BBA Program
Department of Management Information Systems
Faculty of Business Studies
Begum Rokeya University, Rangpur

(Effective from session: 2020-2021 and onwards)

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Course structure

BBA PROGRAM COURSE STRUCTURE	
1st Year 1st semester MIS 1101: Introduction to Business MIS 1102: Financial Accounting MIS 1103: Principles of Management MIS 1104: Computing Fundamentals MIS 1105: Bangladesh Studies	**1st Year 2nd semester** MIS 1201: Business Mathematics MIS 1202: Microeconomics MIS 1203: Business Communication MIS 1204: Fundamentals of Management Information Systems MIS- 1205: General Science & Environment **VIVA-VOCE -25**
2nd Year 1st semester MIS 2101: Macroeconomics MIS 2102: Principles of Finance MIS 2103: Business and ICT laws MIS 2104: Principles of Marketing MIS 2105: Advanced Business Mathematics	**2nd Year 2nd semester** MIS 2201: Advanced Information Systems MIS 2202: International Business MIS 2203: Operations Management MIS 2204: Auditing, Taxation & IT MIS 2205: Programming Fundamentals MIS 2206: E-Marketing **VIVA –VOCE – 25**
3rd Year 1st semester MIS 3101: Human Resource Management MIS 3102: Information Systems Security MIS 3103: Entrepreneurship & Small Business Management MIS 3104: Statistics for Business MIS 3105: Programming for IS (python)	**3rd Year 2nd semester** MIS 3201: Database Management MIS 3202: Management Accounting MIS 3203: Management Science MIS 3204: Bank & Insurance Management MIS 3205: Data Communication and Networking

MIS 3106: Total Quality Management (TQM)	MIS 3206 : Simulation **VIVA-VOCE -25**
4th Year 1st semester MIS 4101: Applied Database (Oracle) MIS 4102: IT Investment Management MIS 4103: Project Management and Information systems MIS 4104: Supply Chain Management MIS 4105: Business Research MIS 4106: Enterprise Resource Planning (ERP)	**4th Year 2nd semester** MIS 4201: Knowledge Management MIS 4202: Management of Telecommunications MIS 4203: Web design Development MIS 4204: Decision Support System MIS 4205: Artificial Intelligence MIS 4206: Strategic Management & Information Systems **VIVA –VOCE -25**
INTERNSHIP/Research Project -100	

Program Duration and Course Distribution

Class Year	Number of Courses		Total Course Units	Credit Hours
	First Semester	Second Semester		
Course Works				
First Year	5	5	10	30
Second Year	5	6	11	33
Third Year	6	6	12	36
Fourth Year	6	6	12	36
Viva-Voce and Internship				
Viva-Voce	-	-	-	3
Internship/ Research Project	-	-	-	3
Total	**-**	**-**	**-**	**141**

Course Descriptions

MIS 1101: Introduction to Business

Course Objectives: This course has been designed for the students to:

- understand different issues relating to starting up a new business in Bangladesh
- know the forms of business ownership and functional areas of business
- facilitate students to prepare different business documents required to doing business home and abroad
- develop and implement business plan

Learning Outcomes: On completing the course student will be able to -

- describe how businesses operate in our modern political, social, and economic environment
- present a general background in the elements and characteristics of business enterprise
- discuss the many aspects of business functions such as management, organization, human relations, marketing, finance, and ethics
- analyze the methods and procedures used by people in business to arrive at effective decisions
- explain the role of profits in our economic system

Course Contents:

1. **Business Concepts** – Meaning of business, its branches and their place in the economy of Bangladesh – Business environment - Business size - Location of Business – Efficiency of business enterprises – Social responsibility of business and its implications.
2. **Business Organizations** – Forms of business ownership in Bangladesh – Relative position of each form of ownership: Sole proprietorship, partnership, joint-stock company, co-operative and state ownership – Formalities and distinguishing features of each form of ownership – Considerations in the choice of specific form of ownership.
3. **Development of joint-stock companies in Bangladesh** – Phases of development – Types – Domain of operations of each type – Formation of companies – prospectus – Right and obligation of shareholders, directors, and government – Liquidation of a company.
4. **Co-operative societies in Bangladesh** – Their development – Types (industrial, commercial and service sector societies) - The role of each type – Formation – Problems and approaches to overcoming problems.
5. **Institutions for promotion of business** – Support services of government institutions – Chamber of Commerce and Industry and Trade Associations – Stock Exchanges.
6. **Trade practices in Bangladesh** – Commercial policy – Import Procedure – Export procedure – Formalities – Problems and measures to overcome the problems.
7. **Export processing Zones in Bangladesh:** Bangladesh Export Processing Zone Authority (BFPZA) - Reasons for setting EPZs in Bangladesh - Performance of the EPZs in Bangladesh.

Recommended Books:

- Steven J. Skinner and Johm. M. Ivancevich, ***Business for the 21st century***. IRWIN, IL. USA
- William G. Nickels, James M. McHugh and Susan M. McHugh, ***Understanding Business,*** McGraw-Hill Irwin, NY, USA
- Gazettes & ordinances published by Government of Bangladesh

MIS 1102: Financial Accounting

Course Objectives: This course will help the students to-

- learn correct process of keeping records of business transactions
- introduce the students with accounting principles, concepts and standards, which measure the financial events of different types of business ownership, financial reports as a means to communicate the results of the business concern

Learning outcomes: On completing the course student will be able to -

- understand the principle & concepts of accounting as well as accounting practices
- prepare of financial & related information to meet internal & external obligations
- analyze the financial reports which intend to provide a strong foundation for advance courses in financial accounting

Course Contents:

1. **Introduction to accounting:** Understanding accounting, Accounting Principles & concept – Accountancy as a profession – Need for accounting.
2. **Financial Accounting Process:** Understanding accounting equation – Understanding financial transaction and their effect on financial position.
3. **Processing Accounting Data:** Understanding accounting statements – Various Kinds of vouchers – The process of recording business transactions – Need for journal – Journalizing business transactions – Various kinds of journal.
4. **The Ledger: Concept** – Need of ledger – Posting mechanism – Accounts and their balances.
5. The Trial Balance: Understanding trial balance – Trial balance and accounting accuracy – Preparation of trial balance.
6. **Accounting System:** Subsidiary and controlling accounts – Purchase and sales journals – Cash Receipts and Payments Journals, General Journal.
7. **Final Accounts:** Understanding worksheet – Preparation of worksheet – Adjusting and closing entries – Classified income statement and balance sheet.
8. **Accounting for Assets:** Accounting for cash – Accounting for receivables – Accounting for fixed assets.
9. **Accounting for Liabilities:** Accounting for short term and long term liabilities, Accounting for owners' equity.
10. **Accounting for partnership:** General Principles – Admission – Retirement – Liquidation.

Recommended Books:

- William W. Pyle and Kermit D. Larson, ***Fundamental Accounting Principles,*** Richard D. Irwin. Inc. Illinois.
- R.H Hermanson, J. D. Edwards and L.G. Rayburn, ***Financial Accounting.*** Business Publication. Inc. Dallas.
- J.M. Smith Jr. and K.F. Skousen, ***Intermediate Accounting*** (Comprehensive Volume)

MIS 1103: Principles of Management

Course Objectives: This course has been designed for the students to -

- provide a conceptual and theoretical knowledge about the functions of management
- develop critical ways of thinking (analysis and synthesis) for evaluating and applying a variety of concepts and techniques in managerial decision making situations through case discussions and other experiential assignments
- facilitate students to become an active creator of their own knowledge base by becoming a learner through direct observations of examples of managerial behavior

Learning Outcomes: On completing the course student will be able to -

- evaluate the global context for taking managerial actions of planning, organizing and controlling
- assess global situation, including opportunities and threats that will impact management of an organization
- integrate management principles into management practices
- assess managerial practices and choices relative to ethical principles and standards
- specify how the managerial tasks of planning, organizing, and controlling can be executed in a variety of circumstances

Course Contents:

1. **Introduction to Management:** Definition of management, Nature, purpose and principles of management – Need for organizations and managers – Managerial responsibility – Types of management process – Skills – Managerial roles – Concept of productivity, effectiveness and efficiency – Managerial and organizational performance.
2. **Environment: Internal and external environment of organizations** – Components of external environment – Elements of direct action environment – Elements of indirect action environment – International environment – Managing environment.
3. **Planning:** Nature of Planning – Types of Planning – Steps in planning – Tools and techniques for planning – The planning process.
4. **Objectives:** Nature of objectives – Management by Objectives (MBO) – The process of MBO – Setting objectives – Benefits and weakness of MBO.
5. **Decision Making:** Decision making process – Problem and opportunity finding – Nature of managerial decision making – Other factors in decision making – Decision Support Systems.
6. **Organization:** Organizational Structure – Division of work – Span of management – Departmentation – Line and Staff – Delegation of authority – Centralization and decentralization

– Coordination – Committee and group decision making.

7. **Leading:** Human factors in managing – Relevant theories – Creativity and innovation – Motivation – Leadership.
8. **Staffing:** Meaning and Importance of staffing – Selection – Training – Appraisal related issues on staffing.
9. **Controlling:** Meaning and importance of control – Types of control methods – Control process – Requirements for effective controls – Information Systems and control.

Recommended Books:

- Harold Koontz and Heinz Weihrich, ***Management,*** McGraw-Hill Book Company, New York, USA.
- James A.F. Stonner and R. Edward Freeman, ***Management,*** Prentice Hall of India Private Limited, New Delhi.
- R.W. Griffin, ***Management,*** A.I.T.B.S. Publishers and Distributor, New Delhi.
- John M. Ivancevich, James H. Donnelly, Jr. and James L. Gibson, ***Management: Principles and Functions,*** Richard D. Irwin Inc. Illinois, USA.

MIS 1104: Computing Fundamentals

Course Objectives: This course has been designed for the students to -

- introduce the students with several basic terms of computer
- develop an understanding about the applications of computer in business
- prepare students to integrate computers and computing techniques within their business degree programs

Learning Outcomes: On completing the course student will be able to -

- Possess the knowledge and know how to employ the computer as a valuable business tool
- Develop competence in the use of microcomputers and business productivity software through extensive hands-on laboratory work

Course Contents:

1. **Introduction to Computer Systems:** Exploring Computers and their Uses – Looking inside the Computer system; Interacting with your Computer: Using the keyboard and Mouse – Inputting data in other ways. Seeing, hearing, and Printing Data: Video, Sound and Printing.
2. **Processing Data:** Transforming Data into Information – Binary system – Modern CPU- Storing Data: Types of storage – Devices measuring and Improving Drive Performance.
3. **Operating Systems:** Meaning of operating Systems – Review of different operating systems – Understanding and using DOS and Windows.
4. **Software Packages:** Word Processing – Power Point – MS Excel -MS Access
5. **Internet and World Wide Web** – E-mail and other internet services –connecting to the internet
6. Protecting Privacy, Computer and Data, Ergonomics.

Recommended Books:

- Norton, Peter. ***Introduction to Computers.*** McGraw-Hill Publishers, USA
- Sarah E. Hutchinson and Stacey C Sawyer, '***Computer and Information Systems',*** Irwin, New York, USA
- Manuals of relevant software packages.

MIS 1105: Bangladesh Studies

Course Objectives: This course introduces the students of business administration to the historical, ecological, social, economic, political, governmental, financial and developmental aspects of Bangladesh. It also helps the students to know about Bangladesh, its people, origin, area, history and resources of Bangladesh, government, constitution, polities, administration, policies and economy.

Learning Outcomes: On completing the course student will be able to -

- identify specific stages of Bangladesh's political history, through the ancient, medieval, colonial and post-colonial periods
- appreciate the social structure of Bangladesh, particularly its plurality of cultural identities, with a clear sense of why tensions and contestations between social groups may emerge from national and global factors
- comprehend how different constitutional bodies and socio-political institutions operate and how their behavior impacts on political governance
- understand the structural features of the economy and patterns of economic changes
- appreciate the role of NGOs and civil society in developing new models and pathways to resolve the range of development challenges that the country is currently facing

Course Contents:

UNIT I

History of Bangladesh

People of Bangladesh, origin and Anthropological Identity; Territories of Bangladesh in Ancient Time; Bangladesh during the Muslim Rule; British Colonial Rule in Indian Sub-Continent; The Pakistan Movement and the Birth of Pakistan; Language Movement, 1948-52; Juktafront Electrons, 1954 and Six Point Program, 1966; Mass Upsurge of 1969 and Elections, 1970; and Birth of Bangladesh.

