

6th Semester

CSE-3201: Mathematical Analysis for Computer Science [3.0 credits, 45 Hours Lecture]

Recurrent problems; Manipulation of sums; Number theory; Special numbers; Generating functions.

Random variables; Stochastic process; Markov chains: discrete parameter, continuous parameter, birth-death process; Queuing models: birth-death model, Markovian model, open and closed queuing network; Application of queuing models.

CSE-3203: Theory of Computation [3.0 credits, 45 Hours Lecture]

Language theory; Finite automata: deterministic finite automata, nondeterministic finite automata, equivalence and conversion of deterministic and nondeterministic finite automata, pushdown automata; Context free languages; Context free grammars; Turing Machines: basic machines, configuration, computing with Turing machines, combining Turing machines; Undecidability.

CSE-3205: Computer Networks [3.0 credits, 45 Hours Lecture]

Protocol hierarchies; Data link control: HDLC; DLL in Internet; DLL of ATM; LAN Protocols: Standards IEEE 802.*; Hubs, Bridges, and Switches, FDDI, Fast Ethernet; Routing algorithm; Congestion control; Internetworking, WAN; Fragmentation; Firewalls; IPV4, IPV6, ARP, RARP, Mobile IP, Network layer of ATM; Transport protocols; Transmission control protocol: connection management, transmission policy, congestion control, timer management; UDP; AAL of ATM; Network security: Cryptography, DES, IDEA, public key algorithm; Authentication; Digital signatures; Gigabit Ethernet; Domain Name

System: Name servers; Email and its privacy; SNMP; HTTP; World Wide Web.

CSE-3206: Computer Networks Lab. [1.5 credits, 45 Hours Lecture]

Laboratory works based on CSE-3205.

CSE-3207: Microprocessors and Microcontrollers [3.0 credits, 45 Hours Lecture]

Introduction to 8-bit, 16-bit, and 32-bit microprocessors: architecture, addressing modes, instruction set, interrupts, multi-tasking and virtual memory; Memory interface; Bus interface; Arithmetic co-processor; Microcontrollers; Integrating microprocessor with interfacing chips.

CSE-3208: Assembly Language, Microprocessors and Microcontrollers Lab. [1.5 credits, 45 Hours Lecture]

Assembly Language : Hardware architecture and software architecture; Instruction types and their formats; Assembly program format; Assembly process; Interrupts and system services; Addressing methods; High level control structure formation; Use of subroutines and macros; Numeric processing and string processing; Concurrent processes and high level linking; Disk geometry, file system and file I/O handling.

And laboratory works based on CSE-3207.

HUM-3209: Economics [2.0 credits, 30 Hours Lecture]

Definition of Economics; Economics and engineering; Principles of

economics.

Micro-Economics: Introduction to various economic systems “capitalist, command and mixed economy; Fundamental economic problems and the mechanism through which these problems are solved; Theory of demand and supply and their elasticities; Theory of consumer behavior; Cardinal and ordinal approaches of utility analysis; Price determination; Nature of an economic theory; Applicability of economic theories to the problems of developing countries; Indifference curve techniques; Theory of production, production function, types of productivity; Rational region of production of an engineering firm; Concepts of market and market structure; Cost analysis and cost function; Small scale production and large scale production; Optimization; Theory of distribution; Use of derivative in economics: maximization and minimization of economic functions, relationship among total, marginal and average concepts.

Macro-economics: Savings; investment, employment; National income analysis; Inflation; Monetary policy; Fiscal policy and trade policy with reference to Bangladesh; Economics of development and planning.

HUM-3211: Professional Ethics and Industrial Management [3.0 credits; 45 hours]

Professional Ethics: Human Values; Engineering Ethics and Theories; Social Ethics and Engineering as Social Experimentation; Safety, Responsibilities and Rights of Engineers; Global Issues and Engineers as Managers, Consultants and Leaders.

Industrial Management: Introduction, evolution, management function, organization and environment.

Organization: Theory and structure; Coordination; Span of control; Authority delegation; Groups; Committee and task force; Manpower planning.

Personnel Management: Scope; Importance; Need hierarchy;

Motivation; Job redesign; Leadership; Participative management; Training; Performance appraisal; Wages and incentives; Informal groups; Organizational change and conflict.

Cost and Financial Management: Elements of costs of products depreciation; Break-even analysis; Investment analysis; Benefit cost analysis.

Management Accounting: Cost planning and control; Budget and budgetary control; Development planning process.

Marketing Management: Concepts; Strategy; Sales promotion; Patent laws.

Technology Management: Management of innovation and changes; Technology life cycle; Case studies.



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