Jersey, USA.
- Mostafa, G. (1989). *Methods of statistics* (1st ed.). Brothers Publication. Dhaka, Bangladesh.
- Newbold, P., Carlson, W. L., & Thorne, B. (1938). *Statistics for business and economics* (8th ed.). Pearson. New York, USA.
- Spiegel, M. R., & Stephens, L. J. (1999). *Schaum's outline of statistics* (3rd ed.). McGraw-Hill. New York, USA.

Paper Code	212009	Marks:100	Credits:4	Class Hours:60
Paper Title:	Introducing Sociology (Allied Course)			

Course objectives:

The course is designed to provide foundational knowledge of sociology as a social science. It will explain key concept, principles and perspectives in sociology. It will highlight various structural issues like major social institutions, social classes, inequality, population and urbanization. Besides this, the course helps the students to develop sociological thinking to understand society and human behavior.

Course Learning Outcome (CLO)

After going through the course, students will be able to learn the following outcomes

CLO1	Students will be demonstrating knowledge about preliminary ideas of sociology.
CLO2	They will be informed about the contributions of sociologists.
CLO3	They will apply several procedures of scientific social research.
CLO4	They will explain various terms of culture and cultural diversity in society.
CLO5	Students will get knowledge about different types and evolution of society.

CLO6	Students will know both about social institutions and various factors which contribute to social stratification and mobility within society.
CLO7	They will recognize different social problems of Bangladesh.
CLO8	They will be able to analyse the influences of social forces on individual behaviour and social change which happens globally.

Mapping of CLOs with PLOs

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CLO1	•									
CLO2	•									
CLO3					•					
CLO4	•									•
CLO5	•	•								
CLO6	•									
CLO7				•					•	
CLO8	•		•				•			

COURSE CONTENTS

Chapter	Topic	Teaching-Learning Strategies	CLOs
1.	Definition, Scope and Development of Sociology: Definition of Sociology, Nature and scope of Sociology, Emergence of Sociology, Importance of Sociology as a science, Value freeness of sociology, relation with other scientific subjects.	Lecture and Assignment	CLO-1
2.	Founding thinkers and major theoretical perspectives: Auguste Comte, Karl Marx, Herbert Spencer, Emile Durkheim, Max Weber, Functionalist, conflict and Interactionist perspectives.	Lecture, Assignment and Group discussion	CLO-2
3.	Major Methods and Techniques of Sociology: Social research, Qualitative and Quantitative techniques, Survey method, Comparative Method, historical	Lecture, Fieldwork and Group	CLO-3

	method, Scientific method, Case study, FGD, Interviews, Observation, and Experiments. Ethics in social research.	presentation	
4.	Culture, Society and Civilization: Meaning and characteristics of culture, elements of culture and cultural change, Cultural lag, civilization, culture and civilization, community, organization and group.	Lecture, Assignment and Group Discussion	CLO-4
5.	Evolution and different types of society: Hunting and food gathering society, Horticultural society, Agricultural Society, Industrial society, Primitive communism, Slavery, Feudal, Capital, Socialism, Different types of capitalism, Socialism and modern communism,	Lecture and Assignment	CLO-5
6.	Social Institutions: Marriage and family, education, religion, economy and state. Characteristics and functions of each institution. Changing nature of institutions in modern society.	Lecture and Assignment	CLO-6
7.	Social problems and Inequality: Nature of social problems, Population problem, poverty, unemployment, crime and deviance, corruption, drug addiction, over-urbanization. Social inequality and forms of stratification: caste, class race and gender. Theories of inequality and Social mobility.	Lecture and Assignment	CLO-7
8.	Social Interaction and Social Change: Social interaction and exchange, socialization, Causes of Social Change, theories of Social Change, technology and Social Change, globalization and its impact. Postmodern and postindustrial society.	Lecture and Assignment and Group Discussion	CLO-8

Books Recommended:

Giddens, A. (2009). *Sociology (6th ed.)*. Cambridge, UK: The Polity Press.

Goldthorpe, J. E., & Goldthorpe, J. E. (1985). *An introduction to sociology*. Cambridge, UK: Cambridge, University Press.

Haralambos, M., & Holborn, M. (2013) *Sociology: Themes and Perspectives*. London, UK: Harper Collins publications.