UNIT II

Physical and Natural Resources of Bangladesh

Physical Features of Bangladesh: Location, Climate and major Physiographic Units; Surface Water Inflow and River Systems of Bangladesh; Pattern of Agriculture and types of Forest in Bangladesh; Mineral Resources and Industrial Setup in Bangladesh; Density and Distribution of Population in

Bangladesh.

UNIT III

Political administrative and Legal Environment of Bangladesh

Forms of Government and State Mechanisms (Executive, Legislatures, Judiciary) of Bangladesh; Constitution of Bangladesh and its Amendments; Administrative Structure of Bangladesh; Political Parties of Bangladesh; Different Political Regimes of Bangladesh; Foreign Policy of Bangladesh.

UNIT IV

Socio-economic Environment of Bangladesh

Social Structure and Social Stratification in Bangladesh; Population Migration from Rural to Urban areas in Bangladesh; Ethnic Minorities in Bangladesh; Social Problems of Bangladesh; Macroeconomic Trends of Bangladesh Economy: GDP, Savings, Investment and Employment; Trust Areas of Bangladesh Economy: Poverty Alleviation and Private Sector Development.

1. Bengal in Pre British Rule (Bangla 1757)

Required Text Books

Banglapedia: National Encyclopedia of Bangladesh, Edited by Prof. Sirajul Islam [Latest Edition (2006)].

Reference Books:

History of Bangladesh: Social and Cultural History, Political History, Economical History by Mr. Sirajul Islam. Bangladesh National Cultural and Heritage: An Introductory Reader Edited by Mr. A F Salauddin Ahmed.

State Owned Enterprises: Power and Energy, Transport and Communication.

VIVA-VOCE -25

MIS 1201: Business Mathematics

Course Objectives: This course has been designed for the students to:

- Provide an introduction to the important quantitative tools of linear programming, optimization using calculus and matrix theory.
- Provide numerous examples of the applicability of quantitative techniques in the administration of an enterprise.
- Recognize problem in the job that can be solved using mathematical concepts and methods in business decision-making.

Learning Outcomes: On completing the course student will be able to -

- explain the concepts and use equations, formulae, and mathematical expressions and relationships in a variety of contexts
- apply the knowledge in mathematics (algebra, matrices, calculus) in solving business problems
- analyze and demonstrate mathematical skills required in mathematically intensive areas in economics and business

- integrate concept in international business concepts with functioning of global trade

Course Contents:

1. **Basic Concepts:** Concepts of number system – Fractions – Exponents – Equations – Factoring – Polynomials – Ordered pairs – Relations – Functions – Types of functions.
2. **Set Theory:** Sets, set notation, operations with sets, laws of set operations, ven diagrams – application of set theory.
3. **Logarithms:** Rules for logarithms, common logarithms, calculation of logarithm of a number, natural logarithm,
4. **Trigonometry:** Trigonometric ratios.
5. **Equation System:** Solution of equations – Simultaneous equation system – Solution of simultaneous equation systems with specific applications to business problems – Inequalities.
6. **Geometry:** Cartesian co-ordinate system – Distance between two points – Straight line – Slopes – Intercepts – Equation of a line – Application of linear equations.
7. **Differential Calculus:** Explanation of the concepts of limits and continuity – Derivative and differentiation – Rules of differentiation – Higher order differentiation – Chain order differentiation – Exponential and logarithmic differentiation – Partial differentiation – Optimization – Rate of Growth and decays.
8. **Integral Calculus:** Meaning of integration – Rules of integration – Indefinite integral – Definite integral – Resource depletion – Resource allocation – Area between curves.
9. **Univeriate and Multivariate Calculus:** Types & applications.

Recommended Books:

- Helen B. Siner, Maracia Brener Sorkin, Roslyn R. Attinson, & Gordon A. Dipaolo, ***Mathematics for Decisions,*** D. Van Nostrand Company, New York, USA
- P.C. Sancheti & V.K. Kappor, ***Business Mathematics,*** S. Chand & Sons, New Delhi, India
- John Hegarty, ***Calculus for Management and Social Sciences,*** Allyn and Bacon, Inc, Boston, USA
- Prank S. Bundwick, ***Applied Mathematics for Business, Economics and Social Sciences,*** McGraw Hill Book Company, New York, USA
- Alpha C. Chang, ***Fundamental Methods of Mathematical Economics,*** McGraw Hill Book Company, New York, USA

MIS 1202: Microeconomics

Course Objectives: This course has been designed for the students to -

- provide a conceptual and theoretical knowledge about the microeconomic issues and principles concerning the operation of the firm and households
- focus on the economic way of thinking and develop a necessary understanding of economic decision-making
- learn how to explore difficult policy problems and make more informed decisions in their own economic live through problem solving, case discussions and other experiential assignments.

- facilitate students in building up the conceptual framework for the further study of macroeconomics and business issues related to the economics

Learning Outcomes: On completing the course student will be able to -

- explain the cost of choices and trade-offs
- illustrate society's trade-offs by using a production possibilities frontier (or curve)
- explain the assumption of rationality by individuals and firms
- define marginal analysis
- differentiate between positive and normative statements

Course Contents:

1. **Introduction:** Definition of economics – Microeconomics vs. Macroeconomics – Scope of economics – Meaning of economic theory – Some basic concepts: Product, commodity, want, utility, consumption, factors of production.
2. **Utility Analysis** – Indifference Curve Analysis: Utility functions – Indifference curves and maps – Budget constraints – Utility Maximization.
3. **Demand:** Law of demand – Factors determining demand Shifts in demand functions – Deriving demand curves – Substitution and income effects – Deriving aggregate demands – Various concepts of demand – elasticity and measurements – Methods of estimating demand functions and demand forecasting.
4. **Supply:** Law of supply and supply function – Determinants of supply – Shifts in supply – Elasticity of supply – Market equilibrium.
5. **Production:** Production functions – Total, Average and marginal products – Law of diminishing marginal physical products – Production isoquants - Marginal Rate of Technical substitution (MRTS) – Optimal combination of inputs – Expansion path returns to scale – Estimation of production function and efficiency criterion.
6. **Cost:** Concepts of cost – Short-run costs – Relation between short-run costs and production – Long-run costs – Economics and Diseconomies of scale – Relation between short-run and long run costs – Cost function and estimation of cost function.
7. **Markets and Revenue:** Meaning of market – Different forms of market – Concepts of total, average and marginal revenue- Relation between AR and MR curves – Relation between different revenues and elasticities of demand – Equilibrium of the firm.
8. **Price and Output:** Price and output determination under perfect competition, monopoly, monopolistic competition and oligopoly – profit maximization – Price discrimination – Plant shutdown decision – Barriers to entry.
9. **Market Failure:** Externalities, Public goods, market failures in information (Adverse selection, moral hazard and social insurance).

Recommended Books:

- Samuelson P. and W. Nordhaus, ***Economics,*** McGraw Hill Book Co., New York, USA.
- Mankiw, ***Principles of Microeconomics,*** Macmillan Press, UK
- K. K. Dewett; ***Modern Economics Theory,*** S. Lac Charitable Trust, New Delhi.

- R. J. Ruffin and P. R. Gregory, ***Principles of Microeconomics,*** Scott Foreguson & Company, Illinois,USA
- S. Charles, Mauriceand Charles and W. Smithsons, ***Managerial Economics: Applied Microeconomics for Decision Making,*** Richard D. Irwin inc, Illionis, USA

MIS 1203: Business Communication

Course Objectives: This course has been designed for the students to -

- make them competent in effective business communication
- train them conducting operations and management of business organizations
- give them theoretical knowledge of basic communication theories
- apply their theoretical knowledge in functional English in business writing through business letters, reports, internet and other electronic media

Learning Outcomes: On completing the course student will be able to -

- apply business communication theory to solve workplace communication issues
- demonstrate the communication skills required in the workplace
- understand complex ideas in written and spoken formats
- express complex ideas accurately in written and spoken formats
- manage resources effectively and efficiently in an academic context
- obtain information from a variety of sources and use it ethically

Course Contents:

1. **Basic English Skills:** Parts of Speech – Sentence – Paragraph – Punctuation – Spelling.
2. Business Writing Skills: Planning Letters and Memos – Choosing the right words – Creating an appropriate tone.
3. **Business Letters and Memos:** Letters of request, appointment, order, transmittal, adjustment request- Favorable reply, Unfavorable reply, Acknowledgment – Unfavorable reply.
4. **Employment Communications:** Preparing a CV/Resume – Writing and application letter – Completing an application form.

5. **Organizational Communication.**

   a. Interpersonal communication – Oral and written communication – Formal and informal communication / grapevine – Problems of organizational communication in the business enterprises of Bangladesh – Improvement of communication.

   b. Writing notice, agenda and minutes of meetings – Report writing – Informational and analytical reports – Planning business reports – Organizing business reports – Writing style of reports.

   c. Commercial Terms and Abbreviations.

Recommended Books:

- Raymond V. Lesikar, John D. Petitt, Jr. and Marie E. Flatley, ***Basic Business Communication,*** Irwin, Chicago, USA.
- M.J. Burnett and A. Dollar, ***Business English: A Communication Approach,*** Allyn and Bacon, Inc., Boston, USA

MIS 1204: Fundamentals of Management Information Systems

Course Objectives: The rapidly changing technology is considered by many a key factor of sheer survival as well as of strategies for achieving a competitive advantage and sustainability. This course will explore how organizations manage this technology toward strategic outcomes. The course balances the conceptual and practical orientation by using the textbook materials, cases, and students' research on the business literature as well as on real organizations.

Learning outcomes: After completing this course students will be able to -

- provide a conceptual and theoretical knowledge about the functions of Management Information Systems
- develop critical ways of thinking (analysis and synthesis) for evaluating and applying a variety of concepts and techniques in managerial decision making situations through case discussions and other experiential assignments

Course Contents:

1. Foundation of information systems in Business
2. Business Information Systems in Your Career
3. E-Business: How Businesses Use Information Systems
4. Achieving Competitive Advantage With Information Systems
5. Foundations of Business Intelligence: Databases and Information Management
6. Telecommunications, the Internet and Wireless Technology
7. Achieving Operational Excellence and Customer Intimacy: Enterprise Applications
8. E-Commerce: Digital Markets, Digital Goods

Recommended Books:

- Laudon K C, and Lane P. Laudon, ***Management Information Systems: Managing the digital firm,*** Prentice Hall, India.
- James O'brien, ***Introduction to Information Systems,*** McGraw–hill, USA
- Haag, S and Cumming, M. ***Management Information System,*** Mcgraw-Hill, USA

MIS 1205: General Science & Environment

Course Objectives: This course has been designed for the students to -

- understand the basic principles of astronomy, biology, chemistry, geology, meteorology and physics
- understand the methodology and processes of science
- relate their scientific knowledge to both the natural and technological worlds around them
- explain the differences between scientific and other ways of knowing

Learning outcomes: After completing this course students will be able to -

- demonstrate a general understanding of the breadth and interdisciplinary nature of environmental issues
- demonstrate a general understanding of the qualitative and quantitative research methods to gain empirical evidence bearing on evaluation of environmentally sustainable alternatives
- demonstrate depth of critical analysis and writing of environmental problems that span popular, 'gray' and primary publications
- demonstrate the ability to locate, interpret and apply published research and lessons from successful projects to a focused environmental solution with potential regional stakeholders
- design, conduct and present (orally and in writing) independent research that is consistent with the highest standards and practices of research in environmental science

Course Contents:

1. Force of Gravity, weight and friction

Force-gravitational force-centripetal force-weight of standard masses-why weight varies-relation between total gravitational force and weight-action and reaction forces-weightlessness-artificial weight in a space station-friction-static friction-sliding friction-coefficient of friction-nature of friction-brakes ¬lubrication-air lubrication-further developments

2. **Speed, velocity and acceleration**

Average speed-actual speed-scalar and vector quantities-distance and displacement-velocity-acceleration-equations of uniformly accelerated motion velocity-time graphs-uniformly accelerated motion represented graphically velocity from distance-time graph-acceleration from velocity-time graph Galileo Galilei-simple pendulum and measurement of g-distance moved by a freely falling body related to time of fall-to measure g by the use of a centi-second timer.

3. **Newton's laws of motion**

Newton's first law of motion-momentum-Newton's second law of motion-to verify experimentally that F oc ma-weight of a body expressed in newtons-to calibrate a spring balance to measure mass as well as weight-weight of a body in a lift Newton's third law of motion-conservation of momentum-rocket propulsion jet engine.