Ritzer, G., & Murphy, W. W. (2019). *Introduction to sociology*. London, UK: SAGE publications

Schaefer, R., T. (2012). *Sociology: A Brief Introduction (10th ed.)*. New York, USA: McGraw-Hill.

Stolley, K. S. (2005). *The Basics of Sociology*. (1st ed). Boston, USA: Greenwood Press.

Turner, B. S. (1999). *Classical Sociology*. (1st ed). London, UK: Sage Publication.

ডক্টর সেন, র. (১৯৯৭) *বাংলাদেশের সামাজিক স্তরবিন্যাস*, (২য় সংস্করণ), ঢাকা, বাংলাদেশ: নিউ এজ পাবলিকেশনস।

ডক্টর সেন, র. এবং নাথ, বি.কু., ২০০৫. *প্রারম্ভিক সমাজবিজ্ঞান*, (২য় সংস্করণ), ঢাকা, বাংলাদেশ: নিউ এজ পাবলিকেশনস ।

Course Code: 212109	Marks: 100	Credits: 4	Credit Hours: 60	BSS Hon's 1st Year
Course Title: Introduction to Social Work (Allied Course)			Course Orientation: Theoretical	

Course Description

Introductory social work is an allied course for the registered students of respective disciplines. The focal objective of this course is to spread basic knowledge of social work education along with the concept, methods, relationship of social work with other disciplines, practice in different settings and social work as a profession. The course also covers industrial revolution, the philosophical foundations of social work, the development of professional education and its relationship with various religious creeds. Ethical principles and values are also discussed in this course.

Course Objectives

The objectives of this course encompass:

- To familiarize students about historical development and associated disciplines of social work;
- To help students able to understand the social work profession and industrial revolution;
- To attain knowledge about major social problems and intervention of social work;
- To introduce students about social work methods, types and practice in different settings;
- To introduce students to research and social research in social work arenas;
- Introduce students to religious and philosophical foundations of social work.

Course Contents

Chapter	Topics	Teaching Learning Strategy	CLOs
1	Concepts Relevant to Social Work Practice: Social Work, Social Welfare, Social Value, Social Reform, Social Legislation, Social Security, Social Development, Good Governance, Climate Justice, Field Work.	Class Lectures, PP Presentations, Content Analysis	CLO1
2	Associated Disciplines and Their Relations with Social Work: Sociology, Psychology, Economics, Political Science, Law, Journalism, Medical and Public Health, Anthropology.	Lesson Plans, Lectures, Handouts, Paraphrasing	CLO1

3	a. International Growth and Development of Social Work: UK and USA. b. Social Welfare Practices and Movements in Undivided India and Bangladesh: Traditional Welfare Activities and Charity, Social Reformers and their Movements. c. Evolution of Social Work Education in the Sub-continent and Bangladesh.	Lectures, Handouts, Exhibition of Audio-Visual Recordings, PP Presentations.	CLO2
4	Social Work Profession: Profession, Occupation, Social Work as a Profession, Values and Professional Code of Ethics of Social Work, NASW.	Lectures, Seminar Presentation, Group Discussion.	CLO2
5	Social Problems and Social Services in Bangladesh: Major Social Problems and Intervention of Social Work, Social Work Practice in Govt. Organizations (USS, RSS) and NGOs, Probation and Parole.	Lectures, Content Analysis, Visit And Demonstration	CLO3
6	Industrial Revolution (IR): Renaissance, Globalization, Industrialization, Urbanization, Impacts of IR on Society, Facing 4 th IR challenges with Communication skill, Analytical Ability, Problem Solving Ability, Digital Literacy and Adaptability; Skills of Social Work, 5 th Industrial Revolution and Social Work.	Lectures, Handouts, Audio-Visual Recordings, Visit And Demonstration. symposium,	CLO4
7	Types and Methods of Social Work: Types, Green Social Work, Basic and Auxiliary Methods; Concept, Elements, Principles, Significance of Social Work Methods in Bangladesh.	Lectures, Content Analysis, Seminar presentation, Group Discussion	CLO5
8	Social Research: Research, Research as a Scientific Method, Social Research, Methods, Techniques and Tools of Social Research, Sampling and Its Types, Research Proposal, Importance of Social Research.	Lectures, Handouts, Reading, Assignments, Content Analysis	CLO5
9	Social Philosophy and Religion: Social Philosophy, Individualism, Socialism, Welfare State, Contribution of Major Religions on Social Work and Humanity, Philosophical, Religions and Humanitarian Basis of Social Work.	Lectures, presentations, Workshop according to pedagogy. PP etc. to	CLO6

Course Learning Outcomes (CLOs)

After Fruitful conclusion of the course apprentices can be able to:

- CLO1:** Know about the related concepts and associated disciplines of social work;
- CLO2:** Elucidate the international growth and development of social work profession;
- CLO3:** Demonstrate major social problems and social services in Bangladesh;
- CLO4:** Understand the Industrial revolution and its challenges;
- CLO5:** Know about social work types, methods of social work and social research;
- CLO6:** Understanding of social philosophy, religions and social work.

Mapping of Course Learning Outcomes (CLOs) with Program Learning Outcomes (PLOs)

CLO/PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CLO1	✓	•		✓		•		✓	✓		•	✓
CLO2	•	✓	✓		✓	✓		•		✓	✓	
CLO3	✓		•				✓		•			✓
CLO4		✓	✓	✓		•		✓	✓	✓	✓	
CLO5	•				✓	✓		✓				✓
CLO6	✓	✓	•		✓			✓	✓	•	✓	•

✓ = Strong Relation	• = Weak Relation	Blank = Limited or No Relation
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List of Books

Barker, R. L. (1995). *The Social Work Dictionary*. Washington DC: NASW Press.

Friedlander, W.A. (1977). *An Introduction to Social Welfare*. New York: Prentice Hall.

Houssian, M.N. & Alauddin, M. (1990). *Introduction to Social Work Methods*. Dhaka: Bangladesh, Anwari publication.

Morales, A. & Sheafor, B. W. (1977). *Social Work: A Profession of Many Faces*. Boston: USA,

Allyn and Bacon.

Skidmore, R. A. & others. (1993). *Introduction to social work*. New Jersey: USA, Prentice Hall.

ইসলাম, ড. মো. নুরুল (২০১৪)। *সমাজকর্ম পরিচিতি*, ঢাকা: বাংলাদেশ, তাসমিয়া পাবলিকেশন্স।

ইসলাম, মো. শহিদুল (২০০৮)। *সমাজকর্ম*, ঢাকা: বাংলাদেশ, গ্রন্থ কুটির।

উদ্দিন, আহমেদ আয়েশ (১৯৭৮)। *রাষ্ট্রচিন্তা পরিচিতি পুঁটো থেকে মার্ক* (২য় সংস্করণ), ঢাকা: বাংলাদেশ, আইডিয়াল লাইব্রেরী।

করিম, রেজাউল (২০০৬)। *সমাজকর্ম: ধারণা, ইতিহাস ও দর্শন*, ঢাকা: বাংলাদেশ, জ্ঞানকোষ প্রকাশনী।

রহমান, হাবিবুর, দাস, তুলসী, ইসলাম, মো. ফখরুল ও ইসলাম, মো. রেজাউল (অনূদিত) (১৯৯৭)। *সমাজকর্ম অনুশীলন*, ঢাকা: বাংলাদেশ, গতিধারা।

Course Code:	219901	Marks: 100	Credits: 4
Course Title:	History of Bangladesh; Language, Culture, and Identity		Hours: 60

Course Objective:

This course is designed to help undergraduate students from diverse academic backgrounds develop a comprehensive and nuanced understanding of the historical development of Bangladesh, with a particular focus on its language, culture, and identity. By critically examining a variety of historical events, socio-political movements, and cultural shifts from ancient times to the contemporary period, students will have the opportunity to trace the evolution of the Bengali nation. The course aims to foster informed citizenship through an exploration of the Liberation War, identity formation processes, cultural heritage, the lives and contributions of key political figures, and the roles of ethnic minorities. Ultimately, the objective is to equip learners with the intellectual tools necessary to contextualize current national debates and to recognize the role of youth and globalization in shaping the future of Bangladesh.