4. Work, energy and power

Work-energy-mechanical energy-interchange of energy between p.e. and k.e. - internal energy-transfer of energy from one kind to another-heat energy-sun as a source of energy-nuclear energy-future of nuclear power installations conservation of energy and mass-thermonuclear energy-power and its unit-to measure personal power-kinetic energy calculation.

5. Some molecular properties of matter

Atoms and molecules-Brownian movements, kinetic theory of matter-nature of the force between atoms and molecules-three states or phases of matter-to measure the approximate length of a molecule-diffusion-surface tension-molecular explanation of surface tension-adhesion and cohesion-capillary attraction¬ osmosis-strength of materials-elasticity-Hooke's law-industrial applications of metallurgical studies-fluid friction-demonstration of terminal velocity.

6. Atoms-the big idea

Atoms, elements, and compounds-more about atoms-Isotopes and A_t-How electrons are arranged-how ideas of the atoms are developed-The atom: the inside story

7. **Bonding**

Why compounds form-the ionic bond-Some other ions-Ionic compounds and their properties-the covalent bond-Covalent substances-Metals: more giant structures.

8. Reactions, equations, and amounts

The masses of atoms-percentage composition of a compound-the formula of a compound-equations for chemical reactions-calculations from equations calculating the volumes of gases-calculations on electrolysis.

9. Energy Changes and reversible reactions

Exothermic and endothermic reactions-explaining energy changes-reversible reactions-shifting the equilibrium-making ammonia in industry-fertilizers-the pros and cons of fertilizers.

10. Useful materials from cruid oil

Cruid oil-separating oil into fractions-cracking hydrocarbon-the alkaline and alkenes-polymerization and plastics-polythene-here to stay-oil and environment-global warming.

11. Chemistry and the Environment

Carbon and nitrogen cycles, Good drinking water-clean water, cleaning sewage, drinking water, Water and fertilizers-eutrophication, nitrates in drinking water, Burning fuels and the air-burning coal, burning petrol and diesel oil, Ozone/greenhouse effect-the ozone hole, the greenhouse effect, More rubbish archaeology's treasure trove, getting rid of the rubbish, landfill sites, Cars of tomorrow-car bodies, emissions, safety features, Home of the future-the shell - walls, the roof, inside the house.

VIVA-VOCE -25

MIS 2101: Macroeconomics

Course Objectives: This course has been designed for the students to -

- develop an understanding about the principles of macroeconomics
- concern them about the major goals of macroeconomics
- introduce them to the nature and the scope of macroeconomics
- inform them about macroeconomic performance relies on measures of economic activity, focusing on variables and data at the national level within a specific period of time
- prompt the students to think critically about the national and global issues that we currently face

Learning outcomes: After completing this course students will be able to -

- describe the principles of macroeconomics in relation to measuring national economic goals of economic growth, full employment and price-level stability
- apply macroeconomic measures to analyze unemployment and inflation including contrasting economic views on unemployment.
- explain the components of aggregate economic activity, fluctuations and effects for the national economy and how fiscal policy is used to achieve economic goals.
- explain how the components of monetary policy are used to influence financial markets in achieving national economic goals.
- explain the functioning of international trade in relation to a country's trade balances, exchange rates and other aspects of macroeconomic performance.

Course Contents:

1. **Introduction :** Definition of macroeconomics - Meaning of economic models - Goals of economic policy - Definition of macro-economic variables : inflation, unemployment, Productivity, production capacity, input, output, business cycle - Aggregate demand and aggregate supply
2. **National Income accounting :** Gross National Income (GNP) - Circular flow of income - The expenditure approach - The income approach - The output approach - Other income concepts - Real vs nominal GNP - Limitation of GNP as measure of human welfare.
3. **Market Economy:** Determination of AD, AS., Markets and prices - Operation of Market economy - Economic decisions in market economy.
4. **Income Determination:** Savings and investment - Consumption schedule: household and national - Average and marginal propensity to consume - Multiplier effect - Impact of government tax and expenditure.
5. **Inflation:** Measures of inflation - Causes of inflation - Source of inflationary pressure - Consequences of inflation - deflation.
6. **Money and Monetary Policy :** Meaning of money - Different concepts of money (M1, M2, M3) - Credit creation by banking system - Function of money - Demand for and supply of money - Velocity of money - Long-run impact of money on prices - Short-run impact of money on output-

Changes in income velocity - Monetary policy.

7. **Fiscal Policy:** Theory of fiscal policy - Relationship of fiscal policy to monetary policy - Problems in implementing fiscal policy.
8. **Employment :** Labor demand schedule - Real wage rate and aggregate demand for and supply of labor - Inflation and the equilibrium - real wage rate and employment - Impact of market power on employment and prices - The effect of aggregate demand and supply on output and prices- Phillips Curves - Price and wage control - Unemployment and its types - Removing unemployment.
9. **Open Economy:** Exchange rate regimes, Balance of payments, Fiscal and monetary policy.

Recommended Books:

- David C. Klingaman, ***Principles of Macroeconomics,*** Wordsworth Publishing company, USA.
- Lloyed G. Reynolds, ***Macro economics: Analysis and Policy,*** Richard D. Irwin, Inc, USA.
- K. K. Dewett, ***Modern Economic Theory,*** Shyam Lal Charitable Trust, New Delhi, India.
- Samuelson P. and W. Nordhaus : ***Economics,*** Mcgraw-Hill Publishing, USA.
- H. L. Ahuza, ***Modern Economics,*** S. Chand & Co. Ltd. New Delhi, Indi

MIS 2102: Principles of Finance

Course Objectives: This course has been designed for the students to -

- introduce them to the basic concepts in finance and analytical tools used in business finance.
- manage the principles to financial resources of the enterprise
- develop the financial skills and logical thought processes necessary to understand and discuss financial policy decisions
- understand the capital budgeting using financial statements, nature of financial markets, and multinational financial management

Learning outcomes: After completing this course students will be able to -

- utilize time value of money principles to value bonds and shares
- employ various capital budgeting techniques to evaluate investment projects
- determine the risk and return of various investment assets
- explain and apply the theory of capital structure

Course Contents:

1. **Introduction :** Concept of finance and financial management – The finance functions – The objectives of financial management – Maximizing shareholder's wealth versus other goals – Changing role of financial management.
2. **Financial Statement Analysis:** Financial statement – Ratio analysis – Uses and implications.
3. **Financial forecasting** – Cash budget.
4. **Operating and financial leverage** – Leverage in business – operating leverage – Financial

leverage.

5. **Working capital management** – Nature, sources, forecasting the working capital need – Financing and control of working capital.
6. Management of cash, marketable securities and accounts receivable.
7. **Short-term financing** – Trade credit, Bank credit - Financing through commercial papers – Accounts receivable financing – Inventory financing.
8. **The time value of money** – Why money has time value – Compound and present value of single amount and annuity – Determining the annuity value – Determining the yield on an investment
9. **Cost of Capital**: Definition – Concepts – Significance of cost of capital – Specific costs of capital: debt, preference stock, equity, retained earnings – Weighted average cost of capital – Uses of cost of capital.
10. **Capital Budgeting:** Meaning of capital budgeting – Importance of capital budgeting – Capital budgeting process – Relevant cash flows and estimates – Evaluation techniques (PB, ARR, NPV, IRR, and Profitability Index) – Selection strategy – Capital rationing.
11. **Risk Analysis and Capital Budgeting:** Definition of risk Concept of risk averse – Actual measurement of risk – Risk and capital budgeting process.

Recommended Books:

- J. J. Hampton, ***Financial Decision Making,*** Prentice- Hall International Inc., Englewood Cliffs, USA
- E.F. Brigham, ***Financial Management: Theory and Practice,*** Dryden Press, Hinsdale, USA.
- I. M. Pandey, ***Financial Mangement,*** Vikas Publishing House Pvt. Ltd., New Delhi, INDIA
- M. Y Khan and P. K. Jain; ***Financial Management: Text and Problems,*** Tata Mcgraw – Hill Publishing Company Limited, New Delhi, INDIA
- Brearley, R. A. & S. C. Myers: ***Principles of Corporate Finance,*** McGraw-Hill Book Company, USA

MIS 2103: Business and ICT Laws

Course Objectives: This course has been designed for the students to -

- demonstrate the relationship between law & economic activity by developing the student an awareness of the legal principles involved in business transaction
- develop in the student an understanding of the free enterprise system and the legal safeguard of the same
- develop in the student an appreciation of the significant role played by the judiciary in the protection of individual liberty and private property
- develop in the student acceptable attitudes and viewpoints with respect to business ethics & social responsibility

Learning outcomes: After completing this course students will be able to:

- explain the benefits and disadvantages of using different forms of contracts
- apply different perspectives to problems that can occur throughout the life of a contract
- construct written work which is logical, professionally presented and which addresses specific questions
- communicate ideas in a succinct, memorable and clear manner

Course Contents:

1. Law of Contract: Definition, Rules of offer and acceptance, consideration, types of contract, breach of contract, contract through agents.
2. Laws relating to sales of goods, negotiable instruments, carriage of goods by land and sea, Law of insolvency.
3. The Companies Act 1994.
4. Partnership Act.
5. ICT Act of Bangladesh.
6. Bank and insurance Act.

Recommended Books:

- Charlsworth, ***Mercantile Law,*** Stevens & Sons, London.
- A.K. Sen, ***Handbook of Commercial Law,*** A Mukherjee & Co. (PVT) Ltd. Calcutta.
- M.C. Shukla, ***A Manual of Mercantile Law,*** Chand & Company.
- Companies Act 1994.
- ICT Act 2006
- Gazattes and ordinace by Government of Bangladesh.

MIS 2104: Principles of Marketing

Course objectives: On completing the course student will be able to -

- make the product or service widely known and recognized to the market
- creative and wise enough to promote their products within the proper marketing tactics
- provide a direction for changes and also prepare to take appropriate strategies for sustaining, competing and winning the global race of selling goods, services and ideas

Learning outcomes: After completing this course students will be able to -

- understand key terms, topics, and concepts in marketing
- understand and apply marketing concepts to real life situations from consumer and managerial perspectives

Course Contents:

1. Marketing's Role in the Global economy – Marketing's Role within the Firm or Nonprofit Organization – Focusing Marketing Strategy with Segmentation and Positioning – Evaluating Opportunities in the Changing Marketing Environment.
2. Demographic Dimensions of the Global Consumer Markets
3. Behavioral Dimensions of the consumer Market
4. Business and Organizational Customer and their Buying Behavior
5. Improving Decisions with Marketing Information
6. Elements of Product Planning for goods and services
7. Place and Development of Channel systems
8. Retailer and Wholesalers, and their strategy planning

9. Promotion – Introduction to integrated Marketing Communications – Personal selling – Advertising and sales promotion
10. Pricing Objectives and policies
11. International Marketing

Recommended Books:

- Kotler, P. ***Principle of Marketing,*** Prentice Hall, USA
- Perreault, W. and McCarthy, Jerome. ***Basic Marketing: A global – Managerial Approach,*** Prentice Hall, USA

MIS 2105: Advanced Business Mathematics

Course Objectives: The objectives of the course are for students not only to know the mathematics of these concepts, but also to be able to apply the concepts to analyze and interpret information in business and financial application problems. It will also help the students to taking business decision using the existing information regarding business.

Learning outcomes: After completing this course the students will be able to -

- understand the advanced concepts of Mathematics
- have a proper understanding of mathematical applications in Economics, Finance, Commerce and Management
- apply the knowledge of mathematics (algebra, matrices, calculus) in solving business Problems
- examine and exhibit mathematical abilities required in mathematically intensive areas in business
- business management can be done more effectively in some cases by use of more advanced mathematics such as calculus, matrix algebra and linear programming

Course Contents:

1. **Ordinary Differential Equation (ODE):** Degree and order of ordinary differential equations; Formation of differential equations; Solution of first order differential equations by various methods; solution of differential equation by the method based on factorization of operators.
2. **Partial Differential Equations (PDE):** Four rules for solving simultaneous equations of the form; Lagrange's method of solving PDE of order one; Solution by separation of variables. Linear PDE with constant coefficients.
3. **Matrices**: Definition of matrix; Different types of matrices; Algebra of matrices; Adjoint and inverse of a matrix; Elementary transformations of matrices; Matrix polynomials; Calay-Hamilton theory with uses of rank and nullity; Normal and canonical forms; Solution of linear equations; Eigenvalues and eigenvectors.
4. **Vector Spaces:** Definition and properties, subspaces, basis and dimension, change of basis; Linear Transformation (LT): definition and properties, linear operator matrix, geometry of LT, standard plane LT.
5. **Vector Algebra:** Scalars and vectors, equality of vectors; Addition and subtraction of vectors;

Multiplication of vectors by scalars; Scalar and vector product of two vectors and their geometrical interpretation; Triple products and multiple products; Linear dependence and independence of vectors.