Course Learning Outcomes(CLOs):

At the end of the course, learners will be able to:

CLO 1: Recall key historical events, dates, movements, personalities, and cultural developments that contributed to the emergence of Bangladesh from the pre-colonial period to the present day.

CLO 2: Demonstrate an understanding of the socio-political, linguistic, and cultural influences that shaped Bengali identity and nationalism, emphasizing the Language Movement, Liberation War, and subsequent democratic uprisings.

CLO 3: Apply their historical and cultural understanding to interpret contemporary national issues and debates relating to identity, political reform, and cultural transformation in Bangladesh.

CLO 4: Analyze how historical events, political ideologies, and social changes are interconnected in shaping the current socio-political landscape of Bangladesh, with a particular emphasis on the roles of movements, minorities, and the youth.

Course Contents:

Course contents	Teaching Learning Strategy	CLOs
1. Pre-colonial Era - Life and Culture of the People in Ancient Bengal - Bengal Under Muslim Rulers: Society, Culture, and Religion - Role of the Sufis in Preaching Islam and Impacts of - Sufism on the Bengali Society - Bengali Society and Culture in the Writings of Foreigners	Interactive lectures	CLO 1,2
2. Colonial Era (18th and 19th Century) - The Battle of Plassey (1757) and the Beginning of British Colonialism - Bengal Renaissance - Reforms in Hindu Society - New Forms in Bengali Literature and Culture	Interactive lectures, reading, and assignments	CLO 1,2

• The Muslim Response to Western Education		
3. Colonial Era (First Half of the 20th Century) • Partition of Bengal (1905) • Hindu-Muslim Disagreements • Formation of the All India Muslim League (AIML) • Muslim Shahitya Samaj • Buddhir Mukti Andolan: The Urge for Rational Thinking in Bengali Muslim Society • Growth of Religion-based Identity • Politics of Hindutva and the Two-Nation Theory • Spread of Communalism in Society • The Partition of India and Bengal	Interactive lectures and group discussions	CLO 2,3
4. Post-Partition Era (1947-1971) • Language Movement • Political, Economic, and Cultural Aspects • Growth of Vernacular Nationalism • Cultural Activism	Interactive lectures and group discussion	CLO 2,3
5. Changing Bengali Identity • The Evolution of Bengali Identity in the Context of Language, Culture, and Religion • From Ancient Times to the Present • The Role of the Bengali Language in Shaping Identity • The Language Movement of 1952 and Its Long-term Impact on National Consciousness • The Influence of Religion on Bengali Identity • The Impact of Socio-political Movements on Identity Formation • The Liberation War of 1971 • Contemporary Debates on Bengali Identity • The Role of Youth in Redefining Identity • The Influence of Globalization	Interactive lectures and thematic assignments	CLO 2,3
6. Liberation Movement of 1971 and Mass Uprising till 2024 • The Political and Economic Exploitation of East Pakistan by West Pakistan • Six (6) Points Movement, Uprising of 1969 • The 1970 General Elections • The Non-cooperation Movement and the Declaration of Independence • The Role of AK Fazlul Haque, Huseyn Shaheed Suhrawardy, Maulana Bhashani, Sheikh Mujibur Rahman and Ziaur Rahman • The Liberation War of 1971 • Genocide and Resistance • The Role of the Mukti Bahini • Post-independence Challenges • Nation-building	Interactive lectures, group discussions, and thematic assignments	CLO 1 CLO 3-4

• Political Instability • Mass Uprisings and Democratic Movements • The Anti-autocracy Movement of the 1980s • The 1990s Movement for Democracy and Afterwards • The 2024 Movements for Political and Social Reforms		
7. History of Other Ethnic Groups • The Indigenous Communities of Bangladesh • Historical Presence • Cultural Practices • Land Rights and Cultural Assimilation • Contributions and Sacrifices • Political Representation of Ethnic Minorities	Interactive lectures and group discussions	CLO 4
8. Cultural Heritage and Modern Transformations • The Evolution of Bengali Culture • From Ancient Traditions to Modern Expressions • The Role of Literature, Music, and Art in Shaping Bengali Identity • Contributions of Rabindranath Tagore, Kazi Nazrul Islam, and Other Cultural Icons • The Impact of Globalization on Bengali Culture • The Revival of Traditional Arts • The Role of Youth in Cultural Innovation Urbanization • Environmental Changes • The Commodification of Culture	Interactive lectures, documentary screening, and thematic assignments	CLO 1-4

List of Books:

Ahmed, M. (1979). *Bangladesh: The constitutional quest for autonomy*. Dhaka: University Press Limited.

Ahmed, R. (1981). *The Bengal muslims 1871-1906: A quest for identity*. Oxford University Press.

Alavi, H. (1972). *The state in post-colonial societies: Pakistan and Bangladesh*. In K. Gough & 11. P. Sharma (Eds.), *Imperialism and revolution in South Asia* (pp. 145-178). New York, NY: Monthly Review Press.

Bernier, F. (2023). *Travels in the Mogul Empire: A.D. 1656-1668*. Chennai: Atlantic Publishers.

Bleie, T. (2005). *Tribal peoples, nationalism, and the human rights challenge*. The Adivasis Bangladesh. University Press Limited.

Bosc, S. (2011). *Dead reckoning memories of the 1971 Bangladesh war*. Hurst & Company.

Eaton, R. M. (1996). *The rise of Islam and the Bengal frontier. 1204-1760*. Berkeley: University of California Press.

- Gilmour, D. (2019), *The British in India: Three centuries of ambition and experience*. London. Penguin.
- Habib, L. (1982). *Cambridge economic history of India*. Cambridge. Cambridge University Press.
- Halim, S., Amanullah, A. S. M., & Nasir, R. 1. (Eds.). (2024). *Society and sociology in Bangladesh: A South Asian perspective*. The University Press Limited.
- Hashmi, T. (2021). *Fifty Years of Bangladesh, 1971-2021 Crises of Culture, Development, Governance and Identity*. Switzerland: Palgrave Macmillan.
- Huq, M. E. (1975). *History of Sufism in Bengal*. Dhaka. Bangladesh Asiatic Society.
- Husain, I. (2014). *Karl Marx on India*. New Delhi: Tulika Books.
- Jahan, R. (1972). *Pakistan: Failure in national integration*. New York, NY: Columbia University Press.
- Maniruzzaman, T. (1988). *The Bangladesh revolution and its aftermath*. (2nd ed.). Dhaka: University Press Limited. (Original work published 1980)
- Mascarenhas, A. (1986). *Bangladesh: A legacy of blood*. London: Hodder and Stoughton.
- Rashid, H. O. (2015). *The foreshadowing of Bangladesh: Bengal Muslim League and Muslim politics* (3rd ed.). Dhaka: University Press Limited.
- Roy, A. (1984). *The Islamic syncretistic tradition in Bengal*. Princeton, NJ: Princeton University Press.
- Sen, A. (2006). *Identity and violence: The illusion of destiny*. W. W. Norton & Company.
- Umar, B. (2022). *The Emergency of Bangladesh: A History of East Pakistan*. Dhaka: Bangla Gobeshona.

Course Code	219903	Marks: 75	Credits: 3
Course Title:	Information and Communication Technology		

Course Objectives:

The main objective of the course is to develop students' understanding and skills in using, managing, and applying technology to solve problems and enhance various aspects of life and work. Key areas of focus include understanding ICT systems, software, hardware, networks, and their applications.

Course Learning Outcomes: The student will be able to:

CLO 1	Explain foundational ICT concepts, including the information processing cycle.
CLO 2	Operate standard computer hardware and software systems effectively.
CLO 3	Use office productivity tools (Word, Excel, PowerPoint) for academic and professional tasks.
CLO 4	Apply safe internet practices and use internet tools for communication and information retrieval.
CLO 5	Understand and explain the concepts of Data Analytics, Artificial Intelligence (AI), and Machine Learning (ML)
CLO 6	Understand the concept of free-lancing

Course Contents:

Unit	Specific Objectives	Content	Teaching and Learning Approach
Unit 1: Introduction to Information and Communications Technology (ICT) and Computer System	The student will be able to: • Explain the concept of ICT and its related terminologies. • Describe the information processing cycle. • Analyze the impact of ICT on educational, social and economic development. • Identify career opportunities in ICT education. • Differentiate among the classes of computers	Definition of ICT, basic concepts and terminologies. Data, Information Application of ICT, Advantages and Disadvantages of ICT, Impact of ICT Career opportunities in ICT education Information Processing Cycle. Classification of Computers The Vital Components of the Systems Unit.	Classroom Lectures

	and the usages of them. Identify the vital components of the Systems Unit.		
Unit 2: Computer Hardware and Software	The student will be able to: - Describe the categories of Computer Hardware. - Describe the commonly used Input and Output devices - Identify the main processing devices, storage devices and media. Identify the main communication devices. - Identify types of Software packages. - Distinguish between an Operating System and Application software. - Identify different types, examples and uses of Operating Systems and Application software - Distinguish between Open Source and Proprietary Software.	Categories of Computer Hardware: Input devices, Processing devices, Output devices, Storage devices Communication devices, Main Processing Devices: The Processor, Control Unit and Arithmetic and Logic Unit Software Packages, Operating Systems, Types and uses of Operating Systems, Types and uses Application Software: Educational software, Games software, Graphics software Browsers: Internet explorer, Google chrome, Mozilla Firefox, Opera, Internet explorer, Mozilla Firefox; Proprietary and Open Source Software	Classroom lectures and Lab
Unit 3: Introduction to Word Processing Application	- The student will be able to: - Identify Word Processing packages. - Create and save a document using the Word Processor. - Format a Word document using formatting tools. Demonstrate the ability to perform collaborative editing. - Insert tables in a Word Processing document. - Insert symbols and	Word Processing Packages and Their Uses. Introduction of Microsoft Word Software. File creation and saving: New, Save, Open, Save As. Editing: Copy/Cut, Paste, Undo, Redo, Find, Replace, Clipboard, Sub-Headings And Paragraphs, Text Correction, Wrapping Text, Text Orientation Formatting: Font: Style, Size, Color, Bold,	Classroom Lectures, Lab, and Hands-on Practice

	pictures in Word Processing documents. • Use layout techniques in document creation. • Inserting headers and footers. • Print documents using the various print options.	Underline, Italic, Superscript, Subscript, Shadow, Strikeout. Paragraph: Alignment, Bullet & Numbering, Indent, Line Spacing, Table Border Insert: Table, Picture, Shape, Smart Art, Chart, Header, Footer, Page Number, WordArt, Drop Cap, Symbols, Equations, Hyperlink, Comment. Page Design: watermark, page border Layout: Page setup, print	
Unit 4: Spreadsheet Application	• The student will be able to: • Identify Spreadsheet Packages. • Explain the importance of the Spreadsheet application in data management. • Explain related concepts and terminologies in the Spreadsheet. • Identify features in the Spreadsheet application window. • Create and save a Workbook. • Construct and insert simple formulae and functions. • Format the worksheet using formatting tools. • Printing a worksheet.	Spreadsheet Packages, e.g. Excel. Importance of Spreadsheet application in Data Management, Related Concepts and Terminologies (e.g., cell(s), rows, columns, worksheet, workbook) Excel Tool Bars: Formatting Bar, Standard Bar, Formula Bar. Types of Data and Their Uses (e.g., number, date, text, currency), Creating and Saving a Workbook, Formula and Functions, Sorting, filtering, validation, creating pivot table. Formatting Worksheet Using Formatting Tools. Draw Graph/chart, Printing Worksheet.	Classroom Lectures, Lab and Hands-on Practice
Unit 5: Presentation Application	• The student will be able to: • State the importance of the Presentation application. • Identify the commonly used features of a Presentation application	Presentation Applications Packages, Devices used for Presenting, Importance of Presentation Application, Principles for Designing Presentations, Terminologies in Presentation	Classroom Lectures, Lab and Hands-on Practice