6. **Vector Calculus:** Differentiation and integration of vectors together with elementary applications; Definition of line, surface and volume integrals; Gradient, divergence and curl of point functions, various formulae, Gauss's theorem, Stoke's theorem, Green's theorem.
7. **Fourier Analysis:** Real and complex form of Fourier services; Finite transform; Fourier Integral; Fourier transforms and their uses in solving boundary value problems of wave equations.
8. **Laplace Transforms:** Definition; Laplace transforms of some elementary functions; Sufficient conditions for existence of Laplace transforms; Inverse Laplace transforms; Laplace transforms of derivatives. The unit step function; Periodic function; Some special theorems on Laplace transforms; Partical fraction; Solutions of differential equations by Laplace transforms; Evaluation of improper integrals.

Recommended text:

- Charles D. Miller, Stanley A. Salzman and Gary Clendenen, ***'Business Mathematics,*** Addison-Wesley, USA.
- Earl K. Bowen, ***Mathematics with applications in Management and Economics,*** IRWIN, USA.
- Knut Sydsaeten, Peter Hammond, ***Essential Mathematics for Economic Analysis*** Prentice Hall, USA.
- Peter J. Lambert, ***Advanced Mathematics for Economists***, Blackwell, London.
- Chiang, A.C and Wainwright, K. ***Fundamental Methods of Mathematical Economics***, McGraw-Hill, USA.

MIS 2201: Advanced Information Systems

Course Objectives: Advanced Information System is a continuous course from Information System Analysis and Design. This course gives the student knowledge and skills of how to design an Information System based on requirement analysis. This course uses Object Oriented Approach to make system design. This course also helps students to create business idea in a group, analyze business model, and create system design based on their business idea.

Learning outcomes: After completing this course students will be able to -

- develop an understanding of fundamental concepts and key principles in the area of Management Information Systems
- analyze managerial and organizational issues, apply relevant knowledge to come up with solutions, and make recommendations
- use knowledge and skills related to digital technologies to enhance business administration and decision making
- collaborate as a team member in varying roles in a diverse group and communicate effectively

Course Contents:

1. Organizational Foundation of Information Systems,
2. Psychological and Behavioral Aspects of Information Systems,
3. Technical Foundation of Information Systems,

4. Computer based information systems, user requirements, analysis and specification of systems requirement,
5. Life cycle and security.
6. Building in formations Systems, Organizations, and Management & Strategy.
7. Management and Organizational Support Systems,
8. Managing Contemporary Information Systems.
9. Improving Decision Making and Managing Knowledge
10. Ethical and Social Issues in Information Systems
11. Enterprise and Global Management of Information technology

Recommended Books:

- Laudon K C, and Lane P. Laudon, ***Management Information Systems: Managing the digital firm,*** Prentice Hall, India.
- Valacich, J. and Schneider, C. ***Information System Today: Managing the Digital World.*** Prentice-Hall, USA

MIS 2202: International Business

Course Objectives: This course has been design for the students to -

- understand and apply the key terms, definitions, and concepts used in business with an international perspective
- evaluate environments influencing international business
- explain the impact of global and regional influences on international business
- apply basic internationally oriented marketing strategies (4 Ps)

Learning outcomes: After completing this course students will be able to:

- apply theoretical concepts and analytical tools to address managerial problems in international business
- understand, explain and analyze the complexity and diversity of the international business environment
- recognize global issues and discuss their implications for international business
- critically analyze and interpret information as well as international economic and political developments for managerial decision-making
- communicate and present analytical findings and strategic recommendations in relation to international business operations of a firm

Course Contents:

1. **Definition of international business** - Importance of international business in the world economy - Trends of international business with reference to Bangladesh.

2. **International Business and the Theory of Comparative Advantage:** Economic basis for international business - The source of international business - The principle of comparative advantage, Economic gain from business, Effects of business quotas - Heckscher Ohlion Theorem.
3. **Protectionism and Free Business :** Arguments/economics of protectionism - Incitements of protectionism - Multilateral business negotiation - Removing barriers to free business - GATT as an initiative for liberalizing business.
4. **The Economics of foreign exchange:** Balance of international business - International financial system.
5. **International Business Transactions:** International transfer of bank deposits resulting from international transactions - How foreign business is carried out - export and import transactions.
6. **Foreign Exchange markets** - Equilibrium exchange rates - Determinants of foreign exchange rate - Nominal and real exchange rates - Appreciation and depreciation of currencies - International balance of payments - Current accounts, capital accounts.
7. **Issues of International Economics :** The Bretton Woods System - The International Monetary Fund (IMF) - The World Bank (WB) - World Business Organization (WTO), RTA (Regional Trade Agreement)
8. **Bangladesh and International Business :** Bangladesh's position in the community of developing countries - Business intensity and terms of business of Bangladesh with in the SAARC - trends and composition of exports and imports of Bangladesh - Major business partners of Bangladesh.

Recommended Books:

- G. Jempa and A. Rhoen, ***International Trade, A Business Perspective.*** Addison Wesley Longman, Eurpoe. (Pearson Education Asia)
- Ricky W. Griffin: ***International Business: A Managerial Perspective;*** Addision - Wesly Publishing Co. New York, USA.
- K. K. Dewett; ***Modern Economics Theory:*** S. Lac Charitable Trust, New Delhi, India.
- P.H. Lindert, ***International Economics,*** Irwin, Illinois, USA.
- Joha D. Danials, lee H. Radebangh, Daniel P. Sullivan, ***International Business: Environments and Operations.*** Prentice-Hall, USA

MIS 2203: Operations Management

Course Objectives: Operations Management (OM) is concerned with the management of resources and activities that produce and deliver goods and services for customers. Efficient and effective operations can provide an organization with major competitive advantages since the ability to respond to customer and market requirements quickly, at a low cost, and with high quality, is vital to attaining profitability and growth through increased market share. This course focuses on the basic concepts, issues, and techniques for efficient and effective operations.

Learning Outcomes: On completing the course student will be able to -

- understand key concepts and issues of OM in both manufacturing and service organizations

- understand the interdependence of the operations functions with the others key functional areas of a firm
- apply analytical skills and problem- solving tools to the analysis of the operations problems

Course Contents:

1. Introduction to the field.
2. Operations Strategy and Competitiveness.
3. Product Design and Process Selection: Manufacturing and Services.
4. Facility Location
5. Facility Layout
6. Inventory Control
7. Job Design and Work Measurement
8. Strategic Capacity Management
9. Material Requirement Planning
10. Aggregate Sales and Operations Planning

Recommended Books:

- Chase, Jacobs and Aquilano ***Operations Management for Competitive Advantage***, McGraw-Hill Publications. USA
- Lee J. Krajewski and Larry P. Ritzman, ***Operations Management: Strategy and Analysis,*** Addison Wesly Publishing Company, USA.
- Schroeder, R.G. ***Operations Management: Contemporary Concepts and Cases,*** McGraw-Hill Publications, USA.

MIS 2204: Auditing, Taxation and IT

Course Objectives: This course has been designed for the students to -

- familiar with the individual and corporate taxation rules and policies
- make students familiar with the principles, objectives and types of taxation, tax assessment procedures, provisions of income tax, wealth tax, VAT, functions of tax authorities and the role of NBR
- understand the impact of taxation on the financial objectives of the organization and handle the tax related affairs effectively

Learning outcomes: After completing this course students will be able to:

- describe and evaluate the accounting and internal control systems and identify and communicate control risks, potential consequences and recommendations thereon
- explain and evaluate the sources of evidence, describe the nature, timing and extent of tests on class of transactions and account balances (including sampling and analytical procedures) and design programs for audit and review assignments

Course Contents:

1. **Introduction:** Definition - Objectives - Advantages - Different classes of audit.

2. **Internal Check or Control:** Definition and purpose - Internal cheque and internal audit - Auditors duty in regard to internal cheque- Audit program.
3. **Vouching:** Meaning and importance-Vouching of cash transactions - Vouching of trading transactions.
4. **Verification and Valuation of assets and Liabilities:** Principles and methods of verification and valuation and verification.
5. **The Audit of Limited Companies:** Qualifications, appointment and removal of auditor-Rights, powers and duties of auditors-Forms of income statement and balance sheet - Auditor's Report.
6. **Income- Tax:** Definition of income and income tax - Characteristics of income - Total income and total world income - Income year and assessment year - Role of income tax law in industrial development of Bangladesh.
7. **Classification of income:** Assessable and non-assessable income.
8. **Heads of income:** Income from salary - income from interest on securities - income from house property-income from agriculture-income from business and profession - capital gains - income from other sources.
9. **Tax assessment and recovery:** Assessment procedures-appeal, revision, recovery, refund and penalties.
10. **Income tax authorities:** Role and legal power.
11. Assessment of individuals, partnerships and public limited companies.
12. **Value Added Tax (VAT):** Introduction: Assessment and payment of Tax - Valuation - Accounting - Refunds - Drawbacks - Calculation of VAT - Controlling evasion of VAT.
13. Application of computer programme in calculation of Income Tax.

Recommended Books:

- Tandon, B.N. ***A handbook of Practical Auditing***. S. Chand and Company ltd. New Delhi.
- Government of Bangladesh, The Income Tax Ordinance 1984 - Part1 & 2 along with modifications up-to-date.
- The institute of Chartered Accountant of Bangladesh, **Taxation Study Manual**, Vol. 1&2.
- Government of Bangladesh, Publications on VAT.

MIS 2205: Programming Fundamentals

Course Objectives: This course has been designed for the students to -

- acquire basic knowledge about fundamentals of programming
- introduce students to develop computer programs

Learning outcomes: After completing this course students will be able to -

- demonstrate problem solving skills by developing and implementing algorithms to solve problems
- derive problem specifications from problem statements
- develop algorithms using modular design principles to meet stated specifications
- create code to provide a solution to problem statements ranging from simple to complex

- test and debug programs and program modules to meet specifications and standards

Course Contents:

1. Introduction to Computer Programming
2. Basic programming concepts;
3. Program development stages: flow charts;
4. Getting started with flowcharts and solving problems using flow chart
5. Programming constructs: data types, operators, expressions
6. Statements, control statements, functions, array.
7. Common problem solving algorithms and writing pseudo codes.

Recommended Book:

Peter Van Roy and Seif Haridi, ***Concepts, Techniques, and models of Computer Programming***, The MIT Press, USA.

MIS 2206: E-Marketing

Course Objectives: This course provides a thorough understanding of the principles and practices associated with using the internet to market goods and services. It explores how the internet can be used effectively to enhance marketing activities of enterprises, non-profits and government agencies. This course will help students to analyze websites and understand the complexities of marketing on the Internet. While working on teams, they will be able to prepare an effective e-marketing plan and deliver a presentation using leading edge web-based tools.

Learning Outcomes: By completing this course students will be able to -

- comprehend the importance of e-marketing and the role of e-marketing plans as a component of corporate level plans
- understand the use of e-marketing tactics and their contribution to the marketing strategy
- understand and manage all aspects of campaigns on e-marketing tactics, as solutions for marketing challenges
- apply leading edge e-marketing tools available today for effective campaign execution and optimization

Course Contents:

1. **Introduction to Digital Marketing:** Definition of Digital Marketing, key concepts of Digital Marketing, Traditional market vs. Digital market, Inbound and outbound marketing, Future of digital marketing, Career scope in e-marketing.

2. **Planning and Creating a Website:** Definition of Website, Different types of websites, How to build a Webpage? What makes a website user friendly? What is responsive website?

3. **Search Engine Optimization:** Understanding Search Engine Optimization (SEO), working process, Basics of SEO, Some important SEO tools, Importance of link building, Use of content marketing for SEO.

4. **Social Media Marketing:** Definition and importance of Social Media Marketing (SSM), Search Engine Optimization vs. Social Media Optimization, List of social media, Social media marketing tools, Some common social media mistakes.

5. **E-commerce Marketing:** E-commerce marketing concepts, Online purchasing decisions, Advantages of E-commerce, using affiliate marketing for e-commerce strategy.