	while prepare a presentation. • Create and save presentations using a template, Add new slide(s). Edit text, Format text, Insert objects, images and pictures, Run slide show, Apply transition, animation effects to slides • Select the print option for printing. • Prepare a presentation on a selected topic and present it.	Application (eg, , Slide transitions, Slide show, etc.), Commonly Used Features of Presentation Application Window: Toolbars, Different presentation view modes Prepare a Presentation: Slide creating, editing, theme, background, inserting elements (image, audio, video hyperlink, table, smart art, graph, etc.) and formatting slides, Slide Layout, slide Show, slide transition, animation Effects. Selection of Print Option: Entire presentation, Specific slides, Handouts, Notes pages, outline view of slides.	
Unit 6: Privacy and Security	The student will be able to: • Understand the basics of digital security • Use some security tools. • Understanding digital ethics.	Introduction to Information Security, cybercrime, DoS and DDoS Attack, Key Management, Digital Signature and Certifications, privacy, Data Security, Vulnerability, Threat and Risk, Malware, Social Engineering, Hacking, Plagiarism, Fishing, Software Piracy, Worms and Viruses, Spam, Adware, Malware, Spyware, Antivirus Software Ethics in the digital world	Classroom Lectures, Lab and Hands-on Practice
Unit 7: Using The Internet to Communicate and Accessing Information	• The student will be able to: • Explain basic concepts, requirements, and terminologies of the Internet • Apply the rules and regulations in the use of the internet. • Using email • Use the internet social network to communicate. • Use Uniform Resource Locators (URLs) to	Internet, Intranet, Extranet, IP Address, Masking, MAC Address, Internet Services, OSI Reference Model, TCP/IP protocol stack, IPv4, IPv6, subnet Masking, MAC Address, Internet Services, Network Configuration and Troubleshooting, Wi-Fi, Broadband, Email Usage. Rules and Regulations in the Use of the Internet: Spam-Unsolicited Emails, People's Privacy, Intellectual Property Rights, etc.	Classroom Lectures, Lab and Hands-on Practice

	access Information. Use search engines to access information • Upload files to virtual drives and work on it.	E-mail: Creating an Email Account, Sending, Accessing Email Messages, Attaching Documents to Email Messages, Using the Internet: Social Networks to Communicate, Uniform Resource Locators (URLs) to Access Information, Using Search Engines, Downloading Information from the Internet. Transferring Information from the Internet to a Different Application Intellectual Property Rights, ICT Policy, Software Piracy etc. Using Cloud Space: Google Drive, Google Workspace, OneDrive, Dropbox, etc.	
Unit 8: Emerging Technologies: Data analytics, Artificial intelligence, Machine learning	• Define Data Analytics, Artificial Intelligence (AI), and Machine Learning (ML). • Understand how data is collected, processed, and used for decision-making. • Recognize the role of AI and ML in everyday life. • Explain basic differences between AI and ML. • Discuss benefits and challenges of these technologies. • Recognize current trends and career opportunities in these fields.	Introduction to Data Analytics: Define Data, Types of Data, Define Data Analytics, Basic Steps in Data Analytics, Applications of Data Analytics, Common Tools of Data Analytics (Excel, Tableau, Power BI, Python, SQL, etc.). Artificial Intelligence (AI): Define AI, Objectives of AI, AI capabilities, AI applications (NLP, Image Recognition, Predictive Analytics, Recommender Systems, Robotics, etc.); AI Tools: OpenAI GPT, TensorFlow, PyTorch, Keras, Scikit-learn, etc.), AI in daily life (Voice assistants, facial recognition, GPS route suggestions, chatbots, etc.) .	Classroom Lectures, Lab and Hands-on Practice

		Machine Learning (ML): Define Machine Learning (ML), How It Works, Classification of ML, applications of ML, and common ML platforms (Teachable Machine, TensorFlow, PyTorch, Microsoft Azure Machine Learning, etc.). Relationship Between Data Analytics, AI, and ML Benefits & Challenges of Data Analytics, AI, and ML. Future Trends & Career Paths.	
Unit 9: Introduction to Freelancing	The student will be able to: • Define and explain the fundamental concept and significance of freelancing in the global context. • Identify and categorize various online marketplaces and professional fields. • Develop professional profiles, portfolios, and proposals suitable for freelancing platforms. • Demonstrate the use of online payment systems and financial transaction methods. • Analyze and evaluate strategies for career development and effectively apply techniques to overcome freelancing challenges.	Introduction and Basic Concepts, Fields of Freelancing, Essential Skills and Preparation, Introduction to Freelancing Marketplaces, Creating Profile and Portfolio, Earning and Transaction Process, Building a Freelancing Career, Challenges and Solutions.	Classroom Lectures, Practical Demos, Assignments, Discussions

List of Books:

Norton, P. (2008). *Introduction to computers* (9th ed.). The McGraw-Hill.