6. **E-mail Marketing:** understanding and benefits of e-mail marketing, why e-mail automation is required?

7. **SMS Marketing:** Introduction of SMS marketing, Importance and types of SMS marketing, How to integrate SMS on software?

8. **Mobile Marketing:** Definition and importance of mobile marketing, Creating a mobile website, Advertising on mobile app, methods of mobile marketing, Future scope.

9. **Affiliate Marketing:** Definition of Affiliate marketing, Types, When to use affiliate marketing, how to choose best affiliate networks?

10. **Customer Relationship Management (CRM):** Fundamentals of CRM, CRM platforms, CRM models, CRM strategy.

Recommended Books:

- STOKES, R**. E-Marketing, the essential guide to marketing in a digital world** (5th. ed.). Retrieved from http://www.redandyellow.co.za/product/textbookdigital/
- Roberts, Mary Lou & Zahay, Debra. **Internet Marketing: Integrating Online and Offline Strategies**, 3rd ed., South-Western Cengage Learning. *Will use a newer edition when it becomes available.

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MIS 3101: Human Resource Management

Course Objectives: This course has been designed for the students to -

- provide a conceptual and theoretical knowledge about the functions of human resource management
- develop critical ways of thinking (analysis and synthesis) for evaluating and applying a variety of concepts and techniques in human resource managers decision making situations through case discussions and other experiential assignments
- facilitate students to become an active problem solver of their own knowledge base by becoming a learner through direct observations of examples of managerial behavior

Learning Outcomes: By completing this course students will be able to:

- critically assess existing theory and practice in the field of HRM
- develop an ability to undertake qualitative and quantitative research
- apply knowledge about qualitative and quantitative research to an independently constructed piece of work
- respond positively to problems in unfamiliar contexts
- identify and apply new ideas, methods and ways of thinking
- demonstrate competence in communicating and exchanging ideas in a group context

Course Contents:

1. **The Development of Human Resource Management:** The concept of human resource management - Early stages of development - Contemporary developments - Human resource management as a profession.
2. **Organizational Considerations in Managing Human Resources:** The organization as a system - Responsibility and authority within the organization - Organization structures - The human resource department in an organization - The personnel program.
3. **Job Requirements:** The role of jobs - Job design - Job analysis - Job requirements and personnel functions - Job descriptions.
4. **Human Resource Planning and Recruitment:** Human resource planning - Recruiting within the organization - Recruiting outside the organization - EEO in recruitment.
5. **Recruitment and Selection:** The steps in recruitment - The exit interview - Reaching a selection decision - Considerations that shape selection policies.
6. **Job Evaluation :** The reasons of job evaluation schemes - Problem areas - Procedure - Techniques - Non-analytical methods - Analytical methods - New methods - Other methods.
7. **Compensation Systems:** Job choice - The influence of compensation on behaviors - Compensation and satisfaction - Administration - Types of Systems - Compensation evaluation - Incentive pay systems.
8. **Training and Development :** The purpose of training - The identification of need - Training programs - Types of training - Management development - Evaluation - Government intervention - Psychological principles of learning.
9. **Career Development:** Phases of a career development program - Career development program for special groups - Personal career development.
10. **Evaluation and Improving Performance:** Objectives of Performance evaluation programs - Performance evaluation methods - Feedback of evaluations - Improving performance.
11. **Safety and health Management:** Concepts, programs, Occupational diseases & their preventive measure.
12. **Disciplining employee:** Concepts, principles, factors, procedures.

Recommended Books:

- Gary Dessler, ***Human Resources Management***, Prentice Hall of India Pvt. Ltd. New Delhi, India.
- Wendell French, ***Human Resource Management***, Houghton Miffin Co., Boston, USA.
- David A. DeCenzo and Stephen P. Robbins, ***Personnel / Human Resource Management,***

Prentice-Hall, Inc, Englewood chiffs, USA.

- Herbert J. Chruden and Arthur W. Sherman Jr., ***Management of Human Resources***, South-Western Publishing Co.
- R.L. Mathis and J. H. Jackson, ***Human Resource Management***, Thomson Asia Private Ltd., Singapore.

MIS 3102: Information Systems Security

Course Objectives: In this course students learn basics of information security, in both management aspect and technical aspect. Students understand of various types of security incidents and attacks, and learn methods to prevent, detect and react incidents and attacks. Students will also learn basics of application of cryptography which are one of the key technologies to implement security functions. At the last session, teams of students will make presentation of their study project for a topic related to information security.

Learning Outcomes: Upon successful completion of this course, the students will be able to:

- explain various Information security threat and controls for it
- analyze a security incidents and design counter measures
- explain information security incident response
- explain the usage of Common Key cryptography and Public Key cryptography
- explain the mechanism to protect confidentiality and completeness of data

Course Contents:

1. **Overview of Information Security:** Definition and history of IS security and privacy, Nature and scope of IS security, Information and data privacy, Security of technical system in organizations, Issues in information security and privacy.
2. **Telecommunications and Network Security**: OSI model; LAN, MAN, WAN technologies; Internet, intranet, extranet issues; Virtual Private Networks, Firewalls, routers and other devices; Network topologies.
3. **Information Security for Server Systems:** Attacks to server systems connected to the internet and counter measures, Attacks to web servers and counter measure, Denial of service attack, Attacks to network systems.
4. **Information Security for client devices:** Attacks of personal computers and smart phones and counter measures, how the malicious software intrudes the device, what the malicious software does to the system, Stolen and lost devices.
5. **Information Security Risk Management:** Identifying Information assets, threats and attacks, Identifying Security risks and evaluation, Risk management process, IS security governance, Information security policy, standards and procedures.
6. **Information Security and Cryptography:** Definition of cryptography, requirements for secure communication, common key cryptography, problems of common key cryptography, public key cryptography, Exercise of public key cryptography.
7. **Encryption:** Definition of Encryption, the art of hacking, Intrusion detection and prevention systems, social Engineering.
8. **Business continuity planning and Disaster recovery planning:** Business resource identification and value assignment, analysis and prediction of possible losses, unit priorities and crisis management, Plan development, implementation and maintenance.

Recommended Books:

Principles of Information Security 3nd Edition, Whitman and Mattord, Thompson – Course Technology

David Alexander, Amanda Finch, David Sutton and Andy Taylor **"Information Security, Privacy and Risk Analysis".**

MIS 3103: Entrepreneurship Development & Small Business Management

Course Objectives: By the end of the course, the students are expected to -

- describe the concepts of entrepreneurship and small business management
- demonstrate competence in identifying opportunities, generating business ideas, developing effective business plan, and managing small business enterprises effectively

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- demonstrate knowledge on the dynamic role of entrepreneurship and small businesses
- explain the stages of the entrepreneurial process and the resources needed for the successful development of entrepreneurial ventures
- perform key steps in the elaboration of business idea
- demonstrate and present successful work, collaboration and division of tasks in a multidisciplinary and multicultural team

Course Contents:

1. **Introduction:** Definition of entrepreneurship - Entrepreneurship and economic development - Entrepreneurship as a critical resource - Entrepreneurship in economic development.
2. **Theories of Entrepreneurship:** Psychological theories - Socio-Psychological and Culture theories - Opportunity and background variables and entrepreneurship.
3. **Entrepreneurship in the Less Developed Countries:** Overview - An entrepreneurial system model - Influences on entrepreneur - Special dimensions of rural entrepreneurship.
4. **Entrepreneurship and Small Business :** Definition of small business - Small business and economic development - Problem of small business development - Entrepreneurship training as an aid to small business - Different schemes of training - Problems in small business.
5. **Entrepreneurship and Small Business in Bangladesh:** A review of attempts - Success and failures - Different schemes of small business development - Exiting schemes and future plans.
6. **Understanding small business** - Practical importance and role of small business throughout the world and in Bangladesh in particular - Career in small business.
7. **Starting a Small Business:** Should one operate a small business? SWOT analysis: understanding of strength, weakness, opportunities and threats of the environment - Idea generation: methods of idea hatching and process of idea validation and implementation - Developing a business plan.
8. **Management of Small Business:** Understanding various aspects of small business management - Marketing of small business - Production and Operations Management in Small business.

9. **Small Business Support Services:** Financial support, technical support, accounting support and other supports - Understanding small business support services required at various stages of business growth - Government and non-government support services in Bangladesh.

Recommended Books:

- Zimmerer, T.W. and Scarborough, N. M. ***Essentials of Entrepreneurship and Small Business Management,*** Prentice Hall of India.
- D. Holt, Entrepreneurship: ***A New Venture Creation Prentice*** – Prentice Hall Inc. New Jersy, USA.
- Kent R. Blawatt, ***Entrepreneurship: Process and Management,*** Prentice Hall Inc. Englewood Chiffs USA.
- Nicholas C. Siropolis, ***Entrepreneurship and Small Business Management,*** Houghton Mifflin Co. Boston, USA.
- Curtis E. Tate, Leon C. Meggision, Charles R. Scott, Lyle R. Trueblood, ***Successful Small Business Management,*** Business Publication, Inc. Texas, USA.

MIS 3104: Statistics for Business

Course Objectives: This course has been designed for the students to:

- distinguish among different scales of measurement and their implications for solving problems
- create tables and graphs to format, organize, and interpret data; summarize and present data
- calculate and analyze numerical descriptive measures for a given data set
- apply concepts of sample space and probability for solving problems
- identify methods of obtaining data and identify the advantages and disadvantages

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- use statistical techniques in business decision making
- develop skills in structuring and analyzing business problems statistically
- utilize computer-based statistical software to perform mathematical calculations and thereby minimize time requirements
- understand the marketing, manufacturing and finance and other functions of the company with statistical techniques

Course Contents:

1. **Introduction to Statistics:** Definitions, sub-divisions within statistics, statistics and business decisions.
2. **Arranging Data and Plots:** Tables, Frequency distribution, stem and leaf displays, cross tabulation, frequency – histograms and polygons, line graphs, bar charts, pie charts, ogives.
3. **Measures of Central Tendency and Variability:** Arithmetic mean, geometric mean, median, mode, range, quartiles, percentiles, interquartile range, variance, standard deviation, coefficient of variation, box plots, moments, skewness.
4. **Correlation and Regression Analysis:** Scatter Plots – Coefficient of correlation, coefficient of determination, limitations of correlation, auto-correlation – Meaning of regression, the method of least square, estimating with regression line, standard error of estimate.

5. **Index Number: Index number and three major types** – price, quantity and value index, unweighted aggregates index, weighted aggregates index, shifting bases of index numbers, issues in constructing an index number.
6. **Time Series Analysis :** Definition of time series, variations in time series, components of time series, trends, cyclical fluctuations, seasonal variations, irregular variations, index numbers as time series.
7. **Forecasting :** moving averages, exponential smoothing, forecasting errors, linear regression, decomposition of time series.
8. **Probability :** Meaning of probability, experiment, events simple and compound, sample space, probability of an event, event relations, independent and dependent events, probability laws, Bayes's Law.
9. **Random Variable and Probability Distribution :** Random variable, discrete random variable, continuous random variable, probability distribution of discrete random variable. Mathematical expectation and variance of a discrete random variable.
10. **Discrete Probability Distributions:** Binomial probability distribution and poison probability distribution.
11. **Continuous Probability Distribution:** Normal distributing tabulated areas of the normal distribution, normal approximation to the binomial distribution.
12. **Sampling and Sampling Distributions :** Sampling, statistic and parameters, types of sampling, sampling distributions, the central limit theorem, sampling distribution of the sample mean and proportion, sampling distribution of the difference between two sample means and proportions.
13. **Large Sample Estimation :** Point and interval estimation, reliability of point and interval estimation, point and interval estimation of a population mean and difference between two means, point interval estimation of binomial proportion and difference between two proportions.
14. **Large Sample:** Tests of Hypotheses : Basis terminology for statistical tests of hypotheses, type I and type II errors, one tailed and two tailed tests, testing hypotheses about difference between two population means or proportions, use of P-values.
15. **Small Samples :** Students t-distribution, small inference about a population mean and the difference between two means, paired difference tests, inferences about population variance (chi-square test), comparing two population variances (F distribution)

Recommended Books:

- Douglas A. Lind and Rebert D. Mason, ***Basic Statistics for Business and Economics,*** Irwin McGraw – Hill, Boston USA.
- Richard I. Levin, ***Statistics for Management,*** Prentice-Hall of India Private Limited, New Delhi, India.
- S.P. Gupta and M.P. Gupta, ***Business Statistics.*** Sultan Chand and Sons, New Delhi, India.
- Muhammad Ali Miah and M. Alimullah Miyan, ***An Introduction to Statistics,*** Ideal Library, Dhaka.

MIS 3105: Programming for IS (Python)

Course objectives: The objectives of this course include -

- teach an example of scripting and interpretative language and compare it with classical compiled programming languages
- introduce the student to python programming fundamentals
- expose students to application development and prototyping using python
- learn to apply fundamental problem solving techniques

Learning outcomes: At the end of this course students will be able to -

- understand principles of Python
- understand the pros and cons on scripting languages vs. classical programming languages (at a high level)
- understand object oriented programming
- understand how Python can be used for application development as well as quick networking, QA and game programming

Course contents:

1. **Python basics:** what it means to write programs, introduction to Python programming language, some of the benefits, some basic functions and keywords of the language, some arithmetic operations, building blocks of programs, what could possibly go wrong?
2. **Installing and using python:** using the python playground, installing python and writing a program
3. **Variables, expressions, and statements:** values and types, variables, keywords, statements, operators and operands, expressions, order of operations, modulus operator, string operations, asking the user for input, comments, choosing mnemonic variable names, debugging
4. **Conditional execution:** Boolean expressions, logical operators, conditional execution, alternative execution, chained conditionals, nested conditionals, catching exceptions using try and except, short-circuit evaluation of logical expressions
5. **Functions:** using functions and building functions
6. **Loops and iteration:** definite and infinite loops, finding the largest value, loop idioms
7. **Strings:** idea of strings, parts of a string, string indexing and slicing, creating new strings, string methods, string formatting, string reference cheat sheet
8. **Files:** opening files, text files and lines, reading and searching through a file, letting the user choose the file name, using try-except and open, writing files
9. **Lists:** list concept, modifying lists, tuples, iterating over lists using enumerate, list comprehensions, lists and tuples operations cheat sheet
10. **Dictionaries:** dictionaries defined, iterating over dictionaries, dictionary methods cheat sheet
11. **Object-oriented programming (OOP):** introduction to OOP, classes and objects in detail, methods and classes, documenting with docstrings, object inheritance, object composition, augmenting python with modules

12. **Writing a script from the ground up:** problem statement, research, planning, using Jupyter notebooks
13. **Software development and processing models:** introduction to software engineering, software design efficiency and testing, waterfall model, incremental model, RAD model, prototyping, spiral model, concurrent development

Recommended Books:

- Charles R. Severance, **Python for Everybody: Exploring Data Using Python 3,** CreateSpace Independent Publishing Platform
- Eric Matthes, **Python Crash Course: A Hands-On, Project-Based Introduction to Programming,** no starch press, San Francisco
- Roger S. Pressman, **Software Engineering – A Practitioner's Approach,** McGraw-Hill International, USA
- E. Balagurusamy, **Programming in Basic,** McGraw-Hill International, USA

MIS 3106: Total Quality Management

Course Objectives: This course has been designed for the students to -

- develop the ability and knowledge to contribute to organizational growth and development by delivering better quality, following the requirements of clients
- develop the confidence, experience and understanding to check existing processes and procedures followed within the organization for adherence to standards set and suggesting changes if required
- provide the knowledge, confidence and experience to work in any organization or industry in quality management related roles, thereby increasing avenues for career growth and progression

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- examine the concepts of quality management and performance excellence in organizations
- evaluate the historical developments in the quality movement and their importance
- analyze quality in organizations such as manufacturing, service, healthcare, education, government, etc.
- illustrating the fundamental principles and practices of quality and performance excellence
- discussing relationships of quality with organizational models in management theory

Course Contents:

1. Introduction to TQM
2. Leadership.
3. Customer Satisfaction.
4. Employee Involvement.
5. Continuous Process Improvement.
6. Supplier Partnership.

7. Performance Measures.
8. Benchmarking.
9. Cost of Quality.
10. Information Technology.
11. Quality Management Systems.
12. Environmental Management Systems.
13. Quality Function Deployment (QFD).
14. Quality by Design.
15. Failure Mode and Effect Analysis (FMEA).
16. Products Liability.
17. Total Productivity Maintenance.
18. Management Tools.
19. Statistical Process Control (SPC).
20. Experimental Design.
21. Taguchi's Quality Engineering.

Recommended Book:

- Besterfield, Besterfield-Michna, Besterfield & Besterfield-Sacre, ***'Total Quality Management,*** Prentice Hall Publication.
- Oakland, John, ***Total Quality Management***, Pitman Publishe, London.
- Garvin, D. ***Managing Quality,*** The Free Press, USA

MIS 3201: Database Management

Course Objectives: The objective of the course is to present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve information from a DBMS efficiently and effectively.

Learning Outcomes:

After studying the course, students will be able to -

- understand terms related to database design & management
- implement relational databases using a RDBMS
- retrieve data using MS Access, SQL and Oracle
- develop relational data models for managing an organization's data in a proper way

Course Contents:

1. The Database Environment
2. The Database Development Process
3. Modeling Data in the Organization
4. The Enhanced E-R Model and Business Rules
5. Logical Database Design and the Relational Model

6. Physical Database Design and Performance, Database Secturity and Integrity
7. Introduction to SQL
8. Advanced SQL
9. The Client/Server Database Environment
10. The Internet Database Environment
11. Data Warehousing
12. Data Quality and Integration
13. Data and Database Administration
14. Overview: Distributed Database
15. Overview: Object-Oriented Data Modeling
16. Overview: Using Relational Databases to Provide Object Persistence

Recommended text:

- Jeffrey A. Hoffer, Mary Prescott, Heikki Topi, '***Modern Database Management,*** Publisher: Prentice Hall, USA
- Connolly, Begg & Holowczak, ***'Business Database Systems'***, Publisher: Addison-Wesley, USA

MIS 3202: Management Accounting

Course Objectives: The course aims to provide the students with the basic ideas regarding various management accounting concepts & techniques and also emphasis the need of management accounting in the decision-making process.

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- explain the different cost accounting systems and how they account for product costs
- relate revenue and cost management concepts and techniques to particular types of organization structures
- identify appropriate information for planning and decision making
- apply management control techniques in organizations

Course Contents:

1. Management Accounting: Basic Concept
2. Accounting Information Systems: An Overview
3. Overview of Business Processes
4. Cost terms and classification
5. Control and Accounting Information Systems
6. Job order costing and process costing
7. Cost-Volume-Profit Relationship
8. Activity Based Costing
9. Standard Costing
10. Flexible Budget and overhead costing
11. System design
12. Computer Fraud and Abuse

Recommended Book:

- Horngren, C.T, Sundem, G.L. Stratton, W.O., Burgstabler, D & Schatzberg, J. ***Introduction to Management Accounting,*** Prentice-Hall, USA.
- Marshall B. Romney & Paul J. Steinbart***, Accounting Information Systems,*** Prentice Hall

MIS 3203: Management Science

Course objectives: Management science approaches in organizations, including modeling and rational approaches to decision-making process emphasizes analysis and communication, using real world applications and cases. Implementation using existing software packages for management science to understand concepts and solve various managerial problems is an integrated part of this course.

Learning outcomes: After learning this course students will be able to -

- Explain the management science approach to identification, analysis, decision, and implementation of problem solving
- Identify, categorize and discuss management problems that can be analyzed by linear programming
- Explain the importance of forecasting in organizations
- Construct models for a variety of PERT/CPM
- Illustrate the decision tree method of analysis for decision making under risk and under certainty and expected value
- Demonstrate the transportation method to solve problems manually and with the northwest corner method

Course contents:

1. Management Science: Characteristics and Process
2. Decision theory: Decision Tables and Decision Trees
3. Game Theory
4. Linear Programming: Theory and Application
5. Mathematical Programming
6. Dynamic Programming
7. Transportation
8. Network Models
9. Markov Analysis
10. Simulation Technique

Recommended Texts:

- Turban and Meredith, ***Fundamentals of Management Science***. Boston: McGraw-Hill, USA.
- Anderson, D.R., Sweeney, D.J, and Williams, T. A, ***An Introduction to management Science.*** West Publishing Company, USA.
- Hesse, R., ***Management Spreadsheet Modeling and Analysis***. Boston: McGraw-Hill, USA.

MIS 3204: Bank & Insurance Management

Course Objectives: There is nothing certain in this world except uncertainty. In this uncertain world, life and business are full of risks. In such a precarious situation the objective of the course is to help students to know how to maintain peace of mind by diffusing risks through the techniques of insurance and banking. This course also provides understanding on legal framework and practices of banking and insurance business in Bangladesh.

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- understand the role and responsibilities of executives at banks and other financial institutions.
- understand the practices, procedures, traditional and state of the art techniques and tools to manage a commercial bank
- get ideas about the current and future trends in banking, but analysis of the existing forces and changes in current banking will be examined along with recent changes in legislation of the financial markets
- understand the risks associated by the unique position that banks hold as a recipient of funds, and how to effectively manage them

Course Contents:

1. **Central Bank** - Structure - Relations with the Government, Commercial Bank and Financial Institutions. Control mechanism and application of Information Technology. Role of central Bank in economic development of a country.
2. **Commercial Bank:** Structure - Management - Lending and investment portfolio - capital structure and safety - Reserve and liquidity requirements - General accounting system - Bank customer relationships.
3. **Specialized Banking System.**
4. **Insurance Management:** Definition - Nature - Role and social values of insurance - insurance contracts - Principles - Essentials of an insurance contract.
5. **Life insurance :** Life assurance contract - kinds of policies and annuities - Procedure of effecting life assurance - Claims and settlement procedures - Premium - Premium plans - Computation of net single premium - Mortality rate - Reserve - Calculation of reserve - Surplus and its distribution.
6. **Marine Insurance** - Fire Insurance - Group Insurance - Accident Insurance - Automobile Insurance.
7. Application of Information Technology in Banks and Insurance companies in Bangladesh.

Recommended Books:

- Edward W. Reed and Edward K. Gill. ***Commercial Banking***. Prentice - Hall, USA
- The Bangladesh Banks (Nationalization) Order, 1972
- Mehr, R. J. and Commeck, E. ***Principles of Insurance***. Richard D. Irwin, Inc. USA.
- Williams, C.A., Young, P.C. and Smith, M.L. ***Risk Management and Insurance***. McGraw-Hill publishers, USA.

MIS 3205: Data Communication and Networking

Course Objectives: This is an introductory course in Data Communications and networking. It familiarizes the students with the basics of data communications, OSI model and techniques, applications and control of modern data communications networks. Topics included are network models, digital and analog transmission, multiplexing, circuit and packet switching. This course will mainly focus to develop engineering skills in troubleshooting and designing data networks.

Learning outcomes: Upon successful completion of this course, the students will be able to -

- understand the basic concepts of data communications and networking. The purpose of network layered models, the Open System Interconnect (OSI) and the Internet Model using TCP/IP protocols
- explain how noise, attenuation, and distortion affect signal transport, encoding methods of analog and digital data digital transmission. Flow and Congestion control
- understand the use of LAN components like Bridges, Switches, Routers etc. and the backbone networks. Understand IP addressing, subnetting and supernetting

Course Contents:

1. **Introduction.** - Requirement. -Business Information. - Distributed Data Processing.
2. **The internet and distributed applications. :** Internet History and Architecture. - TCP/IP and OSI. - Internet-Based Applications. - Client/Server and Intranet Computing. - Internet Operations.
3. **Local Area Network. :** LAN Architecture and Protocols. - Ethernet and Fibre Channel. - Wireless LANs.
4. **Wide Area Network. :** Circuit Switching and Packet Switching. - Frame Relay and ATM. - Wireless WANs.
5. **Data Communications. :** Data Transmissions. - Data Communication Fundamentals. - Data Link Control and Multiplexing.
6. **Management issues.** - Doing Business on the Internet. - Network Security.-
7. Network Management.
8. Fundamentals of GSM, CDMA, GPRS etc.
9. **Network Concepts** : Network Topologies & Protocols, TCP/IP Internetworking, Packet Capture & Analysis with Win Dump & TCP Dump
10. **Networking types & Application :** Enterprise Networks, LANs, WANs, VPNs, Internet, Intranet, Extranet, Network Equipment

Recommended Books:

- William Stallings. ***Business Data Communications***, Prentice Hall, USA
- Tanenbaum, A.S., ***Computer Network***, , Prentice Hall, India

MIS 3206: Simulation

Course objectives : This course has been designed for the students to -

- present a simplified abstraction of the essential elements of a situation
- make explicit the essential relations and fundamental interactions in a situation
- move the time variable ahead at an accelerated speed so that the implications arising from action taken in a dynamic situation may be clearly experienced
- place the participant in a pressure situation, so that he feels the direct impact of decision-making
- offer an opportunity to participate in the teaching-learning process based on a self-teaching approach

Learning Outcomes : After completing this course students will be able to-

- define the different modelling terms by analyzing the system or the data that is present
- learn different mathematical model and their application in simulation
- implement the model and from the results check for the correctness of the assumptions
- analyse the outcomes and make predictions

Course contents :

1. Basic simulation Modeling
2. Modeling Complex System.
3. Simulation : Credible Simulation Models
4. Review of Basic Probability & Statistics
5. Building Valid Software
6. Selecting Input probability Distributions.
7. Random Number Generators
8. Generating Random Variants
9. Output Data Analysis for a Single System
10. Statistical Techniques for Comparing Alternative Systems.
11. Variance Reduction Technique
12. Experimental Design and Optimization
13. Simulation of Manufacturing Systems.