Comer, D. E. (2018). *The internet book: Everything you need to know about computer networking and how the internet works* (5th ed.). Chapman and Hall/CRC Press.

Lambert, J., & Frye, C. (2015). *Microsoft Office 2016 step by step*. Microsoft Press.

Hassan, N. A., & Hijazi, R. (2017). *Digital privacy and security using Windows: A practical guide*. Apress.

Maheshwari, A. (2024). *Data analytics made accessible*. Jay Cobb.

Russell, S. J., & Norvig, P. (2020). *Artificial intelligence: A modern approach* (4th ed.). Pearson.

Alpaydin, E. (2020). *Introduction to machine learning* (4th ed.). MIT Press.

Course Code	219904	Marks: 25	Credit: 1
Course Title:	Lab: Information and Communication Technology		

Course Objectives:

The main objective of the course is to teach the students' understanding and skills in using, and applying technology to solve problems and enhance various aspects of life and work. It includes assembling hardware, installing software, preparing PPT slides, and producing Word and Excel documents.

Course Learning Outcomes:

The student will be able to:

CLO 1	Learn assembling hardware
CLO 2	Prepare, edit and print Word documents and excel
CLO 3	Prepare Power Point presentation.
CLO 4	Access information from Internet, e-mail
CLO 5	Installation of anti-virus software
CLO 6	Data collection, Prediction, Pattern recognition, classification
CLO 7	Exploring markets, Proposal writing, Simulation strategies

List of Experiments

CLO Addressed	Unit	Experiments	Teaching Learning Approach
CLO1	1-4	- Assemble different hardware - Install different software - Operate the computer - Drive, folder and file management - Maintenance	Lab and Hands-on Practice
CLO 2	3	Word - Prepare a Word document on a specific topic (e.g, routine, question paper, CV, reports, applications) - Formatting the document (Alignment, table, border, watermark, etc.), e.g., newspaper article, academic report, or documentation used in daily life, book, poster - Print documents with different paper and printers	Lab and Hands-on Practice
CLO 2	4	Excel - Prepare a grade sheet - Prepare a family expenditure - Prepare a business expenditure report - Prepare payroll management, with a report - Create graphs on the given data - Print Excel files	Lab and Hands-on Practice
CLO 3	5	Power point - Prepare an academic presentation on a specific topic. - Formatting the slides & using different tools. - Apply animation and transition - Print PPT files in different modes: Hand note, Slides shorter, outline	Lab and Hands-on Practice
CLO4	6	Install antivirus software, e.g., Norton Antivirus, McAfee, Kaspersky, Avast.	Lab and Hands-on Practice
CLO5	7	- Use of email - Access information from the internet, use a search engine. - Use of virtual drive for collaboration - Google Meet	Lab and Hands-on Practice
CLO6	8	- Data Collection and Visualization (Excel) - Simple Prediction (Excel) - Pattern recognition (Teachable Machine) - Classification (Teachable Machine)	Lab and Hands-on Practice

CLO7	9	Free lancing • Marketplace exploration and portfolio creation • Proposal writing • Payment simulation	Lab, Hands-on, Group Work, Discussion
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Instructions for the Lab:

1. Lab sessions should be hands-on, with students engaging in tasks like assembling hardware, installing software, and using office tools.
2. Software like Microsoft Word, Excel, PowerPoint, and Teachable Machine will be used for document creation, data analysis, and basic machine learning.
3. Labs also include antivirus installation, email use, and online collaboration via Google Meet and Drive, emphasizing teamwork and problem-solving.

Instructions for the Lab exam:

1. The lab exam is individual. Students must answer two out of seven questions.
2. Marks distribution: Experiment (20 marks, 10 for each) for practical tasks, Viva-Voce (5 marks) for oral assessment. Total: 25 marks.

List of Books:

Comer, D. E. (2018). *The internet book: Everything you need to know about computer networking and how the internet works* (5th ed.). Chapman and Hall/CRC Press.

Lambert, J., & Frye, C. (2015). *Microsoft office 2016 step by step*. Microsoft Press