Recommended Texts:

- Law, A. and Kelton, D.M., ***Simulation Modeling and Analysis***. McGraw-Hill, USA
- Pegden, D, Sasoeski, R.P. and Shannon, R. E., ***Introduction to Simulation using SIMAN.*** McGraw-Hill, USA

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MIS 4101: Applied Database (Oracle)

Course objectives: This course has been designed for the students to -

- Understand terms related to database design & management
- Understand the objectives of data and information management in organizations
- Develop relational data models for managing an organization's data in a proper way
- Implement relational databases using a RDBMS
- Retrieve data using MS Access, SQL and Oracle

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- enhance the knowledge and understanding of Database analysis and design
- enhance the knowledge of the processes of Database Development and Administration using SQL and PL/SQL
- enhance Programming and Software Engineering skills and techniques using SQL and PL/SQL

Course Contents:

1. Establish and understanding of Database Administration using the Oracle DBMS interfaces.
2. SVRMGR, OEM tools, Command Line interface and SQL*Plus, SQL-Developer.
3. Apply the Relational Database Model to understand the Logical and Physical aspects of the DBMS architecture.
4. Understand the functions of the Oracle Database Server and Oracle Database Client.
5. Create, maintain and manipulate an Oracle Database.
6. Understand and apply the Data Dictionary.
7. Understand and apply database statistics in relation to performance and integrity of the database.
8. Create and understand the application of user roles, privileges, and the security of the database.
9. Discuss and understand the concepts of Backup and Recovery Procedures.

Recommended text:

1. ***Beginning Oracle Database 12c Administration:*** *From Novice to Professional, Second Edition.* Iggy Fernandez - Apress, 2015 ISBN: 978-1-4842-0194-7
2. ***Oracle Database 12c DBA Handbook ,*** *Manage a Scalable, Secure Oracle Enterprise Database Enviornment* Bob Bryla 2015 ISBN 978-0-07-179878-5

MIS 4102: IT Investment Management

Course objectives: This course provides an up-to-date, in-depth understanding of the methodologies available to aid in this complex process of multi-criteria decision-making. It guides readers on the process of technology acquisition — what methods to use to make IT investment decisions, how to choose the technology and justify its selection, and how the decision will impact the organization.

Learning outcomes: After learning this course students will be able to -

- achieve operational excellence in IT investment management
- create customer supplier intimacy
- improve management efficiency and decision making
- enjoy competitive advantage among competitors
- comply with government policy and directives

Course contents:

1. Basic concept of Investment Management: Risk and Returns-sources of fund.
2. Introduction to Information Technology Payoff.
3. The IT Payoff Paradox.
4. The Strategic Role of Technologies.
5. Failure Analyses.
6. A Process Perspective.
7. Technology Payoff Metrics-Balanced Multiple Objectives.
8. The Technology Curve.
9. Technology Justification Models.
10. Implementing IT Payoff Initiatives: A Framework.
11. Electronic Commerce: Challenges and Opportunities in Assessing IT Payoff.

***Recommended Books*:**

- Sarv Devaraj and Rajiv Kohli, IT Payoff, ***The Measuring the Business Value of Information Technology Investments,*** Financial Times Press.
- United States General Accounting Office (GAO): ***Information Technology Investment Management (ITIM),*** Washington, D.C. USA
- Corrado, C.J. and Jordan B.D. ***Fundamentals of Investment Management***, McGraw-Hill, USA
- Schniederjans, M.J., Hamaker, J.L. and Ashlyn, M.S. ***Information Technology Investment,*** World Scientific**,** USA

MIS 4103: Project Management Information Systems

Course Objectives: In this course, students will identify effective project management practices and their related processes. They will examine the elements of sound project management and apply the generally recognized practices to successfully manage projects.

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- successfully utilize tools and techniques to demonstrate an effectively planned project
- analyze project flow, resources, time lines and budget requirements
- learn the networking techniques of a project, PERT and CPM methods

- analyze the social cost and social benefit after implementation of Project

Course Contents:

1. Managing change
2. Business strategy and information systems
3. The business case
4. The organizational framework
5. The programmed and project support office
6. Development lifecycles and approaches
7. The profile of a project
8. Project planning: understanding the work
9. Project planning: estimating
10. Project planning: scheduling and resurging
11. Monitoring progress
12. Exercising control
13. Reporting progress
14. Quality of Project
15. Risk management
16. Value engineering and value management
17. Selling the project
18. Managing stakeholders
19. Managing suppliers
20. Leadership in project
21. Performance management
22. Project teams
23. Managing the project climate
24. The project manager: Role and Responsibility
25. Developing your career
26. Bodies of knowledge and standards

***Recommended Books*:**

- James Cadle and Donald Yeates, ***'Project Management for Information Systems,*** Prentice-Hall, USA
- McManus, J. and Wood-Harper, T. ***Information Systems Project Management.*** Pearson education limited, London.
- Van Horn, R.L., Schwarzkoph, A.B. and Price, R.L. ***Information Systems Solution: A Project Approach,*** McGraw-Hill, USA

MIS 4104: Supply Chain Management

Course Objectives: This course has been designed for the students to -

- explain supply chain management, contrast it from operations management and propose the main performance drivers of supply chain performance
- assess the strategic role and impact of IT technologies on supply chain integration
- construct a model to generate forecasts for a company's products
- conceptualize the phenomenon of bull-whip effect in supply chains and propose the methods to mitigate its effect in supply chains
- analyze the inventory management methodologies and apply the existing models to propose the optimal order sizes

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- understand fundamental supply chain management concepts
- apply knowledge to evaluate and manage an effective supply chain
- understand the foundational role of logistics as it relates to transportation and warehousing
- align the management of a supply chain with corporate goals and strategies
- analyze and improve supply chain processes

Course Contents:

1. Supply Chain Management and Competitive Strategy
2. Customer Fulfillment Strategies
3. Process Thinking: SCM's Foundation
4. The New Product Development Process: Managing the Idea Infrastructure
5. The Order Fulfillment Process: Managing the Physical Flow Infrastructure
6. Scanning and Global Supply Chain Design
7. Supply Chain Mapping
8. Supply Chain Cost Management
9. Core Competencies and Outsourcing
10. Supply Chain Rationalization and Role Shifting
11. Relationship Management
12. Information Sharing
13. Performance Measurement
14. People Management: Bridge or Barrier to SCM
15. Collaborative Innovation

Recommended Book:

- Stanley E. Fawcett,Lisa M. Ellram, Jeffrey A. Ogden, ***'Supply Chain Management: From Vision to Implementation'*** Prentice Hall, USA
- Chopra, Supply chain management, Prentice Hall, USA

MIS 4105: Business Research

Course Objectives: This course aims to extend and deepen the understanding of different research approaches and methodologies in order to prepare students for their own research projects in their business discipline. This course will assist students in identifying, discussing and formulating a research problem, in selecting and applying appropriate research approaches and methods of inquiry (both quantitative or qualitative), and in presenting their results.

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- understand and appreciate the concept of Research in theory and practice
- identify the problem definition and understand the research process
- have a basic understanding of Data collection and its types in Research
- know the different sampling technique and the process
- understand the data analysis and the tools available for data analysis and the ways of interpretation
- understand the procedure of writing a research report

Course Contents:

1. Introduction to Business.
2. Thinking like a Researcher.
3. The Research Process: An Overview
4. Business Research Requests and Proposals.
5. Ethics in Business Research.
6. Research Design: An Overview.
7. Secondary Data Searches.
8. Qualitative Research.
9. Observation Studies.
10. Surveys.

Recommended Text: Business Research Methods by Donald R. Cooper and Pamela S. Schindler, Ninth Edition.

Reference Text:

1. Business research methods, Zikmund.
2. Research Methodology, Kottary.
3. Marketing Research, Malhotra.

MIS 4106: Enterprise Resource Planning (ERP)

Course Objectives: This course serves as an introduction to the world of Enterprise Resource Planning and also provides foundation for many disciplines in common business modern information systems. By studying both successful and unsuccessful implementation of Enterprise Resource Planning software, students will examine how and why an ERP system is implemented and how it is integrated with existing business processes. Students will get to know what the impact of ERP on the organization is and how change can be managed.

Learning Outcomes: Upon successful completion of this course, the students will be able to -

1. describe the concept of ERP and the ERP model, define key terms, explain the transition from MRP to ERP, and identify the levels of ERP maturity
2. explain how ERP is used to integrate business processes, define and analyze a process, create a process map and improve or simplify the process; apply the result to an ERP implementation
3. describe the elements of a value chain, and explain how core processes relate, identify how the organizational infrastructure supports core business processes, explain the effect of a new product launch on the three core business processes

COURSE CONTENT

Unit I

ERP Introduction, Benefits, Origin, Structure: Conceptual Model of ERP, the Evolution of ERP.

Unit II

Business Process Reengineering, Data ware Housing, Data Mining, Online Analytic Processing (OLAP), Product Life Cycle Management (PLM), LAP, Supply chain Management.

Unit III

ERP Marketplace and Marketplace Dynamics: Market Overview, Marketplace Dynamics, the Changing ERP Market. ERP- Functional Modules: Introduction, Functional Modules of ERP Software, Integration of ERP, Supply chain and Customer Relationship Applications.

Unit IV

ERP Implementation Basics, ERP Implementation Life Cycle, Role of SDLC/SSAD, Object Oriented Architecture, Consultants, Vendors and Employees.

Unit V

ERP & E-Commerce, Future Directives- in ERP, ERP and Internet, Critical success and failure factors, Integrating ERP into organizational culture. Using ERP tool: SAP or ORACLE format to case study.

TEXT BOOKS

1. Vinod Kumar Garg and Venkitakrishnan N K, "Enterprise Resource Planning Concepts and Practice", PHI.
2. Joseph A Brady, Ellen F Monk, Bret Wagner, "Concepts in Enterprise Resource Planning", Thompson Course Technology.

REFERENCE BOOKS

1. Vinod Kumar Garg and Venkitakrishnan N K, "Enterprise Resource Planning – A Concepts and Practice", PHI
2. Mary Summer, "Enterprise Resource Planning"- Pearson Education

MIS 4201: Knowledge Management

Course Objectives: The course will introduce the fundamentals of managing knowledge and intellectual capital, understanding some of the measurement issues, processes and cycles involved in their management and the specific issues in managing knowledge based workers and the organizations in which they work. The course then turns to the strategic issues of creating value from flows in intangible assets and organization structures to support knowledge and intellectual capital development leading to an examination of the management of knowledge intensive businesses.

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- use a framework and a clear language for knowledge management concepts
- describe how valuable individual, group and organizational knowledge is managed throughout the knowledge management cycle
- define the different knowledge types and explain how they are addressed by knowledge management
- describe the major roles and responsibilities in knowledge management implementations

Course Contents:

1. Introducing Knowledge Management.
2. The Nature of Knowledge.
3. Knowledge Management Solutions.
4. Organizational Impacts of Knowledge Management.
5. Factors Influencing Knowledge Management.
6. Knowledge Management Assessment of an Organization.
7. Technologies to Manage Knowledge: Artificial Intelligence.
8. Preserving and Applying Human Expertise: Knowledge-Based Systems.
9. Using Past History Explicitly as Knowledge: Case-Based Systems.
10. Knowledge Elicitation—Converting Tacit Knowledge to Explicit.

11. The Computer as a Medium for Sharing Knowledge.
12. Discovering New Knowledge—Data Mining.
13. Knowledge Discovery: Systems that Create Knowledge.
14. Knowledge Capture Systems: Systems that Preserve and Formalize Knowledge.
15. Knowledge Sharing Systems: Systems that Organize and Distribute Knowledge.
16. Knowledge Application Systems: Systems that Utilize Knowledge.

***Recommended Book*:**

Irma Becerra-Fernandez, Avelino Gonzalez, and Rajiv Sabherwal, ***'Knowledge Management and KM Software Package',*** Prentice Hall, USA

MIS 4202: Management of Telecommunications

Course objectives: This course is about telecommunication and information services. It is designed to teach the most fundamental principles of telecom and telecom market dynamics, and to discuss how the former interact with management and business practice. Students will study a number of case studies that will cover these principles in the context of real world situations that have been challenging practitioners in the main telecom and information companies around the world.

Learning outcomes: It will provide students with opportunities to -

- acquire a body of knowledge including recent developments in the area of telecommunications networks
- develop a fundamental understanding of the principles of telecommunications engineering
- develop an understanding of the basic principles underlying the planning and management of telecommunications networks
- obtain the mathematical and computational skills necessary for the solution of theoretical and practical problems
- demonstrate creativity and initiative in application of analytical, problem-solving and design skills to telecommunications engineering

Course contents:

2. An Introduction to Networking
3. Introductory Design and Hands-On Exercises
4. Network Standards
5. Physical Layer Propagation
6. Hands On: Cutting and Connectorizing UTP
7. Ethernet LANs
8. Wireless LANs
9. Telecommunications
10. VOIP, Call Center
11. ICX
12. TCP/IP Internetworking
13. Hands on: Packet Capture and Analysis with Win Dump and TCP Dump

14. Security, Firewall
15. Network Management
16. Network Management Utilities and Router Configuration
17. Networking Applications
18. BTRC policy and regulations

***Recommended Books*:**

- Raymond R. Panko**,** ***Business Data Networks and Telecommunications,*** Prentice Hall Published.

MIS 4203: Web Design Development

Course Objectives: This course offers a preliminary treatment of Web Design and Development concepts that yield visible and audible results through web pages. The course includes an introduction to the World Wide Web, industry standard browsers, effective site and page design, HTML, XHTML, CSS, XML, web graphics and client-side scripting. The course includes detailed discussion of design practices, such as the appropriate use of text and graphics, font and color selection, meta-tags, navigation techniques, media formats, and methods of enhancing the user experience.

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- read and write basic HTML and CSS code
- create a full functioning website
- understand how to upload websites to a web server
- familiar with different web design theories and understand web terminology

Course Contents:

Basics of Web Designing: how to design a website, creating different themes for different layouts, how to design the look and feel of a website, how to create and design banners, advertisements, etc., learning about the tools and techniques of web design covers using software applications

Multimedia and its Applications: multimedia and web sites, current multimedia capabilities, animation and the web, audio and the web, video and the web, goals of a multimedia site, multimedia site design basics, user interaction, selecting multimedia elements

Web Technologies: how does a website work?, web standards and w3c elements, domains and hosting, clients and server scripting languages, responsive web designing, components and structure of a website

Introduction to Web Design & Applications: web technology, the nature of the web, web design concepts, new technologies

Web Graphics: web site images, digital imaging concepts, raster vs. vector graphics, graphics applications, image file formats, creating and optimizing images, essential graphic design concepts

HTML: setting up a template, creating links and formatting texts, working with images and tables, how to put HTML on the internet, how to test HTML, basic styling in webpages, HTML forms user input, form elements,

CSS: Plain websites are boring, CSS basics, Putting CSS to work – setting colors, controlling page layout, common CSS properties, testing website style

JavaScript: static vs. dynamic webpages, value of JavaScript, JavaScript basics – fundamental syntax, putting JavaScript to work – using alerts and prompts, events, gathering additional user input and dynamically modifying HTML, testing JavaScript, form validation – complex form, additional features, processing

Bootstrap: what is bootstrap and why we use it?, downloading and using bootstrap, bootstrap grid system, understanding row and container classes, understanding col-xx-y classes, implementing different column layout, understanding offest, nested column concept, pull right and pull left, push and pull, clearing float in bootstrap, decorating images with bootstrap, responsive images, creating navigation in bootstrap in easy concept, adding custom styles to bootstrap navigation, dropdown, tabs and pills, functional tabs using JavaScript, functional tabs using only CSS, progress bar, creating carousel in bootstrap, creating modal dialogue in bootstrap

Ajax: what is ajax and why we use it?, ajax examples, how ajax works?, understanding and creating XMLHttpRequest object, request types and methods, understanding GET request in AJAX, understanding POST request in AJAX, onReadyStateChange function, handling response from server

JQuery: what is jQuery and why we use it?, using jQuery in website, solution - conditional script loading, jQuery syntax, jQuery selectors, mouse events, keyboard events, form events, document/window events, hide and show, getting content using jQuery, setting content using jQuery

Available software for graphic designing: adobe Dreamweaver, adobe flash, adobe Photoshop, WordPress

Web applications: client vs. server based application development, features in web applications – while loop, for loop, creating new features in web applications

Web site structure and hosting: hosting company, how to find and select a web hosting company, naming a website, website name registration, first look at a website control panel, web development tools, how to zip and unzip files

Web site publishing and maintenance: web site testing, web site publishing, web site hosting, web publishing with an FTP client, web publishing with expression web, web publishing with Dreamweaver, comparing web publishing tools, maintaining web sites, web server and web site security

Recommended Texts:

- Robin Nixon, **Learning PHP, MySQL, JavaScript, CSS & HTML5: A Step-by-Step Guide to Creating Dynamic Websites,** O'Reilly
- Eric Matthes, **Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics,** no starch press, San Francisco
- Jeanine Meyer, **The Essential Guide to HTML5: Using Games to Learn HTML5 and JavaScript,** Apress

- Chris Northwood, **The Full Stack Developer: Your Essential Guide to the Everyday Skills Expected of a Modern Full Stack Web Developer,** Apress
- Miguel Grinberg, **Flask Web Development: Developing Web Applications with Python,** O'Reilly, USA
- Website: https://www.w3schools.com/

MIS 4204: Decision Support System

Course Objectives: This course has been designed for the students to -

- review and clarify the fundamental terms, concepts and theories associated with Decision Support Systems, computerized decision aids, expert systems, group support systems and executive information systems.
- discuss and develop skills in the analysis, design and implementation of computerized decision Support Systems.
- discuss organizational and social implications of Decision Support Systems

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- perceive the characteristics of the decision models in real time
- locate and select appropriate data to support decision models
- analyze, investigate and evaluate a decision model
- know basic principles, methodologies and features in decision making models

Course contents:

1. Introduction to Decision Support Systems.
2. Decisions and Decision Makers.
3. Decision in the Organization.
4. Modeling Decision Processes.
5. Group Decision Support and Groupware Technologies.
6. Executive Information Systems.
7. Expert Systems and Artificial Intelligence.
8. Knowledge Engineering and Acquisition.
9. Machines That Can Learn.
10. The Data Warehouse.
11. Data Mining and Data Visualization.
12. Designing and Building the Data Warehouse.
13. The Systems Perspective of a DSS.
14. Designing and Building Decision Support Systems.
15. Implementing and Integrating Decision Support Systems.
16. Creative Decision Making and Problem Solving.
17. Intelligent Software Agents, Bots, Delegation, and Agency.
18. Decision Support in the Twenty-First Century.

Recommended Books:

- George M. Marakas. ***Decision Support Systems***, Prentice Hall, USA
- Efraim Turban, Jay E. Aronson and Ting Peng Liang, ***Decision Support Systems and Intelligent Systems,*** Prentice Hall, USA.

MIS 4205: Artificial Intelligence

Course Objectives: This course has been designed for the students to -

- explain what constitutes Artificial Intelligence and how to identify systems with Artificial Intelligence
- use classical Artificial Intelligence techniques, such as search algorithms, minimax algorithm, neural networks, tracking, and robot localization
- apply Artificial Intelligence techniques for problem solving
- explain the limitations of current Artificial Intelligence techniques

Learning Outcomes: Upon successful completion of this course, the students will be able to -

- explain the different perspectives and historical background of artificial intelligence
- describe different types and characteristics of intelligent agents
- differentiate the different types of searching strategies employed in goal based agents
- represent knowledge and implement inference techniques to provide solutions partially observable environments using propositional and first order logic

Course Contents:

1. **Introduction to AI:** AI definition, foundations of AI 5, history of AI, state of the art, benefits of AI, AI components, AI architecture, concept of intelligent agent, cybernetics, supercomputers aren't enough

2. **Applications of AI:** AI in society – service robots, social implications of AI, AI for transportation- uses of AI-driven car, AI for safety concerns, using AI to address medical needs, relying on AI to improve human interaction, uses of drones, AI in space research, how AI makes applications friendlier?, 10 substantial contribution of AI to society

3. **Problem-solving:** brain science and problem solving, solving problems by searching, constraint satisfaction problems, uninformed search, heuristic search, knowledge-rich search

4. **Knowledge, reasoning, and planning:** knowledge-based agents, logic, knowledge representation, automated planning, global vs. local planning, acting under uncertainty, Bayes' rule and its use, probabilistic reasoning and programming, making simple and complex decisions, multi-agent decision making

5. **Machine learning (ML):** why do we want ML?, forms of learning- deductive and inductive learning, how machines learn?, model selection and optimization, theory of learning, developing ML systems, deep learning, reinforcement learning

6. **Communicating, perceiving, and acting:** natural language processing (NLP), deep learning for NLP, computer vision - images, objects, and 3D world

7. **Robotics:** concepts of robots and artificial life, robot hardware, problems solved by robots, robotic perception, planning and control, planning uncertain movements, reinforcement learning in robots, humans vs. robots, alternative robotic frameworks, application domains

8. **Expert Systems (ES):** what are expert systems? uses of expert systems, architecture of an ES, types of ES, building and ES, limitations of ES, hybrid ES

9. **AI in Occupations:** 10 AI-safe occupations, adding new human occupations – living and working in space, creating cities in hostile environments (ocean, space-based habitats, moon-based resources), making human more efficient, fixing problems on a planetary scale

10. **Drawbacks of AI and philosophical underpinnings:** limits of AI, risks of AI, network scandal, connections aren't everything, can machines really think?, but is it intelligence, really?, does AI destroy jobs?, ethics of AI, morality, freedom, and emotions, the great philosophical divide, who is responsible?, relying on automation alone, AI can't eliminate safety issues, 10 ways in which AI has failed, virtual machines and the mind-body problem, singularity, what we should be worrying about?

Recommended Texts:

- Stuart J. Russell and Peter Norvig, **Artificial Intelligence: A Modern Approach,** Pearson, USA
- Wolfgang Ertel and Nathanael T. Black., **Introduction to Artificial Intelligence,** Springer Nature
- Janet Finlay and Alan Dix, **An Introduction to Artificial Intelligence,** CRC Press
- John Paul Mueller and Luca Massaron, **Artificial Intelligence for Dummies,** John Wiley & Sons, Inc., USA

MIS 4206: Strategic Management & Information Systems

Course Objectives: The objectives of this course are:

- To know about the core concepts and analytical tools of strategic management.
- To develop strategic vision of an organization
- To learn about the process of designing, executing, evaluating the strategies

Learning Outcomes: Upon successful completion of this course, the students will be able to:

- explain the components of Information Systems and how they support organizational strategy to achieve competitive advantage
- develop an understanding of hardware and software on which different information systems are built
- develop insights into management of data, distinguish between Data, Information and Knowledge and manage data using Data Bases, Data Base Management Systems, Data Warehouses and Data Marts

- describe components of computer networks and how computer networks are built

Course Contents:

1. Strategic Management and Planting Analytical Tools in Strategic Management.
2. Strategy Planning for Information Systems.
3. The Information Systems Strategic Planning Toolkit Frameworks for Integrating IS.
4. Information Value and IS Investment, Business Competition and Organization.
5. Resource Management: IS Management and the IS Profession Managing User.
6. Controlled Computing Selection and Acquisition Responsible IS Management.

Recommended Books:

- Arthur A. Thompson, Alonzo J. Strickland, ***Strategic Management : Concept and Cases***, McGraw-Hill
- Wendy Robson, ***'Strategic Management and Information Systems: An Integrated Approach',*** FT. Prentice Hall, London

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Internship/Research Project 100